



**Draft Decision**

**QR Network's 2010 DAU - Tariffs and  
Schedule F**

**June 2010**

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**PREAMBLE**

This draft decision responds to pricing aspects of a draft access undertaking (DAU) submitted by QR Network (QRN) in April 2010. That DAU had been prepared in response to the Authority's December 2009 draft decision on QRN's earlier 2009 DAU.

The current decision proposes tariff increases of around 27% in central Queensland, compared to the:

- (a) 53% increase proposed by QRN in its 2009 DAU;
- (b) 26% increase proposed by the Authority in its December 2009 draft decision; and
- (c) 39% increase proposed by QRN in its 2010 DAU.

These tariff increases are largely a result of increases in network costs out-stripping volume increases. A further 6 percentage point increase is required to recoup QRN's past under-recovery of regulated revenues, taking the total increase to 33%.

The key differences between the increases proposed in this decision and those proposed in QRN's 2010 DAU relate to weighted average cost of capital (WACC) and maintenance costs.

With respect to WACC, the Authority has maintained its December 2009 draft decision including an equity beta of 0.8 and use of the 5-year Commonwealth Government bond as the benchmark for the cost of debt and equity. However, the Authority has allowed for costs that an efficient benchmark firm would incur in managing refinancing risk. This increases the WACC to 9.96% from the 9.41% proposed in December 2009. This compares with the 10.82% currently proposed by QRN and the 8.43% approved for the 2008 access undertaking.

With respect to maintenance costs, the Authority has not accepted that QRN should be able to generate additional returns by entering into un-tendered arrangements with related parties. The Authority has allowed for a program of ballast cleaning consistent with that proposed in QRN's 2008 DAU. However, it has decided that users of the network should not pay the full amount of these costs until QRN can demonstrate that its past and future ballast fouling and cleaning regimes are efficient.

QRN's 2010 DAU incorporates many of the changes proposed in the Authority's December 2009 draft decision for managing regulated coal tariffs and revenues. However QRN has not accepted the Authority's proposed treatment of train paths that QRN fails to provide. In the current decision, the Authority reiterates its December 2009 draft decision that there should be an alignment between how take or pay revenue is treated in standard access agreements and in the revenue cap.

The Authority accepts QRN's proposed 40% increase in western system coal tariffs, which are consistent with those proposed by the Authority in its December 2009 draft decision.

*Way Forward*

QR Network's 2010 DAU addressed non-pricing, as well as pricing issues. The Authority will deal with the non-pricing issues in a subsequent draft decision in July 2010. It reserves the right to require consequential amendments to the schedule F clauses this draft decision indicates the Authority is currently minded to accept.

The Authority has adopted this two-part approach to allow QRN to accrue the proposed new tariffs in 2009-10 by submitting an amendment to its existing 2008 undertaking. Stakeholders will have an opportunity to comment on any amendment to the 2008 undertaking or on any subsequently resubmitted DAU. Provided those draft undertakings are consistent with this decision, the Authority will not be providing a lengthy consultation period as stakeholders have already had a significant opportunity to comment on pricing matters.

This Preamble should not be read as a substitute for the detail contained in this draft decision. This draft decision should also be read in conjunction with the Authority's December 2009 draft decision.

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**GLOSSARY**

2008 undertaking	QR Network's 2008 undertaking
ABS	Australian Bureau of Statistics
ACCC	Australian Competition and Consumer Commission
AER	Australian Energy Regulator
ARR	Annual Revenue Requirement
ARTC	Australian Rail Track Corporation
ASX	Australian Securities Exchange
ASX-AOI	Australian Securities Exchange Accumulation All Ordinaries Index
AWOTE	Average Weekly Ordinary Time Earnings
bp	basis point
BRTT	Below-rail transit time
CAPM	Capital Asset Pricing Model
CCC	Common cost contribution
CPI	Consumer price index
CQCR	Central Queensland coal region
DAU	Draft access undertaking
DAAU	Draft amending access undertaking
DBCT	Dalrymple Bay coal terminal
DORC	Depreciated optimised replacement cost
EBITDA	Earnings before interest, tax, depreciation and amortisation
egtk	Electric gross tonne kilometre
ERA	Economic Regulation Authority
GAPE	Goonyella-Abbot Point Expansion
GFC	Global Financial Crisis
gtk	gross tonne kilometre
HVCN	Hunter Valley coal network

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IAP	Indicative access proposal
LPI	Labour Price Index
MCI	Maintenance cost index
MRP	Market risk premium
mtpa	Million tonnes per annum
NPV	Net present value
PwC	PricewaterhouseCoopers
QCA Act	Queensland Competition Authority Act 1997
QR	Queensland Rail, or QR Ltd
QRC	Queensland Resources Council
QRNA	QR Network Access
QRN	QR Network
QR Services	Unless otherwise specified, refers both to QR Services, and to QR Ltd's Infrastructure Services Group, before the division was renamed QR Services
QTC	Queensland Treasury Corporation
RAB	Regulatory asset base
RTP	Reference train path
SBR	Surat Basin railway
SWR	System-wide and regional
TI Act	Transport Infrastructure Act 1994
WACC	Weighted average cost of capital
WICT	Wiggins Island coal terminal

## 1. RULES FOR SETTING COAL TARIFFS (SCHEDULE F)

*Schedule F of QR Network's 2010 DAU defines the characteristics of the reference trains, and the associated reference tariffs, for coal-carrying train services on the central Queensland and western systems.*

*QR Network has agreed with most of the changes to schedule F that the Authority required in its December 2009 draft decision on its 2009 DAU, including adopting measures to simplify the revenue cap review process, and retaining separate electric infrastructure tariffs on the Goonyella and Blackwater systems. However, it has rejected the Authority's proposed approach for recognising non-performance due to breaches in the revenue cap. QR Network has also proposed changes to the maintenance cost index (MCI) and introduced a mechanism for collecting or repaying monies where tariffs are introduced retrospectively.*

*The Authority proposes to approve most of the changes proposed by QR Network, with some amendments. However, it considers that QR Network's proposed changes to the breaches provisions are not appropriate.*

### 1.1 Introduction

Schedule F of QR Network's 2010 DAU includes reference tariffs for coal carrying train services in central Queensland and on the western system. Schedule F also includes details on the revenue capping mechanism, within which the central Queensland coal tariffs are determined, as well as mechanisms to adjust the tariffs over the term of the undertaking, and to establish tariffs for new coal services.

In its 2009 DAU, QR Network proposed a number of changes to schedule F which, *inter alia*, sought to:

- (a) simplify the tariff structure by eliminating clusters for non-electric infrastructure and amalgamating the electric infrastructure tariffs in the Blackwater and Goonyella systems;
- (b) introduce measures to further protect itself from risk;
- (c) remove breach and incentive mechanisms from the undertaking; and
- (d) introduce greater detail on a range of matters, including how cross-system traffics should be priced.

The Authority's December 2009 draft decision accepted the major elements of the measures QR Network proposed to simplify the tariff structure and reduce its level of risk. However, it required QR Network to make several changes to its proposals including streamlining its process for annual reviews of the revenue cap, re-introducing breach and incentive mechanisms and review events, and further specifying the rules for cross-system traffics.

The 2010 DAU retains QR Network's proposals that were approved by the Authority to combine the cluster tariffs for the Goonyella and Blackwater systems into single tariffs for each system. QR Network has also implemented many of the Authority's proposals in its December 2009 draft decision, including:

- (a) specifying that cross-system tariffs be calculated from the same components used for reference train services;
- (b) changing many of the *ex ante* adjustments to costs in the revenue cap review process to *ex post* adjustments; and

- (c) reinstating review events in the undertaking to cover changes in maintenance scope, self-insurance implementation and catastrophic damage.

This decision does not discuss these aspects of the 2010 DAU further as they are consistent with the Authority's December 2009 draft decision and stakeholders have not commented on them in either their February 2010 or May 2010 submissions.

However, there are specific issues to be addressed in relation to other aspects of schedule F as QR Network has:

- (a) amended the Authority's drafting of the rules for cross-system traffic tariffs (section 1.2);
- (b) accepted the Authority's proposal not to amalgamate the electric infrastructure (AT<sub>5</sub>) tariffs for Goonyella and Blackwater, although some stakeholders have raised concerns about this decision (section 1.3);
- (c) rejected the Authority's threshold of 10% on an origin-destination basis for breach provisions (section 1.5);
- (d) modified the Authority's proposal for establishing a performance incentive mechanism, (section 1.6);
- (e) rejected the Authority's requirement that take-or-pay rules should provide for transfers of obligations within a mining company's portfolio (section 1.7);
- (f) rejected the Authority's requirement that total actual revenue be related to the monies QR Network is entitled to collect (section 1.8);
- (g) modified the implementation of the maintenance cost index (MCI) (section 1.10);
- (h) modified the proposed treatment of maintenance costs for new spurs and introduced a review event for increases in coal services to the Minerva mine (sections 1.11-1.12); and
- (i) included a new process for collecting or repaying monies where tariffs are introduced retrospectively (e.g. the under-recovery of 2009-10 revenues) (section 1.13).

## 1.2 Treatment of Cross-system Traffics

At present, there are four different coal rail systems in central Queensland: Blackwater, Goonyella, Moura and Newlands. Reference tariffs within each system are set to recover a maximum system allowable revenue (or revenue cap) for each of these systems.

To date, tariffs have been structured on the assumption that a mine will export its coal through the port which requires the shortest or cheapest rail journey. However, this assumption does not reflect actual practice in all cases. Mines in the Blackwater and Goonyella systems are increasingly taking advantage of the connection between the two networks to make use of port capacity where it is available.

QR Network's 2009 DAU introduced greater guidance on the proposed charging arrangements to apply to such cross-system services (QR Network, sub. no. 7: 9-10). It set out specific rules for determining how the cross-system price would be calculated for each of the AT<sub>1</sub> to AT<sub>5</sub> tariff components.

In its December 2009 draft decision, the Authority found that the cross-system rules needed to be expanded to provide greater guidance where a service was required to pay a system premium

to cover its incremental costs and where cross-system traffic revenues were allocated amongst the various system revenue caps. Specifically, the Authority proposed that:

- (a) where neither the origin or destination system's tariff was sufficient to cover the incremental costs plus a common cost contribution (CCC), the train service would pay a premium, on a \$/ntk basis, that reflected the CCC for the destination system plus a CCC for the portion of the origin system mainline used by the service plus its incremental costs; and
- (b) revenues from cross-system traffics would be allocated between the systems such that:
  - (i) the minimum CCC for the destination system was allocated to the destination system's allowable revenue; and
  - (ii) the remainder of the revenue was allocated to the origin system.

#### *QR Network's 2010 DAU*

In its 2010 DAU, QR Network has included amendments to the cross-system tariff rules which it said had the same effect as the changes proposed by the Authority in its December 2009 draft decision, although several clauses have been moved or redrafted.

#### *Stakeholders' Comments*

Asciano was concerned that the allocation of costs between systems might not be cost-reflective, and could result in QR Network over-recovering the costs that could be reasonably attributed to a service. It said that, in some instances, QR Network was allowed to recover the higher of the incremental cost or the allocated cost – 'Asciano would prefer that one methodology be used consistently rather than allow the higher of allocated cost or incremental cost' (Asciano, sub. no. 78: 25-26).

#### *Authority's Analysis and Draft Decision*

The Authority notes Asciano's concern about customers paying the higher of allocated or incremental cost for cross-system services. The requirement in clause 4.1.4 of schedule F, part B is consistent with QR Network's proposed treatment of common cost contribution for single-system services in clause 4.1.2, in that access holders whose tariffs do not cover incremental costs will need to pay a premium to ensure they are making a sufficient contribution. This requirement does not affect the revenue cap approved for QR Network, but serves to allocate payment of the recovered revenue among customers on an equitable basis. The Authority considers QR Network's proposed treatment is reasonable.

The Authority has also reviewed QR Network's revised drafting of the cross-system tariff rules and has concluded that the provisions in sections 4.1 and 4.2 of schedule F, part B have the same effect as those specified by the Authority in the December 2009 draft decision.

Accordingly, the Authority approves the treatment of cross-system tariffs proposed by QR Network in the 2010 DAU.

### **1.3 Pricing for Electric Infrastructure**

Electric traction infrastructure exists on all of the Goonyella system and on significant parts of the Blackwater system. Goonyella and Blackwater each have different system-wide tariffs for

electric infrastructure. The AT<sub>5</sub> tariff is calculated by dividing the costs associated with each system's electric infrastructure by its expected demand<sup>1</sup>.

QR Network is undertaking a large capital investment programme on the Blackwater system, which is expected to increase the system's electric asset base by at least 200% over the term of the 2010 undertaking. As this is happening with a lower increase in demand (42% on an egtk basis), the electric charges on the Blackwater system are anticipated to increase significantly.

In support of its 2009 DAU, QR Network argued that such an increase in the Blackwater tariff was inequitable, and the pricing structure for electric infrastructure was inefficient. QR Network argued that the Goonyella users secured a 'free-rider' benefit as 'the Goonyella system was currently only able to operate as a 100% electric system because the Blackwater system was also electrified' and Blackwater electric trains could be transferred to Goonyella to maintain Goonyella as electric-only (QR Network, sub. no. 8: 7).

QR Network therefore proposed combining the asset bases for the two systems, and calculating a single tariff that applied on both systems. QR Network's proposed amalgamated AT<sub>5</sub> tariff was \$2.37/000egtk, which compared to the separate tariffs that could be as high as \$4.25/000egtk in Blackwater and \$1.70/000egtk in Goonyella.

In its December 2009 draft decision, the Authority indicated that it was difficult to accept QR Network's arguments that the changes in the Blackwater and Goonyella AT<sub>5</sub> tariffs were so significant they could result in the stranding of the new investments in the Blackwater system's electric infrastructure – as QR Network had separately argued that investments in electric locomotives and in the Blackwater electric infrastructure was the most efficient option. The Authority concluded that, as QR Network had not made a convincing argument in support of a single Blackwater and Goonyella system AT<sub>5</sub> tariff, it would reject the proposal.

QR National said in response to the Authority's December 2009 draft decision that not combining the Goonyella and Blackwater electric infrastructure tariffs would have a negative impact on network performance and efficiency in the:

- (a) short-term – as it was possible that its electric fleet could be stranded as it purchased electric trains on the basis of QR Network's planned full electrification of the Blackwater system. It had also written contracts that were not flexible enough to allow for a change in below-rail pricing for diesel-operated services; and
- (b) long-term – as achieving any real benefits to operators from QR Network's new investment in the Blackwater system's electric capacity was threatened. Given the significant increase in the Blackwater system's AT<sub>5</sub> tariff, users had an incentive to request diesel trains in the short term when the long-term incentive for all customers and operators was a more efficient electrified system; achieved by maximising the utilisation of the Blackwater electric system and encouraging operators to further invest in electric trains.

QR National argued the single price across both systems was more appropriate because it did not: make electric consists unviable in Goonyella; threaten long-term electric investment in either system; or endanger the long-term goal of efficiency in the Blackwater system and future expansion of the Goonyella system's electric infrastructure (QR National, sub no. 50: 4-5).

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<sup>1</sup> Demand for electric trains is measured in electric gross tone kilometers (egtk), which are the gross weight of an electric train multiplied by the kilometers it travels.

### *QR Network's Proposal*

QR Network said in the 2010 DAU that it accepted the Authority's decision, although it would like to revisit the issue in the next undertaking period.

### *Authority's Analysis and Draft Decision*

The Authority accepts that there may be some good reasons for combining the Goonyella and Blackwater electric infrastructure tariffs into a single tariff that applies across both systems. However, the Authority is yet to receive arguments that convince it that this is the case.

The Authority reiterates its comments in the December 2009 draft decision that it seems incongruous that the purchase of electric locomotives and the expansion of the electric infrastructure could be viewed as the most efficient option yet the subsequent prices be seen as threatening the viability of electric train operations. This is particularly the case given that the Authority understands that the expansion of the electric infrastructure in central Queensland was a joint decision between the above- and below-rail operators, based on an assessment of the best outcome.

The Authority therefore accepts as reasonable QR Network's decision not to amalgamate the electric infrastructure tariffs at this time but to reconsider this matter in the future.

## **1.4 Revenue Cap**

A revenue cap mechanism is intended to ensure that the regulated monopoly makes a full return on its capital base and, therefore, has an incentive to invest in maintaining and expanding the asset. In doing so, a revenue cap transfers the risk of volume variability from the asset owner to users.

The Authority approved a revenue cap mechanism in June 2007, replacing the price cap which was used to govern tariffs in the 2001 and 2006 undertakings.

The Authority ensured the revenue cap mechanism retained some performance incentives by allowing QR Network to retain 2% over the revenue cap limit if QR Network could demonstrate that higher-than-anticipated volumes were a result of activities associated with improving the performance of the whole coal supply chain.

The Authority also provided for QR Network to not fully recover its revenue cap in the event of the track being unavailable due to QR Network's own negligence or default (subject to a materiality test).

QR Network proposed in its 2009 DAU to retain the revenue cap framework. QR Network said, however, that it wanted an incentive framework that was less reliant on 'the QCA arbitrating on the extent of any upside and downside' (QR Network, sub. no. 6: 3). On that basis, it removed the upside and downside incentive clauses from the 2009 DAU. QR Network argued it would still be subject to incentives and penalties because:

- (a) its AT<sub>1</sub> incremental maintenance allowance revenues remained outside of the revenue cap and were linked to volume changes; and
- (b) it did not propose to alter an access holder's contractual rights to claim damages for breach of an access agreement, or for those damages to be adjusted against the revenue cap calculations (QR Network, sub. no. 6: 3).

In its December 2009 draft decision, the Authority approved extending the revenue cap form of regulation into the new undertaking period. The Authority's position on the breach mechanism is discussed below in section 1.5, while performance incentives are discussed in section 1.6.

## 1.5 Breach Mechanism

The Authority approved a breach mechanism as part of the 2007 revenue cap amendments to ensure that QR Network did not use the revenue cap mechanism to recover access charges to which it was not entitled under an access agreement. QR Network proposed to delete the breach provisions in the 2009 DAU.

In its December 2009 draft decision, the Authority sought to restore the breach provisions and, in doing so, acknowledged that the existing threshold mechanism was deficient in that it was unlikely ever to be breached. The threshold mechanism was triggered when an event resulted in the disruption of more than 10% of train paths in an access agreement. However, most coal train services in central Queensland at that time had been amalgamated into a single access agreement between QR Network and QR National.

With a view to ensuring that the breach mechanism better reflected the objectives of a similar arrangement in the access agreements, the Authority proposed that the 10% threshold be applied over each origin-destination pair.

### *QR Network's 2010 DAU*

In the 2010 DAU, QR Network rejected the Authority's proposed breach mechanism. It proposed instead to have a breach provision which applied across each coal system, with a materiality threshold of 4% of services in a year. It said it intended the provision to apply 'until the Draft Incentive Mechanism is approved'. It said it had reinstated the upward increment from the 2008 undertaking 'to introduce symmetry into the framework' (QR Network, sub. no. 70: 6).

QR Network also rejected the Authority's proposal in its December 2009 draft decision to include the breach provisions in the revenue cap section of schedule F. Instead, it proposed to move them to a new 'calculation of increment' section in clause 3.3.1(a) of schedule F, part B.

### *Stakeholders' Comments*

Xstrata Coal rejected both the 10% breach test in the 2008 access undertaking, and the 4% system-wide test proposed by QR Network in the 2010 DAU. It proposed that the materiality test be removed from schedule F of the 2010 DAU and that, where QR Network fails to provide services as a result of QR Network cause<sup>2</sup>, customers should be relieved of their take-or-pay obligations and the revenue cap should be correspondingly adjusted so that QR Network cannot recover any lost revenue from other customers.

In support of this position, Xstrata stated that the current arrangements had an adverse impact on the coal industry because, *inter alia*, QR Network: did not bear financial penalties for continual underperformance against contracts; was not incentivised to ensure capacity analysis was robust; and did not have an incentive to invest to ensure delivery of capacity.

It said financial incentives had been put in place in the Hunter Valley, where the Australian Rail Track Corporation (ARTC) was required to rebate take or pay for services not delivered due to an ARTC cause. 'This ensures that, when ARTC contracts with its customers, it ensures sufficient capacity exists to deliver against contract' (Xstrata, sub. no. 77: 22-23).

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<sup>2</sup> QR cause includes maintenance possessions, other QR Network actions, and force majeure events and not just breaches or negligence.

ARTC said it had proposed a ‘system-wide true up test’, which provided for rebates of take-or-pay revenue in the Hunter Valley where entitlements were not available due to the fault of ARTC, with the rebates not deducted from ARTC’s assumed revenue for regulatory assessments.

*ARTC considers that the application of the system wide true up test places a powerful and far reaching incentive (although framed as a deterrent) to ARTC’s conduct in performing its contractual obligations (ARTC, sub. no. 48: 6-7).*

#### *Authority’s Analysis and Draft Decision*

The breach provisions were introduced at the same time as the revenue cap so as to ensure QR Network did not recover through the revenue cap mechanism any income which it should have forgone under the breach or non-performance conditions in access contracts. It would not be appropriate for the remaining customers or access holders in a system to pay higher tariffs in order to provide QR Network with revenue to make up the difference.

The Authority therefore considers that its proposal in the December 2009 draft decision was reasonable as it allowed QR Network to collect its full contracted revenue under its take-or-pay provisions, even if by its own negligence it failed to provide as much as 10% of train paths. The Authority accepted this concession because the 10% threshold was already in access agreements. In this regard, the standard access agreements have a materiality threshold whereby QR Network is only liable where more than 10% of train services under a contract fail to operate due to QR Network breach or negligence<sup>3</sup>.

The proposal by Xstrata effectively requires that the standard access agreements be amended to make the take-or-pay provisions more stringent on QR Network than at present. Otherwise, the revenue cap adjustments would be more stringent than those in the standard access agreements – i.e. the revenue cap adjustments would be more stringent than the existing contractual arrangements. This is a quite separate issue<sup>4</sup> from appropriate breach provisions to operate in conjunction with the current contractual arrangements.

The Authority considers that the alignment of the revenue cap with the contractual arrangements with users is important, as QR Network should not receive more revenue via the revenue cap than it is entitled to receive under its contractual arrangements with users; nor less revenue.

QR Network’s proposals do not have the appropriate alignment, nor do Xstrata’s.

On that basis, the Authority sees no reason to amend its proposal in the December 2009 draft decision.

QR Network’s proposed relocation of the breach provisions is also problematic. The consequence of QR Network’s drafting is that the breach and negligence threshold and test are only relevant to calculation of an increment to which QR Network may be entitled. This is at odds with the spirit and principle of the Authority’s drafting in its December 2009 draft decision, which includes the test in the revenue cap adjustment.

The Authority considers that, since the breach provision is solely aimed at ensuring the revenue cap adjustment process does not allow QR Network to collect revenue to which it is not entitled, the relevant clauses should be part of the revenue cap review section of schedule F, part B.

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<sup>3</sup> Breach or negligence is a subset of QR Network Cause. It excludes maintenance possessions, other QR Network actions, and force majeure events.

<sup>4</sup> Standard access arrangements are being considered in the forthcoming Draft Decision on non-pricing issues.

The Authority therefore requires that QR Network amend the 2010 DAU to restore the breach provisions to clauses 3.2.3 and 3.2.5 of schedule F, part B, and have them apply over each origin-destination pair, as proposed in its December 2009 draft decision, and confirmed in decision 1.1 of this draft decision.

The Authority accepts that any incentive regime should be symmetric, such that any potential downward increments are offset by equivalent potential rewards. However it does not accept that the breach provision required by the Authority is relevant when considering whether QR Network's incentives are symmetric.

The breach provision has the effect of preventing QR Network from receiving a benefit to which it should not be entitled, and is reasonable without any offsetting upward increment.

At the same time, the Authority favours the principle of having a workable incentive regime, which provides for QR Network to be rewarded for initiatives to better serve its customers. This is discussed below in section 1.6.

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### Decision 1.1

The Authority requires that QR Network retain the breach provisions in the revenue cap review process, by deleting clause 3.3.1(a) from schedule F, part B, and adding the following clauses 3.2.3(d) and 3.2.5 (c):

**3.2.3(d) any revenue from AT2-4 that QR Network would have been entitled to earn under an Access Agreement in relation to the applicable Individual Coal System during the relevant Year, but for QR Network's breach of that Access Agreement or negligence in the provision of Below Rail Services to the extent that such events of breach or negligence resulted in the non-provision of 10% or more of the total number of Train Services for any single origin-destination pair during the relevant year**

...

**3.2.5(c) any revenue from AT5 that QR Network would have been entitled to earn under an Access Agreement in relation to the Central Queensland Coal Region during the relevant year but for QR Network's breach of that Access Agreement or negligence in the provision of Below Rail Services to the extent that such events of breach or negligence resulted in the non-provision of 10% or more of the total number of Train Services for any single origin-destination pair during the relevant Year**

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## 1.6 Performance Incentive

When the revenue cap was introduced in 2007, the Authority was concerned that, while the new form of regulation created revenue certainty and encouraged investment, it removed some of the incentives for QR Network to continually improve performance and focus on customer needs.

The Authority therefore approved an arrangement whereby QR Network could retain up to 2% of revenue above the revenue cap limit if it could demonstrate that above-forecast performance was due to its role in lifting the performance of the coal supply chain.

### *Background*

QR Network removed this incentive provision from the 2009 DAU on the basis that it was exposed to supply chain performance and faced 'a reasonable degree of volume risk' because the AT<sub>i</sub> incremental maintenance component of the tariff was excluded from the revenue cap.

In its December 2009 draft decision, the Authority recognised the upward increment only rewarded efforts by QR Network to improve supply chain operations if volumes increased beyond forecast levels. This meant QR Network could take measures to improve system performance, which might justify collecting more than the revenue cap, but be unable to benefit as causes beyond its control had reduced volumes.

The Authority therefore proposed that QR Network be given six months after the approval of the new undertaking to develop a workable incentive mechanism and that, if QR Network was unable to do so, the Authority would have the option of developing an incentive mechanism.

In introducing this requirement, the Authority did not specify the terms of what an incentive mechanism should look like. This was in part because the Authority understood that QR Network and other participants in the coal supply chain, in particular the Dalrymple Bay coal supply chain, had already undertaken some initiatives to improve the performance of the coal supply chain and the Authority had not yet had the benefit of understanding the outcomes of those processes.

#### *QR Network's 2010 DAU*

In the 2010 DAU, QR Network included a process for establishing an incentive mechanism after the new undertaking is approved, and reinstated the 2% upward increment provision from the 2008 undertaking.

QR Network said it already had sufficient incentives to maximise coal system output, but accepted stakeholder concerns that its 'management should have a more direct incentive structure to meet the needs and aspirations of its Customers' (QR Network, sub. no. 70: 6).

The 2010 DAU provided QR Network with 12 months to develop an appropriate incentive mechanism that covers both operational changes and investments that promote efficient operation of a coal supply chain. It also restricted any incentive mechanism such that it would:

- (a) have an equal probability that QR Network could obtain a positive or negative incentive; and
- (b) not potentially reduce system allowable revenue by more than 5%.

#### *Stakeholders' Comments*

ARTC supported a 2% upward increment for QR Network if it could demonstrate that higher volumes were a result of activities that improved supply chain performance.

*ARTC considers the problems with the approach raised by the QCA are not insurmountable. Generally coal chain improvements are (or could be) well documented in terms of participants and outcomes. As such, unrelated volume effects can be discounted.*

Xstrata Coal said it would not support discussions of an incentive framework that provided QR Network with rewards above the revenue cap until QR Network was delivering its contracted tonnes, and that might take more than 12 months (Xstrata, sub. no. 77: 22-23).

#### *Authority's Analysis and Draft Decision*

A mechanism that incentivises QR Network to improve its performance, and that of the whole coal supply chain, is consistent with the objectives of Part 5 of the *Queensland Competition Authority Act 1997* (the QCA Act) that makes specific reference to an access regime promoting the efficient 'operation of, use of and investment in' infrastructure, and effective upstream and downstream competition.

In submitting the 2010 DAU, QR Network has proposed to develop an incentive mechanism based on key performance indicators and argued that should 'provide QR Network with an incentive to operate, and invest in, the Rail Infrastructure efficiently and to do so in a way that promotes efficiency of a coal supply chain' (QR Network, sub no. 67: 9). This is consistent with the objectives in the Act, and is reasonable.

The Authority notes Xstrata Coal's arguments that it is not appropriate for an incentive regime that includes rewards for outperformance to be put in place until QR Network is meeting its contractual commitments. This underscores the point that establishing an effective performance regime will be complex as incentive payments should apply where there is evidence that QR Network has outperformed its contractual obligations.

However, the Authority finds it is appropriate to have a positive incentive in place, even before QR Network is operating effectively enough to secure that incentive, and that 12 months is enough time to consider what mechanism is suitable.

The Authority is therefore prepared to accept QR Network's proposed deadline of 12 months after the new undertaking is approved, which is an increase from the six-month deadline proposed by the Authority in its December 2009 draft decision.

The Authority is also prepared to accept QR Network's proposal that the upward and downward incentives should be symmetric and that they should not exceed 5% of system allowable revenue.

However, the Authority finds that QR Network's drafting of the incentive mechanism framework should be better defined to ensure that the reward for out-performing a reasonable target is proportionate to the disincentive for under-performance. In particular, the Authority does not believe that it would be reasonable for QR Network to face an equal probability of an upward or downward increment if it systematically exceeded its performance target, and vice versa.

The Authority therefore requires that QR Network amend clause 2.6(f)(ii) as set out in decision 1.2.

As discussed above, the Authority does not accept that its proposed breach mechanism requires any balancing upward increment, as suggested by QR Network in justifying the reinstatement of the 2% upward increment from the 2008 undertaking, in the 2010 DAU.

However, the Authority is prepared to accept QR Network's proposed 2% upward increment provision, pending the development of a new incentive regime, on the basis that QR Network would have to demonstrate to the Authority that its whole-of-coal-chain activities or initiatives have increased the efficiency of the below-rail network, in order to gain an upward incentive.

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### Decision 1.2

The Authority requires QR Network to allow a draft incentive mechanism to be assessed based on symmetrical upward and downward incentives, and based on contracted entitlements, by amending clause 2.6(f) of the 2010 DAU as follows:

(f)(ii) the incentive mechanism the subject of the Draft Incentive Mechanism Amendments:

- (A) operates in a manner such that the objective is reasonably related to contracted entitlements, and the positive incentive there is an equal probability QR Network can obtain for outperformance is proportionate to the a positive or a negative incentive for underperformance (that is, in a symmetrical manner); and
  - (B) would not potentially have the effect of reducing or increasing any System Allowable Revenue by more than 5%; .....
- 

### 1.7 Take-or-Pay Provisions

The access agreements include take-or-pay arrangements to encourage customers to contract for the capacity that they are most likely to need. In the absence of such arrangements, customers could over-contract and needlessly cause excess capacity to be built – at a cost borne by all users.

However, as take-or-pay conditions in the standard access agreements have changed over time, there are varying incentives for QR Network and its customers.

#### *Background*

In its submission accompanying the 2009 DAU, QR Network said it wanted to align the take-or-pay provisions across all access agreements, but in a way that addressed concerns that had been expressed to it by the Queensland Resources Council (QRC). Its proposed changes provided for any new access agreement signed after the start of the 2009 DAU regulatory period to have a ‘reopener’ clause that meant its take-or-pay provisions would be those in the approved undertaking that was current at the time they were applied.

The Authority proposed in its December 2009 draft decision to accept the new take-or-pay provisions in the 2009 DAU. However, the Authority noted that there would have to be a consistent set of amendments in the standard access agreements, which had yet to be formally submitted to the Authority for approval.

The Authority also accepted an argument from QR National Coal (QR Freight) that the take-or-pay arrangements should offer some flexibility in allowing a mining company to reallocate capacity within its portfolio of mines. The Authority therefore required QR Network to include in the 2009 DAU provisions that allowed such transfers of take-or-pay obligations, while protecting the interests of QR Network and other stakeholders.

In response to the Authority’s December 2009 draft decision, QR National said that it was concerned that the switch to a revenue cap mechanism had exposed it to potential take-or-pay liabilities that did not apply when it signed access agreements during the 2001 undertaking period which operated under a price cap. In particular, it said that it signed take-or-pay agreements during that undertaking on the expectation that volumes would be reset if they varied by more than 10%; the triggers were set on cluster performance; and volumes would be forecast quarterly, not annually (QR National, sub. no. 50: 5-7).

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*QR Network's 2010 DAU*

The 2010 DAU standard access agreements include provisions in schedule 3, part 3 that take or pay will be calculated on the terms set out in the undertaking current at the time they are applied.

QR Network rejected the Authority's proposal that it include a mechanism in the take-or-pay provisions to allow transfers of obligations within a mining company's portfolio of mines. It argued that such transfers were difficult to administer, given the varying ownership structures of different mines, and that the capacity transfer framework in part 7 was the 'key mechanism' for transferring take-or-pay obligations both within and between miners' portfolios (QR Network, sub no. 56: 49-51).

QR Network also included a new clause 2.2.5 in schedule F, part B, which allows a mine with more than one operator to take into account the total number of train services run by all operators when assessing whether that mine has met its take-or-pay obligations, even if one or more operators have under-railed.

*Stakeholders' Comments*

Xstrata Coal said QR Network's proposed changes to the access agreements and the undertaking to make take-or-pay provisions align with the undertaking in force when they are applied diluted price certainty for operators and potentially for their customers. However, it said it understood the logic for the change was that reference charges could be changed in future based on an understanding of what take-or-pay methodology would operate, and this would not be possible if the take or pay regime was 'locked in' (Xstrata Coal, sub. no. 77: 32-33).

Asciano questioned whether administrative difficulty was a valid reason for rejecting the Authority's proposal, given the complexity of the overall undertaking process (Asciano, sub. no. 78: 24-5).

*Authority's Analysis and Draft Decision*

The Authority confirms its December 2009 draft decision to approve the 're-opener' mechanism for take-or-pay provisions. This means that, once current contracts have expired or been replaced, the take-or-pay terms will be aligned across all contracts, removing the current issues created by having a number of generations of take-or-pay regimes operating at the same time. The Authority notes that, while Xstrata raised concerns about the 're-opener' creating price uncertainty, Xstrata also accepted that the mechanism would allow tariffs and the take-or-pay regime to be considered together. QR Network's proposed changes to the standard access agreements in the 2010 DAU are consistent with the 're-opener' mechanism.

The Authority agrees with Asciano's argument that administrative complexity alone should not be a sufficient reason to reject the Authority's proposal in the December 2009 draft decision to require a transfer mechanism in the take or pay rules. However, the Authority also accepts QR Network's argument that the capacity transfer process proposed in part 7 of the 2010 DAU is the appropriate mechanism to manage that complexity.

The Authority finds it is reasonable to transfer take-or-pay obligations within and between miners' portfolios of mines using the capacity transfer mechanism in part 7, which includes provisions to transfer the rights and obligations of Access Holders, Access Seekers and their customers, including take or pay. Therefore the Authority accepts QR Network's proposal not to further specify a transfer process in the take or pay rules.

The Authority accepts that the new clause 2.2.5 proposed by QR Network for capping a mine's take-or-pay obligations with multiple operators is reasonable in principle, and provides a useful protection for access holders, access seekers and their customers.

However, the Authority is concerned that clause 2.2.5 requires the take-or-pay obligations to be 'proportionally recognised' between two access agreements. This may create unreasonable outcomes in cases where the different operators serving a single mine have different 'generations' of access agreement and, therefore, different take-or-pay provisions. In those cases, the reasonable allocation of the take-or-pay obligations may be a disproportionate allocation between the operators.

The Authority therefore proposes that QR Network remove the word 'proportionally' from clause 2.2.5 of schedule F, part B of the 2010 DAU, as set out in decision 1.3.

The Authority notes QR National's concern about the effect of the move to a revenue cap on its take-or-pay liabilities for contracts signed during the 2001 undertaking period. However, the Authority considers that the change in impact on QR National is related more to the removal of monthly volume forecasts and the removal of 10% volume reset provisions in the 2006 undertaking, than it is to the introduction of a revenue cap.

The Authority has already approved in its December 2009 draft decision QR Network's proposal to add an annual volume reset to the revenue cap review process. It now proposes to require that QR Network include monthly volume forecasts in the 2010 undertaking, which reflect expected seasonal volume variations based on past experience. The volume reset and monthly forecasts will leave QR National in substantially the same position it was when it signed the contracts during the 2001 undertaking period (see section 2.4).

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### **Decision 1.3**

**The Authority requires QR Network to remove the requirement that take or pay be allocated 'proportionally' between access agreements where multiple operators serve a single mine, by deleting the word 'proportionally' from clause 2.2.5(a) of schedule F, part B.**

### **Decision 1.4**

**The Authority requires QR Network to include monthly volume forecasts for each system in the 2010 DAU, to reflect expected seasonal fluctuations in coal traffic, for the purpose of calculating take-or-pay obligations. The Authority's proposed monthly forecasts for each system are included in appendix 2.**

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## **1.8 Total Actual Revenue**

When the Authority approved QR Network's revenue cap mechanism in 2007, it required QR Network to specify in the undertaking that its total actual revenue included any take-or-pay amounts, relinquishment fees and transfer fees it was entitled to collect in the standard access agreements, regardless of whether it collected those amounts.

The undertaking specified the entitled amount, rather than the amount actually collected, to ensure that QR Network would bear the risk of any decision it made to contract on terms other than those in the SAAs. It also ensured that access holders would not be asked to underwrite more liberal take-or-pay arrangements included in a rival's access agreement (QCA, May 2007: 14-15).

QR Network revised and relocated the definition of total actual revenue in the 2009 DAU, as part of its changes to the revenue adjustment process. The new clauses 3.2.3 and 3.2.5 of schedule F, part B did not include a reference to the revenue that QR Network was entitled to earn. The Authority therefore required QR Network to amend those clauses to refer to the amount it 'was entitled to' earn.

#### *QR Network's 2010 DAU*

In its 2010 DAU, QR Network has rejected the Authority's requirement that it specify the amount it was *entitled* to earn. QR Network argued 'entitled' will have adverse consequences where only a portion of contracted paths actually operate, as 'entitled' could refer to, for example, 10 train paths, when only eight actually operated.

QR Network also argued the changes it had made to the relevant sections of schedule F regarding the revenue cap calculation had retained the effect desired by the Authority, although the wording and structure of the clauses was different.

In particular, QR Network said it had included in clauses 3.2.3 and 3.2.5 of schedule F, part B in the 2010 DAU the phrase 'whether or not actually collected by QR Network', which was carried over from the definition of 'Total Actual Revenue' in the 2008 undertaking. QR Network argued this phrase, applied to the amount QR Network had actually earned, had the effect desired by the Authority, and was as agreed between QR Network and the Authority in the development of the 2008 undertaking.

#### *Authority's Analysis and Draft Decision*

The Authority's concerns over the revenue cap assessment process were the same when it considered the 2009 DAU as when it considered the revenue cap DAAU in 2007. That is, that QR Network may not vigorously pursue the payment of all access charges it is entitled to from its related party, QR National. The Authority did not want this unrecovered revenue to be recouped from customers as a revenue cap adjustment. The Authority therefore required the assessment be based on revenue that QR Network is entitled to earn, not what it actually earns.

QR Network has raised concerns about specifying the 'entitled' amount in instances where only a portion of contracted paths were actually operated. However, the Authority considers that such a difference would be covered by the take-or-pay mechanism, and the contracted paths would therefore be included in the revenue cap.

The Authority accepts QR Network's argument that the use of 'whether or not actually collected' addresses the Authority's concern that revenue QR Network earned but did not collect from a QR operator should be included in the revenue cap.

However, QR Network has included a reference to the amount 'actually earned' at the end of clause 3.2.3(b), which deals specifically with take-or-pay amounts. Take or pay is an entitlement under a contract, rather than an amount which is 'actually earned', so a reference to 'actually earned' is not appropriate in that case. The Authority considers that the sentence fragment which contains this reference to 'actual' revenue is redundant, as the reference to the amount QR Network is entitled to earn is already included at the beginning of clause 3.2.3(b).

The Authority therefore requires that QR Network delete the final sentence fragment in clause 3.2.3(b), as shown in decision 1.5.

**Decision 1.5**

**The Authority requires that QR Network remove a reference to the amount of take or pay it has ‘actually earned’ from the end of clause 3.2.3(b) of schedule F, Part B, by making the following deletion:**

**3.2.3(b) ...**

**~~that QR Network has actually earned over the relevant Year (whether or not actually collected by QR Network);~~**

**1.9 Review of Reference Tariffs**

The revenue cap mechanism provides for QR Network’s coal tariffs to be reset each year to reflect the under- or over-recovery of the allowable revenue determined at the start of the undertaking period.

*Background*

Since this revenue capping mechanism was introduced, there have been some sizeable variances from the forecast volumes which have resulted in some sizeable under-recoveries of revenue. For instance, for 2007-08 and 2008-09, there were revenue shortfalls of \$43.6 million and \$32.9 million respectively (i.e. more than 5% of the annual revenue requirement (ARR)). QR Network has also experienced significant cost over-runs relative to forecast, in particular for maintenance costs.

In the 2009 DAU, QR Network sought to limit the size of these under-recoveries. Regulated revenues and tariffs would still be based on forecast volumes and costs and approved when the undertaking was approved. However, QR Network proposed that, in February each year, revenues and tariffs be reset for the following financial year based on revised forecasts of volumes and certain cost elements. When that financial year was complete, the forecasts would be reconciled with actuals to determine the level of revenue under- or over-recovery which would then be used to adjust future tariffs.

QR Network said it wanted to reduce the scale of revenue cap shortfalls, and the resulting year-on-year fluctuations in tariffs, by reviewing the volume forecasts each year, and using the updated numbers to adjust the tariffs and system allowable revenue amounts for the remaining years of the undertaking period.

In addition to these volume forecasting issues, QR Network said it had faced difficulty in making accurate forecasts of maintenance costs during the 2008 undertaking period. Therefore, it proposed several measures in the 2009 DAU to adjust its system allowable revenue, both in advance of the year the tariffs are levied, and as part of the *ex post* revenue cap reset process.

The Authority supported the principle of reducing the volatility in the charges paid by access holders and their customers. However, it was keen to avoid unnecessary complexity in the review process and to limit the exercise of discretion by both QR Network and the Authority. It also sought a mechanism where, as much as possible, an adjustment was made to the system allowable revenues only once, after actual information was known.

Given this, the Authority’s December 2009 draft decision approved QR Network’s proposal to have an annual reset of the volume forecasts. However, the Authority did not consider it appropriate to update other aspects of the system allowable revenue through the *ex ante* annual reset process. As a result, the Authority proposed amending the treatment of the new spur maintenance costs, the electric energy costs, and the electrical feeder station costs so that they were adjusted once, at the end of each year, to reflect the difference between forecasts made in the undertaking, and actual costs incurred during the year (see section 1.11).

The Authority also:

- (a) approved QR Network's proposal to set tariffs annually, with no quarterly indexation;
- (b) required QR Network to amend clause 4.3 of schedule F, part B so that all non-reference tariffs, including those for cross-system services, are calculated by reference to the same components that are used for reference train services;
- (c) required several changes to QR Network's proposed maintenance cost index (see section 1.10); and
- (d) provided drafting to reinstate review events to cover changes in maintenance scope, and issues related to risk and insurance (see section 1.12).

#### *QR Network's 2010 DAU*

In the 2010 DAU, QR Network accepted most of the changes to the revenue cap mechanism set out in the Authority's December 2009 draft decision, although with some modifications. In particular, QR Network:

- (a) accepted the Authority's proposal that cross-system tariffs be calculated using the same components used for reference train services, and included the required changes to clause 4.3 of schedule F, part B;
- (b) altered the process for system allowable revenue to be adjusted after the capital expenditure carry-over account is finalised (clause 3.1.3 of schedule F, Part B), so that the adjustment can take place over the full undertaking period, rather than in the first year;
- (c) proposed to implement most of the Authority's draft decision on the MCI, with some amendments to reflect changes to cost forecasts (see section 1.10);
- (d) proposed to implement most of the Authority's draft decision on *ex post* treatment of electrical costs and new spur maintenance costs (see section 1.11); and
- (e) included the Authority's proposed drafting to reinstate review events, with minor changes (see section 1.12).

QR Network also introduced a new proposal for an 'adjustment charge' mechanism for collecting or rebating revenue when tariffs are introduced retrospectively (see section 1.13)

#### *Authority's Analysis and Draft Decision*

The Authority accepts that the revenue cap mechanisms in the 2010 DAU are reasonable, as they are, in general, consistent with the Authority's December 2009 draft decision. However, QR Network has proposed some changes that have required further consideration, specifically QR Network's proposals regarding the MCI, review events, *ex post* adjustments, and the adjustment charge, which are discussed below in sections 1.10 to 1.13.

The Authority also accepts QR Network's proposed change to the capital expenditure carry-over account adjustment process, which provides for the adjustments to be reflected in system allowable revenue over the full undertaking period, rather than just the first year. This change to clause 3.1.3 of schedule F, part B still allows the Authority to reflect the adjustment in the first year, which it would be likely to do where the adjustment was small. It also gives the Authority the option of spreading the change to system allowable revenue over two or more years' tariffs where the adjustment was large enough to have a material effect. QR Network's

proposal therefore gives the Authority the discretion to make the adjustment over a period which gives the most efficient outcome.

However, it will need to be amended to allow for an adjustment as the roll-forward of the 2008-09 asset base is still outstanding (see section 2.2). The Authority therefore proposes to amend clause 3.1.3 to allow for this adjustment (see decision 1.6).

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### Decision 1.6

**The Authority requires that QR Network allow for adjustments to the revenue cap to reflect adjustments to the assumed asset value, by amending clause 3.1.3 of schedule F, part B as follows:**

**3.1.3 Upon the finalisation of the balance of the Capital Expenditure Carryover Account at the Commencing Date, the System Allowable Revenues for the Term will be adjusted by the QCA for the difference between the finalised balance of the Capital Expenditure Carryover Account at the Commencing Date and the forecast used for determining the Reference Tariffs, including any adjustments necessary to reflect the difference between the assumed opening asset value (and lives) and those accepted by the QCA as part of the first roll-forward of the Regulatory Asset Base.**

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## 1.10 Maintenance Cost Index

Maintenance costs are one of the building block components of the ARR and reference tariffs. Maintenance costs are, in effect, included in the modelling at their real value and, as tariffs are escalated by the forecast CPI over the course of the regulatory period, maintenance costs are also escalated by the forecast CPI.

### *Background*

In the 2009 DAU, QR Network sought to increase maintenance costs by 60% and to index maintenance costs not by CPI but by a specially constructed index that, it said, better reflected input price changes in central Queensland. Operating costs, including system-wide and regional costs, would continue to be indexed by the CPI.

This MCI would be derived from publicly available data on the movements in prices of the main components of QR Network's central Queensland maintenance costs. These costs included fuel, accommodation, consumables, labour and other expenses. The index did not include a component for plant maintenance, which accounted for 11.6% of QR Network's forecast maintenance costs during the undertaking period. Instead, QR Network split the allocation for plant maintenance equally between the labour and consumables categories, reflecting the composition of forecast plant maintenance costs. QR Network said the components of the index were all based on externally sourced and verifiable information (QR Network, sub. no. 5: 5-7).

Key aspects of QR Network's proposal were that:

- (a) a forecast of the MCI would be used to develop the revenues and tariffs approved in the 2009 DAU;
- (b) the MCI would be reforecast in February each year, based on actual changes in index components since the original forecast, to derive a revised set of tariffs and revenues for the following financial year; and

- (c) the actual MCI would be calculated at the end of each financial year and be used to assess the amount of any revenue under- or over-recovery.

In its December 2009 draft decision, the Authority accepted that the proposed MCI was reasonable to the extent that the component indices were collated by third parties and were therefore not subject to manipulation by QR Network. The Authority proposed to approve an amended MCI (see Table 1.1) that better reflected the composition of QR Network's actual maintenance costs – this included adding a 15.9% weighting for asset charges, which would be indexed using a component that remained at 100 through the term of the undertaking (QR Network, September 2009).

The Authority was concerned about the administrative complexity of developing a forecast for the MCI and then revising this forecast twice for each year of the regulatory period. The Authority proposed a simpler MCI indexation process whereby tariffs and revenues would be developed on the basis of the best available forecast of the CPI. Regulated tariffs and revenues would then be adjusted by the difference between the estimated CPI and the actual MCI as part of the revenue cap review process in September of each year, when the actual MCI for the previous year would be known.

The Authority also required QR Network to prepare a report, after the end of the 2011-12 financial year, on the composition and application of the MCI.

#### *QR Network's 2010 DAU*

In its 2010 DAU, QR Network included many of the Authority's proposed changes to the MCI's construction, but with some amendments. In particular, QR Network:

- (a) amended the index composition to reduce the weighting for asset costs from 15.9% to 9.1%, to reflect the proposed removal of spoil wagons from the maintenance cost allowance (see section 2.10 for a discussion of QR Network's proposed maintenance costs);
- (b) changed the asset sub-index so that, rather than remaining at 100 during the term of the undertaking, it rises in steps to 104.3 in the final year. QR Network said this increase in the index reflected the effect of inflation on the cost of acquiring assets during the undertaking period, given that holding the asset sub-index at 100 effectively fixed the cost of acquiring new assets at the price in the 2007-08 base year for the index;
- (c) used predictions from consultant BIS Shrapnel to develop its forecasts of MCI levels during the undertaking period, for all sub-indices except accommodation (QR Network, sub. no. 59);
- (d) changed the measure of labour price inflation from the Labour Price Index (LPI) to Average Weekly Ordinary Time Earnings (AWOTE), which it argued provided a better measure of actual cost changes;
- (e) rejected the Authority's proposal that forecast CPI be used when developing tariffs, and the MCI be applied in the ex-post revenue cap review process. QR Network instead proposed that forecast MCI be used, and that it be adjusted by the X-factor, if any, that was applied to maintenance cost increases.
- (f) constructed the index to adjust for a switch from mid-year numbers in QR Network's forecast maintenance costs, to end-year numbers used in the pricing model;

- (g) accepted the Authority's proposal that, if a sub-index becomes unavailable, it will be replaced with the CPI, although QR Network proposed that it also have the option of using a 'suitable substitute index approved by the QCA'; and
- (h) accepted the Authority's requirement to provide an analysis of the composition and application of the MCI after 2011-12.

#### *Stakeholders' Comments*

Asciano supported the Authority's position on the MCI (Asciano, sub. no. 49: 30).

#### *Authority's Analysis and Draft Decision*

The MCI in the 2010 DAU retains characteristics that led the Authority to approve the index in its December 2009 draft decision. It is based on indices compiled by third parties, and the weightings of the sub-indices reflect the composition of QR Network's forecast maintenance costs in the 2010 DAU.

The Authority also notes that QR Network's proposed alterations to the index weightings in the 2010 DAU were reasonable in that they matched changes QR Network made to its forecasts.

However, the Authority proposes to reinstate the cost of spoil wagons into its maintenance cost allowance (see section 2.10). The Authority therefore proposes that QR Network restore the weightings to those the Authority approved in its December 2009 draft decision, as the Authority has proposed that QR Network's maintenance allowance be restored to one with a similar composition to that it proposed in the 2009 DAU (see table 1.1).

The Authority accepts QR Network's proposed revisions to the sub-index for asset charges, as holding the sub-index at 100 would not account for inflation in the price of assets acquired during the undertaking period. The escalation QR Network has proposed in the sub-index is based on a reasonable forecast of the effect of inflation on the cost of new equipment, and is based on applying the CPI only to the new equipment.

QR Network's proposed change from the LPI to AWOTE as the basis for the labour sub-index has the effect of increasing the growth of the MCI for 2007-08 and 2008-09, because of the difference in the rates of growth of the two labour cost indices. However, over the longer term, the LPI and AWOTE indices are closely correlated. BIS Shrapnel also argued in its report, prepared for QR Network, that AWOTE indicates more accurately the true wage inflationary pressures as it better reflects the effect of promotions and other measures taken to retain workers in a tight job market (QR Network, sub. no. 59: 21).

The Authority accepts this argument, given that the same effect can be expected to apply in reverse during a downturn, and the two indices will tend to converge. The Authority therefore accepts the use of AWOTE indices to derive the labour cost sub-index in the MCI in the 2010 DAU.

The data sources the Authority proposes to approve for the MCI in the 2010 DAU are set out in Table 1.1, along with the approved weightings.

**Table 1.1: Revised Maintenance Cost Index Weightings**

<i>Factor</i>	<i>Original Weight (2009 DAU)</i>	<i>Revised Weight (Sept 2009)</i>	<i>QR 2010 DAU Weight</i>	<i>Approved 2010 DAU Weight</i>	<i>Data Sources for 2010 DAU MCI*</i>
<i>Fuel</i>	5%	3.2%	3.5%	3.2%	AAA Pricing Summary Unleaded Petrol (Emerald 20% of index component, Gladstone 20% and Mackay 20%); AIP Terminal Gate Prices Historical Averages Brisbane, Unleaded (20%) and Diesel (20%)
<i>Accommodation</i>	3%	1.5%	1.7%	1.5%	Hotels, Motels and Serviced Apartments by Tourism Region QLD (Fitzroy and Mackay District – ABS 8635.3.55.001, 5).
<i>Consumables</i>	32%	34.9%	40.3%	34.9%	Non-Building Construction (18% of index component – ABS 6427.0, 15-16); Basic Metal Products (18% – ABS 6427.0, 10-11); Transport Equipment & Parts (18% – 6427.0, 10-11); Fabricated Metal Products (18% – 6427.0, 10-11); Consumer Price Index (28% – ABS Brisbane 6401, Table 5).
<i>Labour</i>	45%	44.5%	45.5%	44.5%	Average Weekly Ordinary Time Earnings: Queensland All Industries (33% – ABS 6302.0, Table 13C, Series ID A2719623W); Mining Australia (33% – ABS 6302.0, Table 10G, Series ID A2728173T); Construction Australia (33% – ABS Cat No 6302.0, Table 10G, Series ID A2734098T).*
<i>Assets</i>	—	15.9%	9.1%	15.9%	Index component remains unchanged at 100 through to July 2009, then rises to 101.2, 102.4, 103.7 and 104.3 over the four years of the undertaking.
<i>Consumer Price Index</i>	15%	—	—	—	

Source: *QR Network and the Authority*

\* The Authority approved in its December 2009 draft decision corresponding Queensland, mining and construction time-series for the Labour Price Index (LPI) from ABS catalogue no. 6345.

The Authority accepts QR Network's proposal that forecast MCI be used when developing tariffs, as opposed to the Authority's December 2009 draft decision that forecast CPI be used.

In resubmitting the MCI, QR Network has adjusted the index numbers from mid-year to end-of-year numbers so they are now consistent with the way revenues are modelled. This change is reasonable.

The Authority has used this index (amended for mix and timing) in its assessment of QR Network's tariffs (see section 2.10, and table 1.2).

**Table 1.2: Approved MCI Components and Weighted Index**

		<i>Fuel</i>	<i>Accommodation</i>	<i>Consumables</i>	<i>Labour</i>	<i>Asset</i>	<i>Weighted Index</i>
<i>Actual</i>	<i>Jan 08</i>	100.0	100.0	100.0	100.0	100.0	<b>100.0</b>
	<i>Jul 08</i>	105.4	106.3	100.6	103.6	100.0	<b>102.1</b>
	<i>Jul 09</i>	98.5	110.5	99.6	111.0	100.0	<b>104.9</b>
<i>Forecast</i>	<i>Jul 10</i>	98.6	95.2	99.7	116.8	101.2	<b>107.4</b>
	<i>Jul 11</i>	101.2	97.6	100.5	121.9	102.4	<b>110.3</b>
	<i>Jul 12</i>	105.6	100.0	103.4	127.6	103.7	<b>114.2</b>
	<i>Jul 13</i>	113.3	102.5	110.5	134.9	104.3	<b>120.3</b>

Source: QR Network and the Authority

The Authority also notes that QR Network has accepted the Authority's decision that QR Network submit a report on the MCI after 2011-12. The Authority's review of the weightings at that time will be mainly with a view to informing the assessment of the MCI for the subsequent undertaking period.

Further, the Authority accepts QR Network's proposal that the MCI be applied to forecast costs by including the relevant 'X-factor' adjustment. This is discussed in section 2.11 of this draft decision.

### **Decision 1.7**

**The Authority requires that QR Network amend the weightings in its maintenance cost index as set out in Table 1.1, to reflect the Authority's proposed adjustments to QR Network's maintenance cost allowance.**

## **1.11 New Spurs, Electrical Feeder Stations and Electricity Charges**

The annual revenue cap review mechanism proposed by QR Network in its 2009 DAU included *ex ante* adjustments to update the forecast of the cost of maintaining new spurs; the annual fees for connections to electrical feeder stations; and the cost of buying electricity for supply to electric locomotives. It proposed that the allowance for new spur maintenance be fixed at \$25,000 a kilometre, while updated forecasts would be used to adjust the electrical allowance, and QR Network would receive a margin to cover the risk of variation in electricity charges.

The Authority considered that none of the three proposed *ex ante* adjustments to cost forecasts was appropriate. It proposed instead that QR Network should adjust for actual costs in arrears, as part of the revenue cap unders and overs process. This would be simpler to administer, and would protect QR Network from the risks that it had sought to offset with the *ex ante* adjustments.

In the 2010 DAU, QR Network implemented the changes from *ex ante* to *ex post* revenue cap adjustments that the Authority proposed for electrical feeder station and electricity costs in its December 2009 draft decision, with minor drafting changes. The Authority accepts these changes on the basis that they are consistent with the Authority's draft decision and stakeholders have not objected to these arrangements.

However, QR Network rejected the Authority's proposal to have an *ex post* review of the cost of maintaining new spurs, on the basis that it would be too time-consuming to determine actual efficient costs within the time available for the review process. QR Network instead proposed an allowance of \$15,000 a kilometre.

Asciano considered that it would be better to use actual costs than benchmark costs for determining QR Network's revenue allowance for maintaining new spurs. It said the actual costs 'may be incremental' (Asciano, sub. no. 78: 25).

The Authority accepts that actual costs would in principle be preferable to forecast costs. However, the Authority also accepts QR Network's argument that determining actual costs for maintaining spurs which were built after the approval of an undertaking might be time-consuming.

When the Authority's consultant proposed an annual allowance of \$15,000 a kilometre for maintenance of new spurs, this proposal took into account that the maintenance costs were incremental and were for a new section of track that would have lower maintenance costs than older and more heavily utilised track.

On this basis, the Authority considers the \$15,000 allowance is reasonable, and proposes to approve the treatment of new spur maintenance costs proposed by QR Network in clause 3.2.2(a)(i) of schedule F, Part B in the 2010 DAU.

## 1.12 Review Events

QR Network has said it may need to change its maintenance practices 'to facilitate efficient expansion of the supply chain' (QR Network, sub no. 5: 7-8). QR Network wants to be able to change the system allowable revenue where this change in maintenance practices results in a material change in its maintenance costs. This would be subject to a minimum threshold of a 2.5% change in the AT<sub>3</sub>, AT<sub>4</sub> and/or AT<sub>5</sub> tariff components.

QR Network proposed this change would be implemented as an endorsed variation event (QR Network, sub. no. 25: 91), as it wanted more certainty than provided by a DAAU.

In its December 2009 draft decision, the Authority said that it was reasonable for QR Network to be compensated for changes to its maintenance practices that improved the way the coal supply chain operated. However, the Authority rejected QR Network's proposal to give effect to this through an endorsed variation event, and instead proposed that QR Network reinstate a review event mechanism into Schedule F of the undertaking and that material changes in the scope of maintenance works be included as a review event. The Authority also proposed to approve review events related to risk and insurance (see section 2.9).

QR Network's 2010 DAU included provisions that were substantially the same as those proposed by the Authority to reinstate a review event into the undertaking, and specify review events for maintenance scope change, and for matters related to risk and insurance. The Authority accepts these changes on the basis that they are consistent with the Authority's draft decision and stakeholders have not objected to these arrangements.

QR Network also proposed a review event for an increase in the number of coal services on the rail line between Burngrove and Minerva.

In 2009, the Authority approved a tariff for the Minerva mine based on a cost build-up that included an allocation of the asset base related to the line between Burngrove and Minerva on the basis of the proportion of train paths used by coal services. It is appropriate for QR Network to be able to seek an amendment to the tariff, and to the treatment of that asset base, if there is

an increase in coal services on that section of track. Therefore, the Authority approves QR Network's proposed change.

The Authority notes that QR Network has omitted to delete the endorsed variation event for maintenance scope change from the 2010 DAU. It therefore requires QR Network to delete that clause, as set out in decision 1.8.

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**Decision 1.8**

**The Authority requires QR Network to remove the endorsed variation event for maintenance scope change, by deleting clause (ii) from the definition of "Endorsed Variation Event" in part 12 of the 2010 DAU.**

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### 1.13 Adjustment Charges

The 2010 DAU includes a mechanism to back-date the newly approved tariffs to 1 July 2009 and to require access holders to pay an adjustment charge for the under-recovery of 2009-10 revenues.

When similar circumstances arose with the 2006 undertaking, a mechanism for QR Network to repay an over-recovery of revenues was not formally included in the undertaking – rather, QR Network had advised the Authority that it would backdate those tariffs to July 2005. The Authority understands that, on that occasion, QR Network made the repayment including interest accrued at a short-term financing rate.

#### *QR Network's 2010 DAU*

The 2010 DAU includes an adjustment charge mechanism that sets out procedures for QR Network to recoup under-recovered revenue or rebate overpayments of access charges. QR Network said this was particularly relevant to recovery of access charges for the 2009-10 financial year, but could also be applied for future regulatory decisions which had retrospective effect (QR Network, sub. no. 70: 115). The main features of the new section 2.3 of schedule F, part A are:

- (a) the adjustment amount will be the difference between the access charges already paid under the old tariff, and the access charges subsequently approved by the Authority, calculated monthly;
- (b) the charge will include interest at the one-month bank bill swap rate (BBSW), compounded monthly;
- (c) the adjustment charges will be subject to approval by the Authority, and will be billed or paid after they have been approved;
- (d) QR Network would only be able to recover adjustment charges from a new operator where the previous operator no longer operated any services for the same customer, on the same origin-destination pair. The access rights would also have to be transferred in accordance with the customer-initiated capacity transfer rules (clause 7.3.7 in the 2010 DAU), which are proposed to require that the access seeker for the transferred access rights accept the obligation to pay any approved adjustment charge;
- (e) where there was no longer an operator for an origin-destination pair, and QR Network therefore had no contractual right to seek adjustment charges, it could recoup the retrospective charges for that service through the revenue cap adjustment process; and

- (f) the adjustment amount will be recognised for revenue cap purposes in the period it was determined, not the period in which it was billed or paid.

#### *Stakeholders' Comments*

Asciano opposed QR Network's proposal for retrospective charges. It said access holders and operators had not been responsible for delays in the regulatory process, and should not be required to pay for those delays, or pay interest on any retrospective variations. Further, the adjustment charges should not apply to new access holders that were not the operators of the train to which the charges applied (Asciano, sub. no. 78: 24).

#### *Authority's Analysis and Draft Decision*

The Authority accepts the principle that QR Network can recoup the under-recovery of the 2009-10 revenue cap. It also approves of QR Network's proposal in the 2010 DAU that the undertaking should include rules for how those adjustments will be made.

The Authority considers that any adjustment charge rules should establish a consistent and transparent method for setting retrospective charges and payments and should provide for the Authority to approve those adjustments.

The rules proposed by QR Network in the 2010 DAU meet both those requirements.

The Authority notes that QR Network chose to use a bank interest rate rather than its WACC when paying rebates of the 2005-06 tariffs to access holders. This approach is consistent with the approach QR Network has proposed to use to recoup the under-recovery of revenues in 2009-10.

The Authority considers, however, that the Authority should be able to reject an adjustment charge if the interest component is not reasonable, which could arise if the bank bill swap rate is no longer available. The Authority therefore requires QR Network to amend clause 2.3.4(c) of schedule F, part A as shown in decision 1.9.

The Authority accepts QR Network's proposal that the adjustment amount be recognised for revenue cap purposes in the period to which it applies, rather than the period in which it is collected.

The Authority notes Asciano's concerns about operators not being responsible for delays in the approval of the access undertaking, and a new operator being required to collect access charges which were incurred when a train service was provided by a previous operator.

In considering these comments, the Authority notes that it would be unreasonable to not allow QR Network to recoup its legitimate and efficient operating costs and that the proposed methodology seeks to do that in a reasonable manner, in particular as the net present value (NPV) calculation will be made at a relatively low, cost of debt, interest rate.

QR Network's proposed clause 2.3.9 in schedule F, Part A only places the obligation on a new operator to collect retrospective access charges where both the new operator and the affected customer have agreed to the change. It would not be reasonable for a customer who elected to transfer a service to a new operator to be able to avoid payment of an adjustment charge, and have that revenue recovered from other coal companies through the revenue cap review process. Furthermore, it is unlikely that such a customer would wish to avoid a rebate.

**Decision 1.9**

**The Authority requires that QR Network give the Authority the ability to reject an adjustment charge if the interest component is not reasonable, by making the following amendment to clause 2.3.4(c) of schedule F, part A of the 2010 DAU:**

**2.3.4(c) ...**

**if the proposed Adjustment Charges submitted by QR Network (excluding any interest component) constitute no more of a recovery or no less of a reimbursement of any under or over recovery of Access Charges by QR Network that relate to each Access Holder, and any interest component was calculated in accordance with clause 2.3.2(c)(ii).**

**1.14 Variations to Reference Train Service**

The formula for the reference train path (rtp) multiplier in the 2008 undertaking, and carried over into the 2009 DAU, provided a discount for a faster train and a surcharge for a slower train. In practice, the increase in the consumption of train paths occurs for all trains that travel at speeds that differ from the predominant train, irrespective of whether that is a faster or slower speed.

QR Network in the 2010 DAU proposed adjusting the rtp formula such that:

$$rtp = \max \left[ \left( \frac{A}{B} \right), \left( \frac{B}{A} \right) \right]$$

Where: A = Maximum number of Reference Train Services at full utilisation, and  
B = Maximum number of proposed Train Services at full utilisation

It also proposed that a faster train would only pay the multiplier if its scheduled section run times differed from those of the reference train service i.e. if it uses its faster speed to consume more train paths than the reference train.

Asciano said it preferred the multiplier formula in the 2008 undertaking (Asciano, sub. no. 49: 27).

The Authority considers that QR Network's proposal in the 2010 DAU is reasonable, as a faster train will only pay a premium to the standard access charge if it consumes more train paths than a reference train.

## 2. QR NETWORK'S COAL REFERENCE TARIFFS

*QR Network's 2010 draft access undertaking (2010 DAU) includes reference tariffs for coal-carrying train services operating on the central Queensland and western coal systems. The proposed central Queensland reference tariffs are, on average, 39% higher than the tariffs that currently prevail while the proposed western system tariffs are, on average, 40% higher.*

*The Authority has assessed the underlying elements of QR Network's proposed central Queensland coal tariffs, including the opening asset value, proposed capital expenditure, weighted average cost of capital (WACC), volume forecasts and operating and maintenance costs.*

*With respect to QR Network's proposal, the Authority considers that QR Network has not justified its claim for a WACC of 10.82%. The Authority's proposed WACC is 9.96% and compares with the WACC recommend in the December 2009 draft decision of 9.41% and the WACC approved in the 2006 undertaking of 8.43%.*

*The Authority also has on-going concerns with QR Network's proposed maintenance cost allowance, in particular in relation to ballast cleaning costs which have increased significantly in recent times and which would continue over the term of the undertaking. In its December 2009 draft decision, the Authority questioned the efficiency of the ballast cleaning costs and proposed to reduce those costs to a benchmark, efficient level. In response, QR Network reduced the scope, and therefore the cost, of its proposed ballast cleaning program.*

*The Authority does not believe that reverting back to the current ballast cleaning regime is reasonable given the stated condition of the network. The Authority, therefore, proposes to accept the ballast cleaning costs proposed by QR Network in its 2009 DAU in order to ensure it can properly maintain the network and ensure the efficient operation of coal train services.*

*However, the Authority has yet to be convinced that the current state of the network and the necessary rectification costs reflect a past, efficient maintenance regime. The Authority therefore questions whether these costs should be passed on to the users of that network. As a result, the Authority is proposing to remove around \$107 million from the asset base, this representing the net present value of the difference between the Authority's proposed ballast cleaning allowance and the benchmark efficient allowance over the seven years of the ballast cleaning program. The Authority will reconsider this deduction in the future if QR Network was able to establish that its past and future ballast cleaning programs are efficient.*

*Consequently, the Authority proposes reference tariffs for coal-carrying train services in the central Queensland coal systems that reflect, on average, a 27% increase on current tariffs (which is around 9% below those proposed by QR Network). Once the revenue cap under-recovery experienced in the 2006 and 2008 undertakings is taken into account, users can expect a 33% increase on current tariffs.*

*Despite these increases, the tariffs proposed by the Authority in this decision are not dissimilar to a roll-forward of the tariffs from the 2001 undertaking, given that the 2006 undertaking provided for 20% tariff declines.*

*The Authority is proposing to approve the proposed 40% increase to coal tariffs on the western system, as it is consistent with the Authority's proposed tariff in its December 2009 draft decision.*

## 2.1 Central Queensland Coal Reference Tariffs

### *Background*

In its 2009 DAU, QR Network proposed reference tariffs for the coal-carrying train services in the central Queensland coal region (CQCR) for the period 2009-10 to 2012-13. The reference tariffs were based on a range of factors, including:

- (a) an opening asset value and depreciation for each system which reconciles with the opening asset value used to determine the 2006 approved reference tariffs, and forecast capital expenditure in 2007-08 and 2008-09;
- (b) a capital expenditure provision of \$1.35 billion over the four years from 2009-10 to 2012-13;
- (c) a WACC of 11.76%, compared with the WACC approved for the 2006 undertaking of 8.43%;
- (d) forecast annual inflation of 2.8%;
- (e) maintenance and operating costs that average around \$192 million and \$72 million respectively over the four years; and
- (f) volume forecasts of, on average, 227 million tonnes per annum over the four years.

These factors resulted in reference tariffs increases of around 50% for users over the next regulatory period, excluding the effect of major expansions that may occur during the 2009 DAU period, such as the Goonyella to Abbot Point Expansion (GAPE) and the revenue cap under-recoveries from the 2006 and 2008 undertakings that will be recouped during the 2010 regulatory period.

Based on its analysis of QR Network's arguments and of stakeholders' submissions, the Authority's December 2009 draft decision was to reject QR Network's reference tariffs on the basis that:

- (a) the Authority did not consider that key cost elements reflected efficient costs (e.g. WACC and operating and maintenance costs); and
- (b) a number of other elements which had previously been forecast could be replaced with actual information (e.g. volumes and the 2007-08 and 2008-09 capital expenditure amounts).

The Authority's detailed reasoning was provided in the December 2009 draft decision. To the extent that the reasoning is still valid (i.e. it forms part of the Authority's consideration of QR Network's 2010 coal reference tariffs claims), it is summarised in turn in the below sections.

### *QR Network's 2010 DAU*

QR Network's 2010 DAU includes reference tariffs that have been revised from its 2009 DAU to reflect:

- (a) an opening asset value that has been updated to account for approved capital expenditure in 2007-08 and 2008-09 and which reconciles with the opening asset value used to determine the 2006 approved reference tariffs;

- (b) a reduced capital expenditure provision of \$1.06 billion over the four years from 2009-10 to 2012-13;
- (c) a reduced WACC of 10.81%, that represents a 2.38 percentage point increase on the WACC approved for the 2006 undertaking;
- (d) forecast annual inflation of 2.5%;
- (e) reduced maintenance and operating costs that average around \$172 million and \$63 million respectively over the four years from 2009-10 to 2012-13; and
- (f) reduced volume forecasts of, on average, 210 million tonnes per annum over the four years, and which incorporate the use of actual railings up until January 2010 as part of the 2009-10 forecast.

The effect of these proposals is to increase reference tariffs by around 39% for users over the next regulatory period. This is down from the 53% increase QR Network proposed in its 2009 DAU, but around 10% higher than the tariffs proposed by the Authority in its December 2009 draft decision<sup>5</sup>.

The Authority considers each of QR Network's coal reference tariffs claims in turn in section 2.2 to 2.12.

## 2.2 Opening Asset Value – Central Queensland Coal Region

The 2008 undertaking requires QR Network to seek the Authority's approval for capital expenditure on projects completed in the previous year and to annually roll-forward its regulatory asset base. These arrangements were introduced into the 2006 undertaking to simplify the assessment of asset values for future undertakings.

### *Background*

In its 2009 DAU, QR Network proposed an opening asset value of \$3.28 billion which was based on the approved 2006-07 asset base roll-forward and forecast capital expenditure for 2007-08 and 2008-09. This opening asset value was subsequently revised to \$3.35 billion when the Authority approved actual 2007-08 capital expenditure which was higher than that forecast.

As part of its claim, QR Network proposed to remove from its asset base \$9.3 million in 'system-wide' assets that it said had been retained by QR Ltd following the QR restructure in September 2008.

While stakeholders did not comment on QR Network's proposed opening asset value, some were concerned with QR Network's treatment of system-wide assets and, in particular, that QR Network may have an incentive to transfer more assets to other QR business groups in order for the QR Group, as a whole, to receive greater profits (QRC, sub no. 38: 60 and Asciano, sub no. 33: 45).

In its December 2009 draft decision, the Authority reviewed QR Network's detailed financial model and found that QR Network appropriately determined the \$3.35 billion opening asset value for the CQCR as at 1 July 2009 in that it had:

- (a) accurately used the approved methodology set out in the current undertaking to determine individual elements of the asset base roll-forward;

<sup>5</sup> The increases stated in this paragraph do *not* include the impact of revenue under-recoveries experienced in the 2006 and 2008 undertakings.

- (b) relied on past approaches and / or information approved by the Authority; and
- (c) applied the correct CPI for 2008-09.

The Authority also accepted as reasonable QR Network's removal from its regulated asset base of \$9.3 million in system-wide assets that were retained by QR Ltd following the QR restructure in September 2008.

While the Authority accepted that QR Network's forecast capital expenditure for 2008-09 was reasonable, it believed it was premature to include any expenditure associated with GAPE into the regulatory asset base until such time that the arrangements associated with the pricing of the GAPE has been approved by the Authority. Accordingly, the Authority proposed that \$44.4 million expended in 2008-09 be excluded from the asset base for pricing purposes and rolled-forward at the approved WACC rate until GAPE became operational.

#### *QR Network's 2010 DAU*

In its 2010 DAU, QR Network proposed reference tariffs based on an opening asset value of \$3.25 billion for the next regulatory period based (see Table 2.1).

**Table 2.1: QR Network's Central Queensland Coal Region Asset Base Roll-forward (\$'000)**

<i>System</i>	<i>2005-06</i>	<i>2006-07</i>	<i>2007-08</i>	<i>2008-09</i>	<i>Total</i>
<b>Non-Electric Assets</b>					
Opening Asset Value	2,167,322	2,310,139	2,431,176	2,723,524 <sup>a</sup>	
Capital Expenditure	135,207	151,607	220,651	238,348	
Inflation	88,222	61,087	125,461	56,915	
Depreciation	(80,612)	(91,657)	(99,818)	(111,848)	
Closing Asset Value	2,310,139	2,431,176	2,677,470	<b>2,906,938</b>	
<i>Removal of system-wide assets</i>					(9,261)
<b>UT3 Opening Asset Value</b>					<b>2,897,677</b>
<b>Electric Assets</b>					
Opening Asset Value	242,646	255,269	257,088	291,444 <sup>b</sup>	
Capital Expenditure	17,801	11,855	30,218	72,580	
Inflation	10,394	6,688	13,229	6,521	
Depreciation	(15,571)	(16,724)	(18,175)	(21,095)	
Closing Asset Value	255,269	257,088	282,359	<b>349,450</b>	
<i>Removal of system-wide assets</i>					
<b>UT3 Opening Asset Value</b>					<b>349,450</b>
<i>System-wide assets (removal)</i>					(9,261)
<b>CQCR Opening Asset Value</b>					<b>\$3,247,127</b>

<sup>a</sup> the difference in the 2007-08 closing value and the 2008-09 opening value is due to the \$46.1 million addition of the Vermont non-electric assets in the 2008-09 opening asset value.

<sup>b</sup> as per above, with the exception that the difference is \$9.1 million for the electric assets.

QR Network's proposed opening asset value is consistent with the Authority's December 2009 decision, as it takes account of the 2008-09 capital expenditure approved by the Authority in March 2010 of \$366.1 million and does not include the \$44.4 million of capital expenditure associated with GAPE.

In response to the Authority's December 2009 decision, stakeholders accepted the Authority's decision on the opening value of the regulatory asset base.

However, stakeholders did raise concerns in response to the December 2009 decision about removing system-wide assets from the regulatory asset base. In particular, stakeholders said that QR Network could use this as a non-price means of restricting competition or earning above-regulated returns (QRC, sub no. 55: 8) and that, given that the assets are required for the provision of declared services, any fees paid for usage of these assets will not be regulated (Asciano sub no. 49: 24). The QRC reiterated its concern in its submission in response to the 2010 DAU (QRC, sub no. 75: 8).

The Authority notes that QR Network's actual asset-base roll-forward calculations are not contentious given that the asset base is consistent with that assessed, and which the Authority proposed to approve, in its December 2009 decision.

However, the Authority notes that, at the time of writing, QR Network's 2008-09 asset base roll-forward had not yet been approved by the Authority<sup>6</sup>, and this matter will be finalised as part of the next revenue cap review (due October 2010).

The Authority notes that stakeholders remain concerned with QR Network's removal of system-wide assets from the regulatory asset base. The Authority agrees that it would not be appropriate to shift assets between QR related business in order for QR Network to restrict competition or to receive additional revenues. For this reason, the undertaking only allows the transfer of declared infrastructure to a related party if the Authority has first approved that transfer (cl. 2.2(d)(i)).

However, the Authority does not believe that the current case involves inappropriate asset shifting. The assets in question were not assets that were ever owned by QR Network. Rather, the assets in question (e.g. relating to payroll) were owned by QR Ltd but a share of them was allocated to the QR Network regulated asset base for the 2001 undertaking.

In the future, QR Network will acquire these services from QR Ltd with the cost being included as part of operating costs. The Authority will assess the efficiency of these costs, and the possibility of transfer pricing from QR Network to a related party, as it would any other services provided by QR Ltd to QR Network.

The Authority has considered, at length, the significant issue of ballast fouling on the central Queensland rail network (see section 2.10). As a result, the Authority has decided to reduce QR Network's regulatory asset base by around \$107 million.

The amount of \$107 million represents the difference, in net present value terms, between an efficient level of ballast maintenance and the amount QR Network will need to spend over the next 7 years in order to address concerns with the condition of the ballast in central Queensland.

This reduction in asset value will be written off over 7 years – the term of QR Network's proposed ballast-cleaning program. The Authority has apportioned the amount between systems on the same basis as it used to allocate the ballast costs – that is, by each system's proportion of forecast gross tonne kilometres (gtk's) compared with the aggregate gtk's.

On this basis, the resulting reduction in each of the systems' asset values, as at 1 July 2010, is:

- (a) Goonyella: \$50.6 million;
- (b) Blackwater: \$44.8 million;

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<sup>6</sup> QR Network's asset base roll-forward was submitted to the Authority on 30 April 2010 and proposes an asset value as at 30 June 2009 that is \$55,000 lower than the submitted forecast value.

- (c) Moura: \$5.6 million; and
- (d) Newlands: \$5.7 million.

### 2.3 Weighted Average Cost of Capital (WACC)

#### *Background*

QR Network's 2006 undertaking provided a nominal, post-tax 'vanilla' WACC of 8.43% that was comprised of a return on debt of 6.64% and a return on equity of 10.61%. As the risk-free rate at that time was 5.21%, these returns provided QR Network with debt and equity margins of 143 and 540 basis points (bp) respectively.

In its 2009 DAU, QR Network reassessed its WACC through a 'bottom-up' review of the individual WACC parameters. In doing so, QR Network received advice on the return on equity from Synergies Economic Consulting (Synergies) and advice on the risk-free rate, capital structure and debt margin from Competition Economists Group (CEG).

QR Network's proposed WACC of 11.76% was based on a simulation approach that relied on a range of values for key WACC parameters and point estimates for others (see Table 2.2). QR Network's claim provided for debt and equity margins of about 296 and 767 bp respectively. These proposals were subsequently overtaken by the effect of the global financial crisis (GFC).

QR Network supported its proposal on the basis that its investment risk profile has changed since its last regulatory review given the anticipated increase in its proposed capital expenditure program. QR Network submitted that, in addition to around \$850 million capital expenditure for the 2006 undertaking, it faced a \$1 billion plus capital expenditure program over the coming regulatory period as well as other future investments in rail infrastructure associated with the GAPE project, the Surat Basin Railway (SBR) and the Wiggins Island Coal Terminal (WICT) (QR Network, sub. no. 11: 36).

While QR Network believed that short to medium term demand forecasts for Queensland coal remained favourable, it argued that forecasts were more uncertain over the long term – in particular, in relation to government imposed environmental / climate change policies (e.g. carbon emissions trading) and technological change (e.g. pulverised coal injection) (QR Network, sub. no. 11: 31-32).

QR Network was, therefore, particularly concerned about its asset stranding risks which are not addressed by the shorter term risk mitigation measures (e.g. approvals processes for capital expenditure) that had been included in the 2006 undertaking (QR Network, sub. no. 11: 37). Given this, QR Network suggested that its asset stranding risks could be addressed through:

- (a) compensation via prices through a cash flow or WACC adjustment; and
- (b) reduction in the risk through accelerated depreciation.

Conversely, Asciano and the QRC argued that these risk matters should not require compensation through an uplift to the WACC as they had already been addressed elsewhere within the regulatory framework such as through a revenue cap, take-or-pay conditions, accelerated depreciation and project specific access conditions (Asciano, sub. no. 33: 46 and QRC, sub. no. 38: 61).

The QRC stated that, as a result, QR Network was substantially insulated from the risks of the industry in which it operates as well as the risks arising from its own performance. Indeed, QR Network had chosen a range for a WACC estimate where the lower bound estimate was at the upper end of a plausible range (QRC, sub. no. 38: 63-64).

In its December 2009 draft decision, the Authority accepted the arguments presented by both QR Network and stakeholders that any assessment of WACC should be in the context of the risks faced by QR Network. Some of the risk reduction measures proposed by QR Network appear to be unrelated to covariance risk (e.g. long term asset stranding) and are, therefore, not normally reflected in WACC estimates.

However, the Authority noted that, in its December 2005 decision, an uplift to the asset/equity beta was provided to address the investment risks faced by QR Network. The Authority, therefore, reconsidered the reasonableness of this uplift in the context of the additional risk reduction measures proposed by QR Network in the 2009 DAU. In particular, the Authority proposed to reduce the equity beta from the 0.90 applied in the 2006 undertaking to 0.80 as assessed by its consultants before the uplift factor applied by the Authority in the 2006 undertaking.

Accordingly, in its December 2009 draft decision, the Authority proposed a WACC of 9.41%, which was higher than approved as part of the 2006 undertaking given the increase in the debt margin due to the tightening of credit markets in a response to the GFC, offset to a degree by the proposed reduction in the equity beta.

In making that decision, the Authority noted that QR Network had generally proposed parameter ranges where the lower end of those ranges was at the high end of ranges that the Authority considered to be reasonable. The effect of this was compounded when QR Network proposed a WACC that sat at the 75th percentile of a distribution based on already high parameter ranges.

The Authority considered that its parameter estimates were conservative given the risk mitigation measures the Authority was proposing to accept.

**Table 2.2: WACC Parameters – Authority's 2009 draft decision**

<i>Parameter</i>	<i>QR Proposal 2009</i>	<i>QR Proposal Updated</i>	<i>QCA Proposal 2009</i>
Credit rating	BBB+	BBB+	BBB+
Risk-free rate	6.70%	5.58%	5.29%
Risk-free rate premium	0.45%	0.45%	0.00%
Market Risk Premium	6.75%	6.75%	6.00%
Asset beta	0.58	0.58	0.45
Gearing (debt %)	55%	55%	55%
Equity beta	1.07	1.07	0.80
Gamma (franking credit benefit)	0.13	0.13	0.50
Equity Margin	7.67%	7.67%	4.80%
<b>Cost of Equity</b>	<b>14.37%</b>	<b>13.25%</b>	<b>10.09%</b>
Debt margin	2.80%	4.10%	3.43%
Debt transaction costs	0.16%	0.16%	0.13%
Total Debt Margin	2.96%	4.26%	3.56%
<b>Cost of Debt</b>	<b>9.66%</b>	<b>9.83%</b>	<b>8.85%</b>
WACC Margin	5.08%	5.79%	4.12%
WACC	11.76%	11.37%	9.41%

In its 2010 DAU, QR Network has proposed to accept many aspects of the Authority's draft decision on WACC, such as the Authority's debt beta and gamma parameter estimates as well as removing the risk-free rate uplift (i.e. the 'convenience yield').

However, QR Network has rejected the Authority's proposal for benchmarking the risk-free rate on the basis of the 5-year nominal Commonwealth Government bond. Also, while QR Network has reduced its claimed equity beta to 1.0, it still remains well above the estimate in the current undertaking and the level proposed by the Authority in its December 2009 draft decision.

At the same time, QR Network not only retained the risk mitigation measures proposed in the 2009 DAU but has also sought more liberal arrangements to seek above regulatory rates of return for investments above \$300 million.

While this part of the draft decision on QR Network's 2010 DAU focuses on pricing and WACC-related issues, it has not been undertaken in isolation of these other risk mitigation measures proposed by QR Network.

### *Risk-free Rate*

The risk-free rate is the rate of return on an asset with zero default risk. The Authority's past practice has been to use the promised yield on 10-year Australian Commonwealth Government nominal bonds to proxy the risk-free rate element of the cost of equity and the cost of debt when calculating the WACC.

### *Background*

In its 2009 DAU, QR Network proposed a risk-free rate of 6.70% – this estimate was based on the mean yields of 10-year Commonwealth Government nominal bonds over the 20-day averaging period 23 May 2008 to 20 June 2008.

QR Network also proposed a 0.45% uplift to the risk-free rate component of the cost of equity on the basis that government bond yields at the time were downward biased, due to high demand driven by a 'flight to quality' (e.g. bonds with very low default risk).

In its December 2009 draft decision, the Authority rejected this proposed uplift as the Authority considered that, *inter alia*, QR Network's claimed 'bias' is a reflection of the change in the supply and demand for government bonds, and such price (and yield) changes are consistent with the Capital Asset Pricing Model (CAPM) on which the Authority's approach to the cost of equity is based.

The Authority also rejected some stakeholders' proposals to overcome their concerns with the Authority's standard practice of fixing the risk-free rate for a 5-year period, in light of debt market illiquidity and volatility arising from the GFC. In particular, the Authority did not accept the:

- (a) QRC's argument for an annual reset of the time-variant WACC parameters (i.e. the risk-free rate and debt margin) (QRC, sub. no. 38: 64) as this would be equivalent to adopting a one-year regulatory reset; and
- (b) QTC's proposal to update 20% of the risk-free rate and debt margin each year over a 5-year regulatory period (QTC, sub. no. 39: 2) as this proposal was inconsistent, in that it invoked a 10-year risk-free rate in conjunction with a debt roll-over of 20% per year, which implies a 5-year debt term and, therefore, a 5-year risk-free rate.

In setting the risk-free rate, the Authority questioned the standard regulatory approach of setting the term of the risk-free rate (and debt margin) at 10 years rather than at the term of the

regulatory cycle (e.g. 5 years). The former approach has been based on regulatory precedent where regulators have accepted the argument that the term of the bond should be a proxy for the life of the regulated asset. However, the Authority has previously questioned that approach on the basis that, *inter alia*, it will tend to over- or under-compensate the regulated business depending on the term structure of bond yields.

Importantly, the Authority considered that setting the term of the risk-free rate with reference to the length of the regulatory period satisfied the fundamental regulatory test, which is that the net present value of the future cash flows of the regulated firm should equal the initial investment (see Box 1 for a further discussion of the 'NPV = 0' principle) (Lally 2004, Lally 2007(a)). This principle is equivalent to the statement that the regulated price should cover the firm's efficient costs, *including the cost of capital* (Schmalensee 1989).

### **Box 1: The NPV=0 Principle and the Term of the Risk-free Rate**

In the context of the regulatory WACC, the most important aspects of satisfying the NPV=0 principle are:

- (a) using a risk-free rate within the cost of equity that matches the regulatory cycle (i.e. 5 years or closest) and applying the current rate;
- (b) using a risk-free rate within the cost of debt that matches the regulatory cycle (i.e. 5 years or closest) and applying the current rate; and
- (c) using a debt premium within the cost of debt that matches the regulatory cycle (i.e. 5 years or closest) and applying the current rate.

In terms of (a), this conclusion can be illustrated by considering a regulated firm with no debt and no output or operating cost risk (in order to focus upon the crucial point). For such a firm, upon setting the revenue cap for five years, the firm's revenues net of operating costs are then fixed for five years. At the end of that 5-year period, the regulator again resets the firm's revenue cap for five years, which implies that its revenues net of operating costs are again fixed for that five years.

Shareholders in this firm are therefore the owners of a stream of cash flows that are fixed for five years, then reset and fixed for another five years, *etc.* Such shareholders are in essentially the same position as that of investors in 5-year government bonds who, upon the maturity of the bonds, simply reinvest the principal in new 5-year government bonds. Since the two sets of investors are essentially in the same situation, they should earn the same rate of return.

For the investors in 5-year government bonds, this return is that on 5-year government bonds. Therefore, the shareholders in the regulated business should receive the return on 5-year government bonds. It then follows that the cost of equity for such a firm is the risk-free rate corresponding to the return on 5-year government bonds.

Of course, shareholders in regulated firms are, in general, subject to risks surrounding output and operating costs and these risks require compensation. This compensation is achieved by the regulator adding a risk premium to the 5-year government bond rate. Therefore, even in the presence of risks surrounding revenues and operating costs, the correct risk-free rate to apply is still that rate on 5-year government bonds (i.e. that term matching the regulatory cycle).

In addition, regulated firms typically have debt, and a regulator must set a cost of debt as well as a cost of equity. This allowed cost of debt should match the cost of debt incurred by a firm adopting an efficient debt policy (as the allowance for operating costs should match the operating costs incurred by an efficiently operating firm), but this additional step does not change any of the arguments in respect of the cost of equity – the correct risk-free rate for the cost of equity is still the rate on 5-year government bonds or those of a term that matches the regulatory cycle.

In terms of setting the cost of debt (b-c), the scenario just described must be extended to include another set of capital investors, namely debt providers. Their presence introduces, *inter alia*, an optimal debt maturity decision for the firm. If the average debt term (from issuance to maturity) is 5 years, a firm should adopt a 5-yearly debt refinancing policy consistent with the term of the regulatory cycle. Such a policy enables the firm to match the fixed payments on its debt obligations with those costs embedded in its regulated revenues, the latter which reflect a 5-year risk-free rate.

Therefore, in this case, the cost of debt should comprise the 5-year risk-free rate, the 5-year debt premium, and the annualised cost of 5-yearly debt issues. As this compensation satisfies the NPV=0 principle, the regulator should provide this cost of debt. However, if the firm chooses to act otherwise then the debt strategy adopted, and its associated risks and costs, are a matter for that firm and not the regulator. In other words, the regulator's role is to set a cost of debt that is efficient.

Accordingly, in its December 2009 draft decision, the Authority set the risk-free rate in the cost of equity and cost of debt to the 5-year rate.

The Authority also argued that the regulated firm should have the incentive to match its borrowings to the term of the regulatory cycle. The Authority did, however, provide for debt refinancing costs.

#### QR Network's 2010 DAU

QR Network proposed a 10-year risk-free rate of 5.60%, estimated over the approved averaging period of January 2010 to February 2010 (QR Network, sub. no. 57: 16 and sub. no. 70: 59-60). In doing so, QR Network rejected the Authority's draft decision to set the term of the risk-free rate and debt margin equal to the term of the regulatory cycle (i.e. 5 years). Rather, QR Network maintained its previous position that the risk-free rate should be set with reference to a long-term, forward-looking horizon (i.e. 10 years).

#### Stakeholder Submissions

QR Network's approach to setting the risk-free rate was supported by both the Queensland Government and the Queensland Treasury Corporation (QTC). While QR Network and these stakeholders made a number of arguments objecting to the move to a 5-year term (see Table 2.3), the most significant related to refinancing risk.

QR Network, the QTC, and the Queensland Government submitted that using a 5-year term could expose QR Network to unnecessary refinancing risk. Refinancing risk is the risk of unusual conditions in credit markets at the time of refinancing, in particular, the unavailability of credit at any price and/or exposure to market power of credit providers when all of a firm's debt is refinanced contemporaneously (QR Network, sub. no. 57: 12-16 and sub. no. 70: 60, Queensland Government, sub. no. 53: 3-4, QTC, sub. no. 51: 3-4).

In this context, they all expressed the concern that, by adopting a 5-year term for the risk-free rate and debt margin, the Authority failed to recognise that prudent debt management involves using an average term of debt that is long (e.g. 10 years) to mitigate refinancing risk.

For example, a regulated firm might seek an average debt term of 10 years, such that, in conjunction with staggering of the maturity dates, 10% of the debt requires roll-over in any one year. This strategy is in contrast to one where the firm seeks an average debt term of 5 years (to match the regulatory cycle) but then incurs a 20% debt roll-over per year, resulting in more concentrated refinancing and the associated, greater refinancing risk.

Moreover, it was argued that:

- (a) a 5-year term is inconsistent with the efficient benchmark comparator regulatory paradigm – as evidence suggests that comparator firms operating in the commercial world borrow for longer terms, the Authority should not force QR Network to do otherwise (i.e. borrow for a 5-year term) (QR Network, sub. no. 57: 12-13);
- (b) the historical spread between yields of 5-year and 10-year government bonds is relatively immaterial and, therefore, over-compensation of the regulated firm with respect to using a 10-year, rather than 5-year, risk-free rate is relatively immaterial (Queensland Government, sub. 53: 4); and
- (c) using a 5-year risk-free rate is inconsistent with relevant regulatory precedent (Queensland Government, sub. 53: 2).

In contrast, the QRC supported, and Anglo American did not object to, the Authority's move to a 5-year term for the risk-free rate and debt margin (QRC, sub. no. 55: 6 and Anglo American, sub. no. 47: 60).

#### Authority's Analysis and Draft Decision

In its December 2009 draft decision, the Authority set the risk-free rate and debt margin using a term equal to the regulatory cycle, principally on the basis of satisfying the fundamental principle of regulation (i.e. the NPV=0 rule). In doing so, the Authority acknowledged the strong conceptual soundness of this move and the materiality of the prevailing differences between 10-year and 5-year risk-free rates.

Stakeholders were critical of this approach for a number of reasons, the most compelling of which related to debt refinancing risk. The Authority engaged Dr Martin Lally to review the Authority's draft proposal and stakeholder submissions – a copy of that report (Lally 2010) can be downloaded from the Authority's website. The Authority's and Dr Lally's responses to stakeholders' concerns are summarised in Table 2.3. The Authority's consideration of the debt refinancing risk concerns are set out below.

The risk-free rate, based on the 5-year Commonwealth Government bond, appears in both the cost of equity and the cost of debt.

In setting the cost of equity in the CAPM, Dr Lally supported the Authority's proposed approach to set the term of the risk-free rate equal to the term of the regulatory cycle (i.e. 5 years) as this approach satisfies the NPV=0 principle (see Box 2.1 for an elaboration of the reasoning for this conclusion).

As stakeholders' concerns in relation to debt refinancing risks are not relevant to the cost of equity, the Authority confirms its December 2009 draft decision to rely on the 5-year Commonwealth Government bond in setting the return on equity.

In setting the cost of debt in the December 2009 draft decision, the Authority benchmarked the risk-free rate based on the 5-year Commonwealth Government bond while the debt margin was based on market evidence of BBB+ bonds and an allowance was provided for refinancing costs. No allowance was made for refinancing risk.

In considering stakeholder submissions, Dr Lally considered that refinancing risk is not a matter to be resolved by reference to in-principle arguments but rather one that should be considered with reference to market evidence of relevant comparators' actions.

Dr Lally said that refinancing risk is a valid concern if the average debt term (from issuance to maturity) of relevant comparators materially exceeds the term of the regulatory cycle. In this regard, Dr Lally noted that the only rational reason for a firm, subject to a fixed regulatory cycle, to issue debt longer than the regulatory cycle is to reduce its refinancing risk. Therefore, Dr Lally accepted that the presence of refinancing risk complicates the regulator's objective of setting an efficient cost of debt (i.e. one that satisfies the NPV=0 principle).

Therefore, in considering this matter, the Authority sought market information regarding the average debt term of relevant comparators. As the Authority considers regulated electricity businesses to be reasonable comparators to QR Network, the relevant starting point was the average term of debt for those firms considered by the Australian Energy Regulator (AER) in its WACC review. Their submissions indicated an average debt term of about 10 years (AER, May 2009: 133).

In addition, an examination of the market evidence on the debt activity of these firms since that time, as well as other market investigations, indicates that a 10-year term remains appropriate. As a result, the Authority has concluded that refinancing risk is material.

Dr Lally identified a range of possible debt strategies that the regulated firm could adopt to manage its refinancing risk (e.g. stagger maturity dates and/or partition its debt roll-over). In general, these risk management strategies will *not* match all debt issues to the regulatory cycle. However, Dr Lally argued that the regulator could still satisfy the NPV=0 principle even when the average term of debt materially exceeds the regulatory term provided that:

- (a) the term of the risk-free rate in the cost of debt most closely matches the term of the regulatory cycle (i.e. 5 years); and
- (b) swap contracts are available to convert the firm's actual schedule of debt issues to one that aligns with the regulatory cycle – in particular, it would be efficient for a regulated firm to purchase:
  - (i) interest rate swaps to convert the risk-free rate element of the cost of debt into 5-year debt; and
  - (ii) credit default swaps to convert the debt premium element of the cost of debt into 5-year debt.

Therefore, even in the presence of refinancing risk, the appropriate risk-free rate benchmark remains the Commonwealth Government 5-year bond.

However, it would be efficient debt policy for a firm in this situation to undertake the required credit default and interest rate swaps. As such, the regulator should compensate the firm for these costs, just as it covers insurance premia for efficiently managing other business risks.

The Authority's empirical analysis determined that, in general, interest rate swaps are sufficiently available for a benchmark firm with a debt level and credit rating comparable to QR Network and that the annualised cost is 15-20 bp, with a midpoint of 17.5 bp.

On the other hand, market research indicated that credit default swaps for the volume required for QR Network would not be available based on the current structure of the Australian credit default swap market. In particular, it is noted that:

- (a) credit default swaps are, in general, unavailable to hedge underlying physical debt with a term of greater than five years; and
- (b) even if 'one-off' transactions could be arranged, the volumes required for such transactions would probably require cash collateralisation, which would place additional costs on the firm.

Given the advice provided by Dr Lally, the Authority considers that a reasonable proxy for the cost of credit default swaps is the difference between the 10-year and the 5-year debt margins for BBB+ bonds.

Accordingly, the Authority considers that a reasonable cost of debt for QR Network is 9.94% which is comprised of: the 5-year risk-free rate (519 bp); the 5-year debt margin (362 bp); periodic debt refinancing costs (12.5 bp); interest rate swap costs (17.5 bp); and proxy for credit default swap costs (83 bp).

The Authority's proposed total cost of debt of 9.94% compares to 10.13% under the Authority's previous practice and 8.75% in the December 2009 draft decision.

In making this decision, the Authority notes that it has made the in-principle decision to benchmark the risk-free rate based on the 5-year Commonwealth Government bond. Its decision to provide compensation for interest rate and credit default swap costs is based on the current empirical evidence that comparator firms are addressing refinancing risk by issuing bonds with an average term of debt of 10 years. At the next regulatory reset, the Authority will review this empirical evidence and, on the basis of that evidence, the need for interest rate and credit default swaps and the debt maturity on which they are based.

Stakeholder submissions also raised concerns in relation to a range of matters other than refinancing risk. These comments have not altered the Authority's view on its approach to setting the risk-free rate. The reasons for this are set out below and summarised in Table 2.3.

First, QR Network has argued evidence suggests that, as comparator firms operating in the commercial world borrow for longer terms, the Authority should not force QR Network to borrow for a shorter term (i.e. a 5-year term). In considering this issue, the Authority has retained its position that a 5-year term is the appropriate benchmark for setting the risk-free rate, but has now provided a reasonable allowance for hedging costs to allow longer term debt to be converted to 5-year debt. Ultimately, however, it is a matter for QR Network whether it adopts a debt profile of 5 years or a longer term debt profile (with or without hedging).

Second, the Authority rejects the argument that over-compensation of the regulated firm with respect to using a 10-year, rather than 5-year, risk-free rate is relatively immaterial. The risk-free rate differential is currently about 40 basis points, which translates into about a 3% difference in the rate of return.

Third, in terms of regulatory precedent, the Authority does not find the Australian Competition Tribunal's decision compelling, as its decision was made without reference to the NPV=0 rule.

The Authority also notes that the AER's decision recognised the strong conceptual arguments for the 5-year risk-free rate. However, the AER considered it appropriate to take a cautious approach at that time to ensure it did not increase refinancing risk for the regulated firms in that sector. To address this concern, the AER reverted back to its previous practice of using the 10-year risk-free rate and the 10-year debt margin.

However, the Authority considers that its approach is a more correct response to refinancing risk.

#### *Market Risk Premium*

The market risk premium (mrp) is the expected rate of return on the market portfolio of risky assets. In past undertakings, the WACC has been based on a market risk premium of 6.0%.

#### *Background*

In its 2009 DAU, QR Network proposed a range of 6.0%-7.0% for the mrp, with a point estimate of 6.75% being consistent with its submitted WACC of 11.76% (QR Network, sub. no. 11: 81-83).

QR Network's mrp range was based on work by its consultant, Synergies, who presented results from a selection of studies that estimated the premium based on historical averaging of *ex post* annual market returns over the Commonwealth Government bond rate (QR Network, sub. no. 11: 81-83).

Stakeholders did not comment on this WACC parameter.

**Table 2.3: Stakeholder Arguments and Responses**

<i>Stakeholder Argument</i>	<i>Response</i>
The Authority's use of a 5-year term is inconsistent with research by Miller and Modigliani (1958), as it fails to recognize that, if 5-year debt issuance reduces the cost of debt, it will increase the rate of return required by equity investors by an offsetting amount, due to a 5-year term causing relatively less certainty about the level of long term cash flows (QR Network, sub. no. 60: 7-9).	Dr Lally rejected this argument saying that M&M (1958) make <i>no</i> claim about the relationship between a firm's debt maturity and the cost of equity. Rather, M&M (1958) deals with the effect of a firm's <i>capital structure</i> on its equity risk, cost of equity, and WACC. Dr Lally noted that M&M (1958) is irrelevant on this point as it does not even mention the debt maturity decision.
Infrastructure firms' dominant strategy is for 10-year debt which show that long term debt is efficient. A firm will continue to issue long term debt, even if short term interest rates are lower, as any benefit is offset by an increase in equity risk. Therefore, a move to a 5-year rate only reflects "one side of the coin" (e.g. lower interest rates) without allowing for a higher cost of equity (QR Network, sub. no. 60: 9-11).	Dr Lally rejected the claim that empirical evidence supports a view that a 5-year debt term will increase the cost of equity. Dr Lally argued that moving from 10 to 5 year debt might lower a firm's cost of debt, by avoiding the debt maturity premium on 10-year debt, but it would increase its annualised debt issuance costs and refinancing risk. These factors <i>alone</i> are sufficient to explain a preference for 10-year debt without necessitating an increase in the cost of equity.
It is inconsistent to use a 5-year risk-free rate in the first term of the CAPM but a 10-year rate in estimating the market risk premium. The CAPM embodies a single risk-free rate, so it is inappropriate to introduce a different rate (i.e. the 5-year rate) for the first term in the CAPM. Also, the 5-year rate should not be justified simply on the basis that the difference between the 5-year and 10-year rates is well within the mpr's standard error of estimate (QR Network, sub. no. 60: 20-21).	Dr Lally argued that consistency within CAPM can be satisfied by using the 5-year rate in estimating the mpr. In doing so, Dr Lally demonstrated that there is no material change to the Authority's mpr estimate across a range of the Authority's estimation methodologies. The only exception is if the across-investor average investment period is around 1 year, and there is no evidence to support such an assumption.
Changing a previously accepted regulatory parameter may raise concerns for potential investors on the future predictability of the regulatory regime. The Queensland Government cited the AER's 2009 review of WACC parameters, which acknowledged the conceptual arguments in favour of a 5-year term but noted the importance of regulatory stability in retaining a 10-year term (Queensland Government, sub. no. 53: 2).	Dr Lally accepted that a change might raise concerns about the predictability of the regulatory regime, but concluded that accuracy in estimating WACCs is more important than consistency – e.g. if a regulator has consistently underestimated WACC this would undermine the incentive to invest, and conversely, if a regulator has consistently overestimated WACC consumers would face unnecessarily high prices. In either case, any material under- or over-compensation should be corrected.
If the Authority is the only Australian regulator to apply a 5-year (rather than 10-year) term, it will lower WACC for QR Network relative to other regulated firms. The Queensland Government said this would materially disadvantage QR Network relative to other regulated entities in competing for investment capital (Queensland Government, sub. no. 53: 2).	Dr Lally rejected this claim as it implicitly assumes that the amount of available capital is fixed. In particular, regulated firms will be able to raise the required capital as long as the allowed prices cover all of their costs (i.e. satisfy the NPV=0 rule). If other regulated firms are treated more generously this is not sufficient justification for the Authority to do likewise.
A 5-year term will penalise firms for locking in interest rates at the reset on known future capital expenditure if the term structure of interest rates is upward sloping. The business will receive revenues based on the 5-year spot rate (determined at the reset) but if the term structure is not flat, the cost of funding the future capital expenditure will exceed the spot rate, thereby violating the NPV=0 principle (QTC, sub. no. 51: 1-2).	Dr Lally accepted the QTC's claim that, for capital expenditure, a 5-year risk-free rate will not generally satisfy the NPV=0 principle. However, the 5-year rate will more closely approximate the correct rate than using the 10-year rate. Dr Lally demonstrated that, even if capital expenditure is 50% of the regulatory asset value, the correct choice is still the 5-year rate. In doing so, Dr Lally said the regulator could allow the costs to hedge the interest rate risk <sup>7</sup> but the impact is negligible (i.e. about 3 bp).

<sup>7</sup> This is the interest rate risk that arises from the 5-year rate being applied by the regulator for the capital expenditure incurred over the term of an undertaking.

In its December 2009 draft decision, the Authority noted that a range of methodologies can be used to estimate the mrp and that all estimation techniques have their own limitations. In particular, some methodologies (e.g. Ibbotson historical averaging) have significant biases. Therefore, in estimating the mrp, the Authority relied on a range of six techniques (four primary): Ibbotson historical averaging (6.99%); Siegel historical averaging (5.27%); Merton method (6.2%); Cornell method (5.68%); discounted dividends model (3.66%); and surveys (6.0%).

Using these methodologies and the most recent data available at that time (i.e. up until 2008), the Authority derived six estimates of the mrp that ranged from 3.66%-6.99%, with a median of 5.84%, and a mean of 5.63%. As 6.0% was higher than both the Authority's median and mean estimates from these methodologies, the Authority concluded that 6.0% was reasonable.

The Authority also noted that, in a May 2009 decision on WACC parameters for energy networks, the AER increased its mrp estimate from 6.0% to 6.5% on the basis of concerns at that time of the effect of market instability resulting from the GFC.

The Authority did not propose to adopt the AER's decision on this matter on the basis that:

- (a) the Authority's methodologies indicate that 6.0% is a reasonable estimate and sits above both its median and mean estimates;
- (b) any adjustments made for short term fluctuations in market conditions are inherently highly subjective, both in the scale of the adjustment and the period over which they would need to be subsequently reversed; and
- (c) in its previous decisions, the Authority did not lower the market risk premium when market conditions at the time led some stakeholders to seek a reduction – therefore increasing the premium now would be inconsistent with its past practice that sets the mrp at a level to encourage investment over the medium term and not in response to short term market fluctuations. This is a view which is also supported by Gray and Officer, (2005: 10-11).

The Authority also took into consideration the potential inconsistency of retaining a 6.0% mrp (which was in part derived relative to the 10-year Commonwealth Government bond) but using the 5-year Commonwealth Government bond rate in other aspects of this draft WACC decision. In this regard, available data indicated that the average difference between the 5-year and 10-year Commonwealth Government bond rates is around 20 bp (i.e. 0.20%). As such, the Authority observed that such a difference is well within the standard error of its estimate and the headroom it provided between the proposed 6.0% allowance and the median/mean estimates relying on a range of methodologies.

#### QR Network's 2010 DAU

While QR Network's 2010 DAU did not directly address the mrp, it indicated that its 2010 DAU was based on its February 2010 response to the December 2009 draft decision.

In that response, QR Network maintained that a reasonable range for the long term mrp was 6.0%-7.0%. Furthermore, QR Network claimed that, in its December 2009 draft decision, the Authority:

- (a) did not specifically address Synergies' proposed mrp range; and
- (b) continued to rely on an estimate of 6.0% as reasonable on the basis of a report by Lally (2004).

Despite this, QR Network accepted the Authority's estimate of 6.0%, in the interest of long term stability and regulatory certainty. QR Network added that, in the event that the Authority chooses to maintain a 5-year risk-free rate, the Authority should adjust its mrp estimate upward for the 0.20% differential between 5-year and 10-year risk-free rates (QR Network, sub. no. 57: 16-18).

CEG, on behalf of QR Network, argued that the Authority's draft decision on the mrp was flawed in a number of ways, particularly with regard to the decision *not* to upward adjust the mrp, as:

- (a) uncertainty in the value of parameters (e.g. the mrp) is not a basis for introducing a known bias into the methodology;
- (b) the Authority's assertion that it has included a positive margin for error (i.e. 'headroom') in its draft mrp estimate is unjustified, as CEG has estimated a range of 8.3%-16.7% for the forward-looking mrp; and
- (c) an updated 5-year risk-free rate will best proxy investors' required return at the beginning of the period, an updated estimate of the mrp should be used (QR Network, sub. no. 60: 21-22).

#### Stakeholder Comments

Economic Insights, on behalf of Anglo American, submitted a preferred estimate of 5.3% based on applying the Ibbotson methodology. However, in proposing a materially lower estimate, Economic Insights acknowledged that, given its high standard error, it is not possible to conclude that the mrp should be lower than the Authority's estimate of 6.0% (Anglo American, sub. no. 47: 61-65).

#### Authority's Analysis and Draft Decision

In terms of QR Network's claims, the Authority rejects the notion that it did not consider Synergies' proposed mrp range. The Authority considered the material presented by Synergies but, as with some other aspects of its assessment of the 2009 DAU, chose not to document its views in the draft decision.

The Authority estimated the mrp using a range of methodologies. While it was not specifically stated in the draft decision, although the conclusion could have been drawn by implication, the Authority believed that its estimates were superior to those presented by Synergies.

In particular, the Authority made its own estimates of the mrp because it concluded that Synergies relied only on historical averaging, which suffers from the central limitation of upward bias. In addition, the Synergies range was based on a series of studies which are somewhat dated – this has the effect of producing higher mrp estimates than would be the case if the more recent data was included.

Moreover, while it is correct that the Authority relied on the recommended methodologies in the Lally (2004) report for determining its mrp estimate, it updated those estimates with the most recent data available at that time. While the Authority re-estimated the mrp using this updated data, the results of the analysis did not cause it to change its conclusion from the earlier estimated mrp of 6.0% based on Lally (2004).

It is also noted that CEG made a specific request for further details on the Authority estimate of the 0.20% differential between 5-year and 10-year bond rates (QR Network, sub. no. 60: 22). The Authority obtained the relevant data from the Reserve Bank of Australia website

([www.rba.gov.au](http://www.rba.gov.au)) from the longest times series available<sup>8</sup>. However, in estimating the differential, the Authority notes that mrp estimates can be based either on bond yields to maturity or on bond returns. As the Authority extended Officer's data, which uses bond yields to estimate the mrp, the Authority likewise used bond yields – the use of bond returns would introduce an inconsistency into the estimation methodology, which is inappropriate.

The Authority also does not accept CEG's arguments regarding its December 2009 draft decision on the mrp. In response to the first claim, Lally (2010) re-estimated the mrps for each of the Authority's four primary methodologies, substituting 5-year bond rates for 10-year rates and obtained these revised estimates: Ibbotson (7.14%), Siegel (5.29%), Cornell (5.87%), and surveys (6.0%). The effect is to increase the Authority's median estimate from 5.84% to 5.94%. Therefore, adopting the 5-year risk-free rate would not change the Authority's estimate from 6.0%.

CEG has also argued that the Authority should increase its mrp estimate from 6.0% given CEG's forward-looking estimates, which currently range from 8.3% to 16.7%.

In contrast, Economic Insights has also provided its own mrp estimate of 5.3% (using the Ibbotson historical averaging method), which is well below the mrp range provided by QR Network and CEG.

This difference in competing estimates highlights a key point the Authority made in its December 2009 draft decision, namely that there are a variety of methods for estimating the mrp and the resulting estimates can vary. Importantly, as all methods suffer from limitations, the Authority draws upon a range of valid methods, and these indicate that 6.0% is reasonable<sup>9</sup>.

Moreover, while QR Network has proposed to increase the mrp to reflect the impact of the GFC, it has not provided compelling evidence to justify this claim. Indeed, the mrp estimates presented by QR Network are based on forward-looking methodologies – an approach that QR Network dismissed as unreliable in material presented in support of its 2009 DAU.

Moreover, as the mrp is estimated and then fixed for five years at the regulatory reset, it could be anticipated that short term market fluctuations during the regulatory cycle result in an observed mrp that is either higher or lower than the mrp estimate determined at the previous reset. However, such observations do not mean that the regulatory mrp estimate should be set aside.

Given this, the Authority does not believe that a sufficient case has been made for it to move away from its December 2009 draft decision.

Accordingly, for this draft decision, the Authority has adopted a mrp of 6.0%.

### *Debt Beta*

The WACC for the 2006 undertaking was based on a debt beta of 0.12. This was based on choosing the mid-point between a range of values where the lower bound was 0 and the upper bound was the debt margin divided by the market risk premium.

<sup>8</sup> Table F2: Capital Market Yields – Government Bonds – Monthly reports yields for a range of bond terms. For the period January 1972 to November 2009, the arithmetic average yields on 5-year and 10-year bonds (annualized) are 9.15% and 9.35% respectively. This implies a differential of 0.20%.

<sup>9</sup> It is mathematically demonstrable that using a weighted estimate based on estimates from a range of valid methodologies lowers the standard deviation of that (weighted) estimate and, in particular, even methods with high standard deviations should be attributed some positive weight.

As part of the 2009 DAU, Synergies submitted that the Authority's previous approach is likely to materially overstate the actual debt beta as the size of the debt margin has increased significantly recently and that margin includes a non-trivial component for non-systematic default risk. Therefore, to the extent that the debt beta is overestimated, the equity beta is underestimated.

As a result, Synergies argued that the Authority should rely on a zero debt beta but noted that the value attributed to the debt beta would not have an impact if the same value was used when de-levering and re-levering the beta estimates (QR Network, sub. no. 16: 35-39).

In its December 2009 draft decision, the Authority did not accept Synergies' proposal to apply a zero debt beta, as research indicated that the debt margin includes a positive and non-diversifiable component. However, the Authority did accept Synergies' point that, as long as the same value of the debt beta is applied consistently in the de-levering and re-levering process, the effect on the equity beta range should not be material.

Given this, the Authority's draft decision was to retain its existing debt beta estimate of 0.12.

While QR Network did not agree with the Authority's draft decision, it did resubmit a debt beta estimate of 0.12 as part of its 2010 DAU.

Given this, the Authority has adopted a debt beta of 0.12 for this decision.

#### *Asset/Equity Beta*<sup>10</sup>

##### Background

In the 2006 undertaking, the Authority accepted that an asset beta of 0.45 would be reasonable, with a possible range being 0.35 to 0.50. However, the Authority settled on an asset beta of 0.50 to ensure there was sufficient incentive for QR Network to undertake timely investment in major new infrastructure. At the benchmark gearing of 55%, the asset beta of 0.50 gave an equity beta of 0.90.

In its 2009 DAU, QR Network proposed an asset beta range of 0.50-0.60, which converts to an equity beta range of 0.93 to 1.11 at 55% gearing.

Synergies, on behalf of QR Network, proposed this range on the basis of a first principles analysis that sought to identify firms with similar fundamental drivers of covariance risk to QR Network, including the nature of their product (i.e. coal) or the service (i.e. coal handling and rail freight haulage). The comparators submitted were U.S. and Canadian rail companies (0.82/1.55), U.S. coal firms (1.14/1.20), and a Canadian coal export terminal, Westshore Terminals Ltd (1.27/2.47)<sup>11</sup>.

In undertaking this analysis, both QR Network and Synergies acknowledged there were no close comparators for QR Network. For example, Synergies noted that the U.S. class 1 railroads are likely to have higher covariance risk as they carry intermodal freight even though the majority of their revenue is from long term coal contracts (QR Network, sub. no. 16: 62, 72-75).

Accordingly, Synergies considered that a reasonable asset beta range for QR Network would be between 0.50-0.60, which is less than the railroad with the lowest asset beta (i.e. less than 0.65).

<sup>10</sup> As Synergies has principally reported asset betas and ACG has reported equity betas, for comparison purposes the Authority has presented consistent asset and equity betas using the convention,  $\beta_a / \beta_e$ , based on applying the Conine levering model, gearing of 55%, a debt beta of 0.12, and a gamma of 0.50.

<sup>11</sup> Asset and equity betas are averages for the indicated comparator group.

In response, the QRC argued that either the gearing or asset beta should be adjusted to reflect the risk reduction achieved by QR Network since the December 2005 decision – measures that would still provide QR Network with a WACC at the upper end of a plausible range (QRC, sub. no. 38: 64).

As part of its advice to the Authority, the Allen Consulting Group (ACG) examined US coal (1.44/2.80) and Australian coal (1.12/2.16) companies, New Zealand transport (0.81/1.53) and Australian transport (0.65/1.21) companies, U.S. class 1 railroads (0.98/1.87) and Canadian railroads (0.48/0.85) and energy transmission and distribution (0.62-0.80).

ACG concluded that none of these firms were close comparators to QR Network given the fundamental differences in their underlying drivers of business risk to QR Network. For example, ACG argued that coal companies are exposed to volatile coal prices and exchange rates, while the returns of transport firms and railroads are more sensitive to the economy due to the nature of consumer goods they carry. In contrast, QR Network's revenue cap insulates it from such volatility despite wide swings in coal prices, and the derived demand for its coal haulage services has less sensitivity to changes in the Australian economy.

For these reasons, the ACG rejected QR Network's proposed estimates as it considered them to be based on a set of inappropriate comparators.

However, ACG regarded regulated energy transmission and distribution firms (0.62-0.80) as being the most relevant. In particular, ACG observed that businesses in this sector have several characteristics that make their business risk profile similar to QR Network, including relatively uncorrelated demand, revenue caps, and/or take-or-pay contracts over significant volumes (ACG, June 2009: 28).

Accordingly, ACG concluded that there is no persuasive evidence to depart from its previously recommended range of 0.60-0.90 for QR Network's equity beta, with ACG's preferred estimate being 0.80 (at the upper end of its range).

In making its draft decision, the Authority took into account ACG's advice and also considered the recent AER decision to lower the equity betas for the regulated energy networks from 1.0 to 0.80. In this respect, the Authority noted that Professor Olan Henry's advice on beta estimates (ranging from 0.35 to 0.62) to the AER was particularly compelling. Given this advice, the AER considered an estimate of 0.70 to be reasonable but, in order to be conservative, gave the energy networks an equity beta of 0.80 (AER, May 2009: 331-332, 341-344).

In its December 2009 draft decision, the Authority agreed with ACG that there were currently no direct comparators to QR Network and that the most relevant comparators are the Australian regulated energy businesses. In particular, QR Network's covariance risk would be less than that of the regulated energy businesses as the energy businesses have demand and, therefore, return profiles that have a higher degree of covariance with the domestic economy.

The Authority considered that the measures that it proposed to accept as part of its December 2009 draft decision, in particular accelerated depreciation for new capital expenditure and the greater ability to seek access conditions (e.g. capital underwriting) for major projects, meant that QR Network's asset stranding risk was greatly reduced. Moreover, QR Network's exposure to covariance risk would be further reduced by other aspects of the 2009 DAU, including the annual updating of volume forecasts.

Accordingly, the Authority did not believe that the previous uplift to the recommended asset beta, from 0.45 to 0.50 (equity beta from 0.80 to 0.90 with 55% gearing) could still be justified. Indeed, the Authority considered there was a strong case for an equity beta lower than 0.80 (e.g.

0.70), as it would sit within the range proposed by ACG but still *above* the range estimated by Professor Henry for the energy businesses.

Therefore, in its December 2009 draft decision, the Authority concluded that an asset/equity beta of 0.45/0.80 was a conservative estimate.

#### QR Network's 2010 DAU

In its 2010 DAU, QR Network proposed an asset beta of 0.55 (equity beta of 1.0 with 55% gearing) and maintained its view that this estimate is the midpoint of a reasonable range of 0.50-0.60 (0.90-1.10). In doing so, it rejected the Authority's proposed asset beta of 0.45 for a number of reasons.

First, QR Network and its consultant Synergies argued that, as there are no close comparators for QR Network, it is reasonable to consider coal companies and railroads given the nature of the product and of the demand. While Synergies agreed that these companies are likely to have more covariance risk than QR Network, it noted that its proposed asset beta range of 0.50-0.60 sits below the range for these comparators (QR Network, sub. no. 61: 7-9).

QR Network and Synergies rejected the Authority's contention that regulated electricity transmission and distribution businesses are better comparators than coal companies and railroads. While they agreed that a key feature shared by QR Network and regulated energy is a revenue cap, they considered that other relevant factors are the nature of the product (i.e. coal) and service (i.e. freight transport) (QR Network, sub. no. 61: 9-10).

QR Network and Synergies also referenced to the AER's final decision that cited ACG's submission that there was no 'persuasive evidence' to justify a value other than 1.0 for the energy networks arguing that:

*As part of the AER review, the QCA's own consultant stated that it does not consider that the evidence presented to the AER was sufficiently persuasive to justify a value other than 1. ACG does not explain, and the QCA does not acknowledge, the clear conflict between this unequivocal position and its contemporaneous recommendation of an equity beta for the regulated electricity network industry between 0.65 and 0.9 (QR Network, sub. no. 61: 13-14).*

Second, while Synergies agreed that short to medium term demand risks will be mitigated by the revenue cap and take-or-pay contracts, the long run demand for QR Network's services will be linked to the long run demand for coal and it is over this period when differences between QR Network and regulated energy businesses can be observed.

In particular, it was argued that the beta assessment horizon is long term, as equity prices and returns will respond to changes in long term expectations. Further, it is the long term demand for QR Network that is uncertain, with key uncertainties being technological change and environmental issues – which they said were matters that the Authority had ignored. Therefore, QR Network and Synergies argued that long run uncertainty in the demand for coal should be considered when estimating the asset beta (QR Network, sub. no. 61: 9-10).

Third, QR Network and Synergies argued that the Authority's treatment of asset stranding risk was inconsistent. In support of this claim, they cite two consecutive statements from the Authority's draft decision:

*With respect to asset stranding risk, the Authority considers that the measures that it is preparing to accept in part of this draft decision, in particular accelerated depreciation for new capital expenditure and the greater ability to seek access conditions (e.g. capital underwriting for major projects, combined with strong coal demand (in particular in relation to metallurgical coal), and the highly competitive position of Queensland coal producers, means that QR Network's asset stranding risk is minimal.*

*Accordingly, the Authority does not believe that the previous uplift to the equity beta, from 0.80 to 0.90, can be justified.*

On this basis, QR Network argued that as:

- (a) the CAPM beta does not recognise asymmetric risks such as asset stranding, it is inappropriate to use the CAPM to make such an adjustment; and
- (b) the Authority in the 2005 review previously considered QR Network's asset stranding risk to be low (i.e. prior to the current proposals), the Authority now should not adjust the asset beta downward for a factor that the previously determined beta of 0.50/0.90 was not seen to reflect (QR Network sub. no. 57: 25-27 and sub. no. 61: 22).

In addition, QR Network argued that the extent to which its new proposals such as accelerated depreciation and capital underwriting of major projects result in a reduction in beta depends on the extent to which they are implemented. As an example, QR Network submitted that the provision for capital underwriting is only the ability to seek underwriting from customers (QR Network sub. no. 57: 26). Accordingly, QR Network and Synergies concluded that there is no case for a reduction in QR Network's asset beta from 0.50 to 0.45.

Fourth, QR Network and Synergies also drew on recent regulatory precedent to argue that QR Network's asset beta is too low relative to similar businesses.

QR Network argued that its asset beta should be similar to that of the ARTC Hunter Valley Coal Network (HVCN) on the basis of the similarities in the businesses. In this regard, QR Network referenced the ACCC March 2010 draft decision, which provided the ARTC with an asset beta of 0.50 (equity beta of 1.0<sup>12</sup>). In this regard, QR Network noted that an equity beta of 1.0 would require an equivalent asset beta of 0.55, which is the midpoint of QR Network's proposed range of 0.50 to 0.60 (QR Network, sub. no. 57: 64).

In addition, QR Network argued that as it, the ARTC and DBCT all faced similar risk-reward relativities (i.e. take-or-pay, annual price resets, input cost variations, asset stranding, debt management, and asset base roll-forward), then QR Network should have an equity beta of 1.0 as both the HVCN and DBCT have equity betas of 1.0.

Finally, Synergies considered two other Australian rail regulatory precedents, namely the ACCC's 2008 decision on ARTC's interstate network and the ERA's 2009 decision on the Pilbara Infrastructure, which provided the businesses with asset betas of 0.65 and 1.0 respectively. While Synergies acknowledged that these rail service providers have characteristics that suggest higher covariance risk, it considered them as reference points (QR Network, sub. no. 61: 25).

Both QR Network and Synergies strongly rejected the claim for a further reduction in the asset beta. Specifically, Synergies considered that any further reduction in the asset beta should be made only on the basis of a material reduction in covariance risk. In this context, Synergies argued that QR Network's proposed risk mitigation measures either provide only partial protections or were previously viewed by the Authority as not impacting covariance risk (QR Network, sub. no. 57: 27-29 and sub. no. 61: 23-24).

#### Stakeholder Comments

A range of stakeholders argued that QR Network's proposed WACC is excessive relative to the risks that QR Network actually bears (QRC, sub. no 75: 5-6, Syntech Resources, sub. no. 80:

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<sup>12</sup> The ACCC uses the Monkhous levering method. Applying this method in conjunction with an asset beta of 0.50, benchmark gearing of 50%, a debt beta of 0, and a gamma value of 0.65 gives an equity beta of 1.0.

1-2, Anglo American, sub. no. 47: 3, and Rio Tinto Coal Australia, sub. no. 73: 2). For example, the QRC submitted:

*In light of the risk mitigation measures which QR Network has been able to extract over recent times and the evidence provided by the QCA in the 2009 Draft Decision, QRC considers that the cost of capital for QR Network should be significantly less than that provided by the QCAs Draft Decision QRC, sub. no. 75: 5).*

Anglo American provided a detailed analysis that supported this position and argued that QR Network's revenue cap, in combination with accelerated depreciation and its other proposals, means its revenue is virtually guaranteed, which would imply a revenue beta, and therefore an asset beta, at or near zero (Anglo American, sub no 47: 37-41).

Further, Anglo American and the QRC both argued that the material available indicated that there is a robust case for a further reduction in the Authority's proposed equity beta of 0.80. In particular, Anglo American recommended an equity beta of 0.27 (at 65% gearing), while the QRC recommended an equity beta no higher than 0.71 at 55% gearing, the latter of which is comparable to the AER's equity beta of 0.80 at 60% gearing for the regulated electricity businesses (Anglo American, sub no 47: 3 and QRC, sub. no. 75: 5).

In contrast, the ARTC argued that, while QR Network's risk mitigation proposals will reduce risk to some extent, the Authority should take a cautious approach in estimating the asset beta given the lack of direct comparators and statistical imprecision of beta estimates. Further, the ARTC was concerned that the Authority may have ignored the arguments put forward by QR Network and Synergies (ARTC, sub. no. 48: 4).

#### Authority's Analysis and Draft Decision

QR Network and Synergies have presented four broad arguments which are addressed in turn.

First, the Authority does not agree with the arguments that QR Network's selected coal and railroad companies remain relevant comparators for QR Network and, in particular, are better comparators than regulated energy businesses. Rather, the Authority believes that the regulated electricity businesses are better comparators, although they too will have a higher beta in comparison to QR Network. The electricity businesses will be more sensitive to the Australian economy as a material component of their demand is domestic and, as a result, their returns will have more covariance with the ASX.

Further, while the nature of the product and service are important determinants of covariance risk, this is only to the extent that these factors contribute to it. In this regard, the Authority considers that coal companies and railroads are not necessarily relevant comparators simply on the basis of the common characteristics of coal and rail transport. The key issue is identifying the ultimate drivers of covariance risk, which have been shown to be fundamentally different for these businesses than for QR Network, as they are materially more sensitive to economic movements.

In contrast, ACG's analysis showed that, from 2000-2007, the correlation between Queensland coal exports (a proxy for QR Network's returns) and Australian stock market returns was only 0.096. In addition, ACG assessed QR Network's EBITDA variance as 30 times less than that of U.S. coal companies, 16 times less than that of U.S. railroads, and still four times less than Canadian railroads. While EBITDA variance is not determinative of covariance risk, ACG noted that it is likely that, if EBITDA variance is low, covariance risk is likely to be low as well.

In terms of the ACG's submissions to the AER and the QCA, ACG has rejected Synergies' primary claim that ACG's recommendations are inconsistent. In particular, the ACG noted that, while it did not find persuasive evidence to alter its equity beta estimate from 1.0 in its

submission to the AER, it also found no persuasive evidence to alter its previous equity beta estimate of 0.80 for QR Network (ACG, April 2010: 5).

In forming a view on an appropriate value for QR Network's asset beta for its 2009 December draft decision, the Authority notes that it chose to lower QR Network's asset beta from 0.90 (or 1.0 at 60% gearing) to 0.80 based on a range of information, which included the ACG's advice. As indicated in that decision, this consideration also relied upon stakeholder submissions and the Authority's own assessment of QR Network's risk profile in light of the suite of its risk mitigation proposals.

Further, the Authority notes that QR Network and Synergies have not provided any additional evidence to support their claims that coal firms and railroads are better comparators to QR Network. In particular, they have not provided any evidence to the Authority to refute ACG's or Professor Henry's analyses, which indicate that QR Network's asset beta is lower than the range of 0.50-0.60 proposed by QR Network.

Second, Synergies argued that, while QR Network and regulated electricity network businesses share some common features (e.g. revenue cap), it is over the long run when differences between them will become apparent, as the long term demand for coal is more uncertain.

However, the Authority rejects Synergies' contention that the relevant term for estimating the asset beta is 'long term'. The asset beta is the beta required for the regulatory cycle (i.e. 5 years). As such, the beta estimate should incorporate the likelihood of QR Network's exposure to coal demand shocks within the regulatory cycle and any information at that time about the long term economic situation. However, this term might conflict with the CAPM investor horizon if the latter (proxied by the across-investor average holding period) exceeds the regulatory cycle of five years. However, the crucial point is that betas defined over a period corresponding to the CAPM horizon or the regulatory cycle will be estimated using returns data with a much shorter frequency (e.g. monthly), and this will bias the beta estimates upward (Levhari and Levy, 1977).

In regard to coal demand shocks, QR Network's exposure is close to zero given the volume reconciliation mechanism the Authority proposes to accept. In terms of the long term situation, the Authority notes that, while QR Network and Synergies have raised the prospect of, *inter alia*, risks associated with environmental policy changes, they have not provided convincing evidence of the likelihood and potential impact of such events occurring within this, or a subsequent, regulatory period. If these events have some positive probability of occurring in the longer term, a higher asset beta might be warranted at that time if there is increased covariance risk.

To the extent that such events are properly asymmetric risks, and therefore not compensated via the CAPM asset beta<sup>13</sup>, an appropriate regulatory response is to accelerate depreciation (as discussed below).

Third, QR Network and Synergies have argued that the Authority's draft decision is inconsistent in its treatment of asset stranding risk and cite the Authority's decision in support. In particular, it is claimed that the Authority has:

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<sup>13</sup> The Authority agrees with QR Network and Synergies that the CAPM does not compensate the firm for asymmetric risk. However, and contrary to QR Network's and Synergies' claim, the CAPM does not *require* that asset returns are normally distributed. While the CAPM results hold under this assumption, they also hold under the alternative assumption that investors have quadratic utility functions. Under the first assumption, mean and variance are the only statistics that characterise the distribution of returns, while under the second assumption, they are the only statistics to which investors attach relevance.

- (a) applied the Capital Asset Pricing Model (CAPM) inappropriately to justify a reduction in the asset beta, as asset stranding is a non-covariance related risk; and
- (b) inappropriately decremented the asset beta (in response to proposed risk mitigation measures) in this review when the 2005 review did not provide an increment to the asset beta for asset stranding risk.

On the basis of its CAPM analysis, the Authority has formed the view that the appropriate beta for QR Network is 0.45/0.80. This conclusion is true of the Authority's decisions on the 2006 undertaking and of the Authority's December 2009 draft decision – the Authority sees no inconsistency in these approaches.

In its December 2005 decision, the Authority provided a beta increment to 0.50/0.90 to encourage the timely provision of major new rail infrastructure.

In assessing the package of arrangements included in the 2009 DAU (e.g. accelerated depreciation and access conditions), the Authority formed the view that their overall effect was to provide an environment that would be conducive to investment in new infrastructure, particularly major infrastructure. Accordingly, the Authority concluded that the encouragement of new investment did not require both the proposed new arrangements as well as the previous uplift to the beta. As the Authority proposed to broadly accept the new package of measures, it therefore proposed to remove the beta uplift.

The Authority sees no inconsistency in this approach. The Authority accepts that its original, December 2005 decision might be questioned – both in terms of the size of the beta uplift and whether the beta parameter should have been used to encourage new investment. However, the Authority does not believe that either of those matters is particularly relevant to the Authority's assessment of the 2010 DAU.

Fourth, QR Network argued that relevant regulatory precedents include, *inter alia*, the ACCC's March 2010 decision on the ARTC's HVCN, which provided an asset beta of 0.50, which at 50% gearing, results in an equity beta of 1.0. The Authority notes that, in providing an asset beta of 0.50, the ACCC chose this estimate from a range of 0.40-0.50, where:

- (a) the lower bound (0.40) was based on the AER's decision on utility firms with an asset beta range of 0.35-0.55, where the ACCC considered these firms to be marginally *less* risky than the HVCN; and
- (b) the upper bound (0.50) was based on other decisions in transport, including QR Network's beta estimate of 0.50, which has characteristics to suggest similar covariance risk to the HVCN.

In choosing from this range, the ACCC noted that:

*...an asset beta estimate of 0.50 points is based on the upper bound of most regulatory decisions on commodity networks, and considers this appropriate to account for any residual stranding risk that may exist for the Hunter Valley rail network (ACCC, March 2010: 562-563).*

The Authority does not consider that the ACCC's HVCN decision provides a relevant precedent for QR Network given the particular circumstances.

First, the Authority notes that the lower bound (0.40) is based on the AER's asset beta range for utilities, which the AER considers to be less risky than HVCN. However, the Authority does not accept that these regulated utilities are less risky than QR Network, which suggests that the reasonable range for QR Network's extends to below 0.40.

Second, the upper bound (0.50), in large part, appears to be based on the Authority's 2005 decision on QR Network. However, in comparing the risks between ARTC and QR Network in the context of that decision is inappropriate, as circumstances and, in particular, regulatory arrangements, are now different than at that time. Therefore, the Authority considers that this range is inappropriate in the context of this decision on QR Network.

While QR Network has provided a 'comparative risk assessment' table in its submission, the Authority considers that QR Network has not demonstrated that it warrants an asset beta higher than 0.45. In particular, the Authority notes that QR Network did not provide any analysis to support this claim.

Finally, the Authority does not consider the other regulatory precedents referenced as relevant to QR Network. The ARTC interstate network (ACCC, 2008) is subject to intermodal competition while the Pilbara Infrastructure (ERA, 2009) provides service for iron ore haulage in a remote area for a single customer. In both cases, the asset betas were estimated on the basis of North American railroads, which the Authority has previously argued are inappropriate comparators.

Accordingly, the Authority proposes to retain the asset beta of 0.45 adopted in the December 2009 draft decision, which results in an equity beta of 0.80 with 55% gearing.

#### *Capital Structure and Credit Rating*

Capital structure and credit rating are two related inputs into the assessment of WACC.

The Authority adopts a notional capital structure which determines the relative weights to attach to the debt and equity components of the WACC. In doing so, the Authority seeks to ensure that the capital structure is efficient but allows the business to vary its actual capital structure if the firm believes there are resulting advantages.

The Authority's assessment of the credit rating is based on the notional capital structure. Companies that face less risk in their operating environment are generally able to sustain greater risk in their financial profile (i.e. higher gearing) for a given rating category. Although the rating itself is not a direct input into the WACC calculation, it is used to benchmark an appropriate debt margin.

The 2006 undertaking was based on a 55% debt and 45% equity structure and a BBB+ credit rating.

#### *Background*

In its 2009 DAU, QR Network submitted that a capital structure of 55% debt and 45% equity remains appropriate, as there was no evidence that it could support a higher level of debt. Given the proposed gearing of 55%, QR Network argued that it should also maintain its BBB+ credit rating (QR Network, sub. no. 11: 72).

On the other hand, the QRC submitted that, given QR Network's "virtually guaranteed" cash flow, it could reasonably be expected to have either: (i) a higher capacity for debt at its current BBB+ credit rating; or (ii) a benchmark credit rating higher than BBB+ at its current gearing of 55%.

In the context of the 2006 undertaking, ACG had provided advice to the Authority that an appropriate capital structure for QR network was 55% debt and 45% equity, with an associated credit rating of BBB+.

In updating this advice for the 2009 DAU, ACG presented some evidence that supported a higher level of gearing, with other evidence supporting a lower level. Given this mixed evidence, ACG concluded that a change from its previous recommendation of 55% debt and 45% equity, with a credit rating of BBB+, was not justified at that time (ACG, June 2009: vii, 17-19).

The Authority also examined this evidence and agreed that the weight of evidence was not sufficient to warrant a change. With respect to the QRC's claims for a higher capital structure or credit rating, the Authority noted that no supporting evidence was presented.

#### QR Network's 2010 DAU

In its 2010 DAU, QR Network maintained its proposal for a notional capital structure of 55% debt and 45% equity, with an associated credit rating of BBB+.

#### Stakeholder Comments

Economic Insights (on behalf of Anglo American) submitted that 55% gearing and a BBB+ credit rating are not efficient notional benchmarks for QR Network given its very low revenue volatility, the protections from the existing regulatory arrangements and the very competitive position of the Queensland coal industry. Rather, Anglo American argued that gearing of at least 65% and a credit rating of AA or AAA could be justified, *inter alia*, on the basis that:

- (a) the two businesses that ACG previously reported with gearing levels *less* than 55% were part of a transport group that had EBITDA variability 19 times higher than QR Network;
- (b) a BBB+ rating is consistent with a probability of default of 1.9%-5.4% in a 10-year period but, given regulatory protections, it is difficult to conceive that QR Network's probability of default would be higher than the lower bound of 1.9%, which implies a credit rating in the AA to AAA range; and
- (c) these higher benchmarks are consistent with the gearing and credit rating of GasNet, which has similar regulatory arrangements to QR Network (Anglo American, sub. no. 47: 57-59).

#### Authority's Analysis and Draft Decision

In light of Anglo American's comments, the Authority reviewed the available material on gearing and credit rating – this review was informed by further advice from ACG. Based on this review, the Authority makes the following comments.

First, the Authority notes that ACG's June 2009 report found that almost all of the comparators in the transport, coal, and railway sectors had higher EBITDA volatility than QR Network. In terms of gearing levels, some were higher and others lower than QR Network. Even if the Authority were to accept the argument that the two businesses identified by Economic Insights could support gearing higher than 55%, it notes that ACG identified a number of firms in the transport sector with average gearing in the range of 52%-57%. Accordingly, the Authority considers that the evidence remains mixed in this regard.

Second, the ACG's April 2010 report considered that Economic Insights' default rating analysis was deficient in some respects. In particular, the ACG argued that credit rating assessments are based on a firm's overall business and financial risk profiles, as reflected in a range of relevant financial ratios. In this methodological context, the ACG referred to Moody's financial ratios for a typical utility, which support a credit rating between A and BBB+. As these ratios were comparable to those for QR Network, ACG considered this as some evidence that an

appropriate notional rating is more likely to be closer to BBB+ than to the AA to AAA range preferred by Economic Insights (ACG, April 2010: 9-10).

Third, the ACG did not accept GasNet as an appropriate benchmark, as discrepancies in its bond ratings bring into question its reliability as a comparator. In this regard, the Authority notes that GasNet's AAA credit rating was the result of a credit wrapping and, as a result, the rating does not reflect the risk of the company itself but its loan guarantor.

In considering this matter, the Authority agrees with Economic Insights that QR Network might be able to support a higher gearing level and credit rating. However, the Authority still does not consider that there is sufficient evidence to justify a departure from its previous position at this time.

Accordingly, in this decision, the Authority has decided to retain its notional gearing of 55% debt and notional credit rating of BBB+.

#### *Debt Margin and Debt Refinancing Costs*

The debt margin is the premium above the risk-free rate that a business pays to acquire debt funding from financial markets. This margin increases with the riskiness of the business. The Authority estimates the debt margin with reference to a generic bond yield for a given notional credit rating and then deducts the relevant risk-free rate.

#### *Background*

In its 2009 DAU, QR Network proposed a cost of debt that consisted of two principal elements:

- (a) a debt margin of 280 basis points – based on a BBB+ credit rating and a 10-year term bond; and
- (b) annualised debt refinancing costs of 15.5 basis points – comprising direct costs of 12.5 basis points and indirect costs of 3.5 basis points for debt ‘underpricing’ (QR Network, sub. no. 11: 73, sub. no. 15: 34).

These estimates were determined at the time QR Network prepared its submission in June 2008. However, by the time QR Network had submitted its DAU in September 2009, the GFC had started to have an effect and the proposed debt margin had increased from about 296 bp to 426 bp. Over the course of 2009, when the effects of the GFC were most apparent, there was also a lack of data that made estimating a debt margin for BBB+ rated debt problematic.

At the time of the Authority's December 2009 draft decision, the estimation difficulties were less acute, but the margins still remained at high levels. Specifically, the Authority's proposed debt margin of 3.56% was based on 5-year debt term and included 12.5 bp for annual debt refinancing costs – the Authority rejected QR Network's claim for a further 3.0 bp for annual debt refinancing costs.

#### *QR Network's 2010 DAU*

In its 2010 DAU, QR Network proposed a debt margin of 4.45% on the basis of:

- (a) benchmarking 10-year term BBB+ bonds – QR Network rejected the Authority's draft debt margin as it was based on a 5-year term, which QR Network argued created greater refinancing risk and was inconsistent with standard commercial practice (discussed in the risk-free rate section); and

- (b) applying the AER's 'extrapolation methodology' – this approach estimates the yield of a 10-year term BBB+ bond by adding the Bloomberg 7 year BBB fair value yield<sup>14</sup> to the term premium for the Bloomberg AAA fair value curve (7-10 years).

#### Stakeholder Comments

The QRC endorsed the Authority's 5-year term for setting the debt margin (QRC, sub. no. 55: 6 and sub. no. 75: 7).

#### Authority's Analysis and Draft Decision

In considering an appropriate estimate for the debt margin, the Authority considers that there are two principal issues:

- (a) the term of the bond; and
- (b) the appropriate data and methodology for estimating the generic bond yield.

As discussed in the risk-free rate section, the Authority considers that a 5-year debt margin is reasonable and that an allowance be made for refinancing costs and the costs associated with interest rate and credit default swap contracts.

With respect to estimating the generic bond yield, the Authority considers that the most important issue is whether to rely on the Bloomberg or CBASpectrum service. As the two services involve different sets of inputs and apply different methodologies, there is scope for differences in the resulting bond yields.

Recently, yield differences on BBB+ rated bonds have been material for terms exceeding 5 years. For example, over the relevant averaging period, the Bloomberg 7-year BBB margin is 4.22%, while the CBASpectrum BBB+ margin is 3.31%. This difference, of 0.91%, is largely due to the differences in the inputs and the methodologies.

Regarding the estimates, the Authority has concerns that the CBASpectrum estimates generate AAA and BBB+ yield curves that are not markedly different after 5 years. However, theory would predict that an unbiased estimate of a 7-year BBB+ yield should materially exceed a 7-year AAA yield due to a higher probability of default associated with the former. This suggests that the CBASpectrum service is likely to materially underestimate BBB+ yields and accordingly, debt margins, at long terms (e.g. 7-10 years). This proposition appears to be consistent with the available empirical evidence.

As a result, the Authority considers that Bloomberg is a more reliable predictor at the current time. However, the Authority notes that Bloomberg no longer reports BBB yields for terms greater than 7 years due to a lack of observations.

While there are a range of options to extrapolate the Bloomberg 7-year BBB yield to obtain a 10-year yield, the Authority considers that QR Network's proposed approach of adding the term premium for the Bloomberg AAA fair value curve (7-10 years) is reasonable. It also results in an estimate that is closer to actual market observations than the CBASpectrum 10-year BBB+ yield.

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<sup>14</sup> First, Bloomberg only provides estimates of bond yields for terms up to 7 years due to lack of observations. Second, Bloomberg only reports fair value yields for a generic BBB corporate bond. However, for the relevant averaging period, about 50% of the bonds used in the estimate were BBB+. Therefore, over this period, the reported Bloomberg BBB bond yield slightly overestimated a generic BBB+ yield (and slightly underestimated a generic BBB yield).

Accordingly, the Authority has adopted a 5-year debt margin of 3.62% and allowed 0.83% (the difference between the 10 year debt margin and the 5 year debt margin) as compensation for the cost of credit default swap contracts which are not able to be directly priced. The Authority has also provided allowances of 0.175% for interest rate swap costs and of 0.125% for annual debt refinancing, which gives QR Network a total debt margin of 4.75%.

### *Gamma*

Gamma reflects the benefit from dividend imputation credits and is the product of the utilisation rate of those credits and the distribution rate (imputation credits distributed as a proportion of company tax paid).

#### Background

In its 2009 DAU, QR Network proposed a range of 0.0-0.50 for gamma, with its 75th percentile WACC implying an estimate of 0.125 for gamma. The upper bound of 0.50 was based on regulatory precedent to date, while the lower bound of zero was based on a review of this parameter by Synergies. QR Network, and its consultant Synergies, provided a range of arguments in support of their proposed range.

In its December 2009 draft decision, the Authority rejected QR Network's proposed gamma range. In large part, the Authority did this because a zero gamma estimate is largely driven by the utilisation rates of foreign investors, which is near zero, as they generally do not benefit from Australia's dividend imputation scheme.

While it is arguable whether or not the estimate should recognise foreign investors, the Authority rejected a zero gamma value on the basis that it was inconsistent with the remainder of QR Network's proposed WACC parameters, which were developed within a domestic CAPM framework. The Authority considered that a zero gamma could only reasonably be considered within an international CAPM framework where there could be offsetting impacts on other parameter values.

Ultimately, the Authority maintained its previous practice of using 0.50 as the value of gamma. The Authority considered this estimate to be conservative, as the utilisation rate for a domestic CAPM is likely to be closer to one than the current estimate of 0.625<sup>15</sup>, which would imply a value for gamma of 0.80 rather than 0.50.

#### QR Network 2010 DAU

In its 2010 DAU, QR Network accepted the Authority's proposed estimate of 0.50 on the basis that it does not have further evidence to support its view that the estimate should be lower. However, QR Network expressed concern that, in reaching its draft decision, the Authority did not fully consider QR Network's position.

#### Stakeholder Comments

The QRC supported the Authority's decision to reject QR Network's estimate of 0.125. Further, the QRC noted that the AER and ACCC had supported values of 0.65 for gamma in the final decision on WACC parameters for energy network businesses and in the draft decision on the ARTC Hunter Valley Coal Network respectively (QRC, sub. no. 75: 7-8).

Economic Insights, on behalf of Anglo American, supported maintaining regulatory precedent of 0.50 for gamma, largely on the basis that there is considerable uncertainty surrounding the

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<sup>15</sup> Hathaway, N., and Officer, R. (1999).

gamma estimate (Anglo American, sub. no. 47: 65-66). However, in drawing this conclusion, Anglo American noted that the AER's decision to increase the value of gamma to 0.65.

#### Authority's Analysis and Draft Decision

While not necessarily documented in detail in the December 2009 draft decision, the Authority did fully consider the arguments submitted in support of QR Network's proposed gamma estimate. It simply did not agree with them.

While QR Network has now proposed a gamma estimate that is consistent with the Authority's draft decision, QR Network, the QRC, and Anglo American all refer to the AER's precedent for estimating gamma with respect to all investors, including foreigners. In this regard, the AER has adopted a gamma value of 0.65 that is based on a distribution rate of 1.0 and a utilisation rate of 0.65, the latter of which is derived from two empirical studies (Beggs and Skeels, 2006 and Handley and Maheswaran, 2008).

As available evidence indicates that the distribution rate is 1.0, a utilisation of 0.65 is the only reason that the AER's estimate is not closer to 1.0. The Authority believes that the AER's estimate of 0.65 is conservative as it again reflects the impact of foreign investors, which is a departure from the Officer CAPM version assumptions.

However, the Authority has chosen to maintain its draft decision of 0.50 for gamma for this review. The Authority notes that this decision does not preclude its future considerations of the arguments for a change in the gamma estimate based on the evidence available at that time.

#### *Conclusion*

As part of its 2010 DAU, QR Network has sought significant increases in the scope of measures it is seeking to address its concerns surrounding its incentives to invest in the expansion of rail infrastructure in central Queensland. In addition to the measures included in the 2009 DAU (e.g. accelerated depreciation), QR Network has sought to formalise the arrangements for it to seek rates of return above the regulatory WACC for significant new investments.

At the same time, QR Network has accepted aspects of the Authority's December 2009 draft decision by reducing some of its WACC parameter claims. While this has reduced QR Network's proposed WACC from 11.76% to 10.82%, it remains higher than the 9.41% proposed by the Authority in its December 2009 draft decision.

The various claims by QR Network have been addressed in previous sections. A summary of the Authority's final decision on the WACC parameter values for QR Network is in Table 2.4. These result in a WACC of 9.96%.

**Table 2.4: WACC Parameters**

<i>Parameter</i>	<i>QCA Proposal 2009</i>	<i>QRN Proposal 2010</i>	<i>QCA Proposal 2010</i>
Credit rating	BBB+	BBB+	BBB+
Risk-free rate	5.29%	5.60% <sup>a</sup>	5.19% <sup>b</sup>
Market risk premium	6.00%	6.00%	6.00%
Asset beta	0.45	0.55	0.45
Gearing (% debt)	55%	55%	55%
Equity beta	0.80	1.00	0.80
Gamma (franking credit benefit)	0.50	0.50	0.50
Equity margin	4.80%	6.00%	4.80%
<b>Cost of equity</b>	<b>10.09%</b>	<b>11.60%</b>	<b>9.99%</b>
Debt margin	3.43%	4.45%	3.62%
Credit default swap allowance (proxy)	0.00%	0.00%	0.83%
Interest rate swap allowance	0.00%	0.00%	0.175%
Annual debt refinancing allowance	0.125%	0.125%	0.125%
Debt margin (total)	3.56%	4.58%	4.75%
<b>Cost of debt</b>	<b>8.85%</b>	<b>10.18%</b>	<b>9.94%</b>
WACC margin	4.12%	5.22%	4.77%
<b>WACC</b>	<b>9.41%</b>	<b>10.82%</b>	<b>9.96%</b>

*a: The average of 10-year nominal Commonwealth Government bond yields over the 20-day period commencing 27 January 2010.*

*b: The average of 5-year nominal Commonwealth Government bond yields over the 20-day period commencing 27 January 2010.*

## 2.4 Volume Forecasts – Central Queensland Coal Region

Volume forecasts are a key element in determining costs and reference tariffs over the regulatory period. The forecasts underpin required capital expenditure and maintenance programs and are used to convert the approved annual revenue requirement into reference tariffs for coal-carrying train services in the CQCR.

### *Background*

In its 2009 DAU, QR Network proposed volumes of, on average, 229 million tonnes per annum (mtpa) from 2009-10 to 2012-13. These estimates were based on a range of factors including the demand outlook for domestic and export coal in Queensland, port capacity, contracted tonnages and expected network expansions over the regulatory period.

On 5 June 2009, QR Network formally advised the Authority that its proposed volume forecasts no longer reflected its expectations, particularly in the first two years of the next regulatory period. QR Network attributed this to the rapid change in global economic conditions that lowered the near-term demand for coal.

As a result, QR Network proposed revised volumes for 2009-10 to 2012-13 for each CQCR system that were around 7% lower than its original forecasts.

Stakeholders had mixed comments in relation to the revised volumes:

- (a) QR National said they were around 7% to 10% higher than what it expected in 2009-10 and 2010-11 (QR National, formal advice, 9/7/09); and
- (b) QRC said the revised forecasts were conservative, particularly on the Newlands system where it considered volumes were likely to be around 17% higher over the term of the 2009 DAU period (QRC, informal advice, 24/6/09).

In its December 2009 draft decision, the Authority proposed to accept QR Network revised volumes on the basis that:

- (a) they were within a reasonable range, including that they were consistent with the review undertaken by the Authority's consultant (Wood Mackenzie); and
- (b) the impact of variations in actual railings is of lesser consequence given that QR Network operates under a revenue cap mechanism and, further, the likely impact of any over- or under-recovery will also be mitigated by QR Network's proposal to annually reset volume forecasts (see chapter 1).

#### *QR Network's 2010 DAU*

In its 2010 DAU, QR Network has proposed volume forecasts of around 210 mtpa (on average) from 2009-10 to 2012-13. In aggregate over the four-year regulatory period, these volumes are, for the most part, unchanged from the forecasts the Authority proposed to accept in its December 2009 draft decision (around 210 mtpa).

The volume forecasts reflect actual railings up until January 2010, which are 4% higher than those previously anticipated. The revisions in other years are not material, but have counter-balanced the increase in 2009-10 so that there is no difference in the aggregate forecasts (see Table 2.5).

Consistent with past forecasts, QR Network has confirmed that its forecasts do not include volumes associated with the GAPE, the SBR or the WICT given the uncertain timing of these planned expansion projects.

**Table 2.5: QR Network's Volume Forecasts (mtpa)**

<i>System</i>	<i>2009-10</i>	<i>2010-11</i>	<i>2011-12</i>	<i>2012-13</i>	<i>Total</i>	<i>Change from Dec '09 Decision (%)</i>
<i>Blackwater</i>	58.2	63.1	64.6	64.6	250.6	<b>0.24</b> (0%)
<i>Goonyella</i>	90.0	112.4	124.9	124.9	461.2	<b>2.05</b> (0%)
<i>Moura</i>	12.0	16.4	16.4	16.4	61.3	<b>-1.47</b> (-2%)
<i>Newlands</i>	15.5	17.5	17.5	17.5	68.0	<b>-3.24</b> (-5%)
<b><i>Total CQCR</i></b>	<b>184.7</b>	<b>209.4</b>	<b>223.5</b>	<b>223.5</b>	<b>841.1</b>	<b>-2.43</b> (0%)
<b><i>Change from Dec '09 Draft Decision (%)</i></b>	<b>6.81</b> (4%)	<b>-5.24</b> (-2%)	<b>-2.00</b> (-1%)	<b>-2.00</b> (-1%)	<b>-2.43</b> (0%)	

QR Network indicated it would update these forecasts closer to the end of the financial year and prior to the Authority's decision so that QR Network could recover the correct revenues for the 2009-10 year and reduce any revenue cap adjustment (QR Network, sub no. 70: 69).

Stakeholders did not comment on the revised volume forecasts.

The 2010 DAU volumes are not materially different to the volumes that the Authority proposed to accept in its December 2009 draft decision and, where they differ the most, i.e. in 2009-10, it is to reflect the most up to date information on actual railings.

In any event, while the actual volumes might be higher or lower than those proposed, this will be addressed by the proposal that QR Network review and amend volumes prior to each year over the regulatory period.

With regard to the 2009-10 actual railings, the Authority notes QR Network intends to provide updated forecasts at a later time so that it can 'recover the correct revenues for the 2009-10 year and reduce any revenue cap adjustment'.

On this, the Authority notes that it has decided to accept the proposed volume forecasts (including for 2009-10) because they are based on the best available information known to QR Network at the time it submitted its proposal (mid-April 2010).

Whether or not QR Network updates the 2009-10 volumes at a later time is a matter for it to decide. However, it should weigh the real benefit of this with the potential risk of elongating the review process further by doing so.

The Authority also requires that QR Network include a monthly breakdown of its volume forecasts in the 2010 DAU, adjusted to reflect expected seasonal fluctuations in coal traffic. This is necessary in order to allow the correct calculation of take-or-pay obligations (see section 1.7).

## **2.5 Capital Expenditure Forecasts**

The coal reference tariffs for central Queensland contained in the 2006 and 2008 access undertakings were determined using a global capital expenditure provision of \$640 million over four years. To ensure that QR Network was revenue neutral to any over- or under-spending on this forecast amount, the undertakings included a mechanism to adjust future revenues for variations between forecast and actual capital expenditure.

Specifically, the undertakings require QR Network to record the difference between the actual and forecast capital expenditure each year and then roll this forward, at the weighted average cost of capital (WACC) rate, to the end of the regulatory period. The net under- (over-) recovery of capital related revenues by QR Network is then recouped from (or returned to) customers via reference tariffs over the subsequent regulatory period.

### *Background*

QR Network's 2009 DAU did not propose to change this underlying approach. However, it proposed a significant increase in the capital expenditure provision – to \$1.35 billion over four years – and proposed that the WACC be updated each year to roll-forward the balance so that it is not subject to risk-free rate variability risk. QR Network also provided a list of expected projects to be completed in each system from 2009-10 to 2012-13.

In addition, QR Network proposed that capital expenditure associated with feasibility studies be capitalised and included into its regulatory asset base if the expenditure is approved by customers in accordance with the capital expenditure customer approval process. QR Network

proposed that this expenditure be recognised as an intangible asset and depreciated over a relatively short time period (5 years) (QR Network, sub. no. 11: 106-107).

Stakeholders were less concerned by the quantum of the capital expenditure proposed, particularly given the carry-over mechanism in place, but were concerned about other aspects of the capital indicator to do with:

- (a) the reasonableness of capital expenditure proposed for certain line items given the lack of information provided – i.e. in particular, the QRC made reference to the \$140m proposed for ‘system wide and telecommunications’;
- (b) the appropriateness of including capital expenditure associated with early works for future expansion projects, i.e. GAPE and WICT, particularly given that the volumes associated with these expansions are excluded from the volume forecasts (and therefore reference tariff calculations); and
- (c) whether customers with fixed demand should have to contribute to the cost of capacity expansions if they receive no benefit (i.e. Stanwell and Rio Tinto Alcan).

Stakeholders did, however, support QR Network's proposal in relation to the treatment of feasibility studies, including that the costs be approved by customers via the master planning process and then included into QR Network's regulatory asset base. However, both the QRC and Asciano encouraged the Authority to scrutinise the allowance for feasibility studies in the system-wide and regional cost allowances to ensure that there was no double-counting (QRC sub. no. 38: 57, Asciano, sub. no. 33: 43).

In its December 2009 draft decision, the Authority considered that, in general, the quantum of the capital indicator proposed by QR Network was reasonable, in part because around 86% of it had already received customer support through the master planning customer vote process.

Nevertheless, the Authority argued that it was not reasonable to include GAPE-related capital expenditure in the capital indicator at a time when the pricing arrangements for that project remained highly uncertain. Accordingly, the Authority proposed to reduce the capital indicator to \$1.18 billion – i.e. a reduction of \$171 million which related to forecast GAPE expenditure on the Newlands system.

However, apart from the GAPE-specific expenditure, the Authority was less concerned about the types of projects included in the capital indicator. This was on the basis that the forecast expenditure included as part of the capital indicator is in no sense pre-approved by the Authority and neither are the forecast projects that QR Network presented to support its claim. To this end, the capital indicator is a forecast approved up-front for pricing purposes only.

The Authority also indicated that it had no, in principle, issue with accepting the costs of feasibility studies as they are a legitimate cost of QR Network's capital expenditure regime. However, the Authority considered that QR Network's proposal to depreciate the costs of feasibility studies over a short period of time was unreasonable and, to this end, proposed that:

- (a) *for projects that proceed* – the costs should be depreciated at a rate consistent with the rate associated with other assets relating to that project; and
- (b) *for projects that do not proceed* – it is appropriate for QR Network to expense these costs.

The Authority also rejected the requests from a number of non-expanding users that they should not have to pay the costs for future capital expenditure. In doing so, the Authority argued that

all customers took advantage of lower prices when the network exhibited economies of scale and that certain customers should not seek to lock in low prices when incremental expansion costs were increasing.

#### *QR Network's 2010 DAU*

In its 2010 DAU, QR Network revised its capital indicator estimates to around \$1.062 billion from 2009-10 to 2012-13 – i.e. \$119.3 million (or 10%) below the amount the Authority proposed to accept in its December 2009 draft decision (\$1.18 billion). This decrease consisted of a \$276.8 million (or 31%) decrease in non-electric expenditure and a \$157.5 million increase in electric expenditure.

The majority of the reduction in the non-electric capital indicator is due to QR Network removing mainline duplication projects on the Blackwater system (around \$167 million) and port expansion projects on the Goonyella system (around \$98 million).

The majority of the increase in the electric capital indicator is due to QR Network adding expenditure relating to the renewal of power systems in Goonyella (around \$100 million) and increasing the amount spent on four electric feeder stations on the Blackwater system (by around \$52 million).

While the changes in the Newlands and Moura system capital indicators do not greatly affect the overall changes to the capital indicator, it is worth noting that the Moura system capital indicator had increased by \$8 million (or 166%). QR Network has advised that the majority of this increase relates to upgrading the Boundary Hill balloon loop in 2010-11 which had previously not been identified for inclusion in the capital indicator.

Table 2.6 shows QR Network's 2010 DAU proposed indicator compared with the Authority's draft decision.

**Table 2.6: QR Network's Proposed Capital Indicator 2009-10 – 2012-13 (\$'000)**

<i>System</i>	<i>2009-10</i>	<i>2010-11</i>	<i>2011-12</i>	<i>2012-13</i>	<i>Total</i>	<i>Change from Dec '09 Decision(%)</i>
<i>Blackwater (Non-electric)</i>	62,700	33,100	28,200	25,300	<b>149,300<sup>a</sup></b>	<b>-185,700 (-55%)</b>
<i>Blackwater (Electric)</i>	15,500	80,700	149,300	51,100	<b>296,600</b>	<b>115,600 (64%)</b>
<i>Goonyella (Non-electric)</i>	284,800	45,800	55,800	21,400	<b>\$414,400</b>	<b>-97,600 (-19%)</b>
<i>Goonyella (Electric)</i>	55,700	12,900	24,900	44,400	<b>\$139,900</b>	<b>41,900 (43%)</b>
<i>Moura</i>	1,600	8,600	3,600	1,300	<b>\$15,100</b>	<b>8,100 (116%)</b>
<i>Newlands</i>	1,300	2,400	42,200	1,500	<b>\$47,400</b>	<b>-1,600 (-3%)</b>
<b>Total CQCR</b>	<b>\$428,000</b>	<b>\$185,700</b>	<b>\$304,000</b>	<b>\$141,000</b>	<b>\$1,062,700</b>	<b>-119,300 (-10%)</b>
<b>Change from Dec '09 Draft Decision</b>	<b>-236,000 (-36%)</b>	<b>-72,300 (-28%)</b>	<b>185,000 (155%)</b>	<b>4,000 (3%)</b>	<b>-119,300 (-10%)</b>	

<sup>a</sup> Blackwater includes amounts for Rolleston and Minerva (totalling \$11.6 million and \$0.3 million from 2009-10 to 2012-13).

<sup>b</sup> Goonyella includes amounts for Vermont (totalling \$6.6 million from 2009-10 to 2012-13).

<sup>c</sup> Goonyella electric includes amounts for Vermont (totaling \$2 million from 2009-10 to 2012-13).

### Stakeholders' comments

The QRC was particularly concerned about QR Network removing the Blackwater duplications from the revised capital indicator – projects that have already been approved by coal customers through the master plan endorsement process. The QRC's concern was that these projects had previously been justified on the basis of providing additional robustness to handle unforeseen variability and reduction of the impact of maintenance and construction (QRC sub. no. 75: 8-9).

Anglo American argued that there might be circumstances where it would be inequitable for a non-expanding customer to pay for significant line upgrades as this could make the existing user's mine uneconomic. Anglo American therefore believed there should be no general principle that sharing of costs should always apply (Anglo American, sub. no. 47: 21).

### Authority's analysis and draft decision

In revising its capital indicator estimates, QR Network has addressed the Authority's primary concern by removing GAPE-related expenditure from the indicator.

Indeed, QR Network has removed even more forecast capital expenditure than requested by the Authority. The Authority shares stakeholders' concerns that certain projects have been removed from the forecast capital expenditure and included within the scope of the major projects for the WICT and possibly for an expansion of terminal capacity at the port at Hay Point.

In this regard, the Authority indicated in its December 2009 draft decision that it shared stakeholders' concerns that QR Network would aggregate a series of smaller projects into a single project in order to pass the value threshold associated with a major project. The Authority will, therefore, be seeking to again address this issue as part of its response to the more general capacity expansion arrangements included in other parts of the 2010 DAU.

However, in the context of this decision, the Authority reiterates its view that the quantum of the capital indicator is for pricing purposes only and no particular importance should be placed on the projects used to justify the quantum or that the Authority's acceptance of the capital indicator amount pre-judges its assessment of the prudence of that capital expenditure.

The Authority also notes Anglo American's concerns about expansion-related upgrades raising costs for non-expanding customers. The Authority believes that this is a matter that should be assessed on a case-by-case basis. The efficient use and expansion of the network will in general be promoted if all users of the network directly face the rising costs associated with expanding the network.

Accordingly, based on its own consideration and the comments made by stakeholders, the Authority's decision is to accept QR Network's proposed capital expenditure forecasts.

## 2.6 Capital Expenditure Carry-over Account

Schedule FB of the 2008 undertaking requires QR Network to maintain a capital expenditure carry-over account that records the difference between the approved capital expenditure and the global capital indicator. Entries into the account are recorded on the basis of the revenue impact of any over- or under-spending on forecast capital expenditure.

Over the term of the undertaking, the difference between the over (under) spending on capital projects is converted to an under (over) recovery of revenues which is added to (deducted from) revenues for the subsequent undertaking.

QR Network's global capital indicator over the term of the 2006 and 2008 undertakings was \$640 million.

QR Network's actual capital expenditure has been significantly higher than this, with an aggregate amount of around \$910.2 million approved by the Authority over this time period (including the Authority's March 2010 approval of QR Network's 2008-09 capital expenditure claim of \$366.1<sup>16</sup> million).

### *Background*

QR Network's 2009 DAU estimated an aggregate \$0.8 million negative balance in the capital expenditure carry-over account as at 1 July 2009. This was based on the approved capital expenditure for 2005-06 and 2006-07 and its estimate of forecast capital expenditure 2007-08 and 2008-09.

QR Network later revised this to a \$16.5 million negative balance to take account of the approved 2007-08 capital expenditure (\$250.9 million) and a revised forecast for 2008-09.

In its December 2009 draft decision, the Authority confirmed that QR Network's estimate was based on the Authority's approved WACC and capital expenditure for 2005-06, 2006-07 and 2007-08 and QR Network's revised capital expenditure estimate for 2008-09.

However, the Authority required QR Network to make two amendments to the 2008-09 capital expenditure amount before calculating its final carry-over account estimate, namely, that it:

- (a) exclude GAPE-related expenditure (expected to be around \$44 million at that time) from the 2008-09 capital expenditure claim; and
- (b) take account of the capital expenditure associated with the Vermont mine that was commissioned in January 2009.

Accordingly, the Authority proposed a (negative) capital carry-over account balance of \$10.6 million to be recovered during the term of the 2009 undertaking.

### *QR Network's 2010 DAU*

In its 2010 DAU, QR Network estimated an aggregate (negative) capital carry-over account balance of \$5.25 million based on using actual capital expenditure from 2005-06 to 2008-09 (see table 2.7 for the amounts by system).

In addition, QR Network calculated, and separately presented, the carry-over account balance relating to capital expenditure associated with the Vermont mine.

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<sup>16</sup> The \$366.1 million figure does *not* include the \$44 million of GAPE capital expenditure projects that were approved as part of the 2008-09 capital expenditure claim, but are to be set aside for inclusion into the regulatory asset base once the pricing arrangements associated with GAPE are finalised.

**Table 2.7 : QR Network's 2010 capital expenditure carry-over balance \* (\$m)**

<i>System</i>	<i>Balance 2009-10 (\$m)</i>
Blackwater	9.94
Blackwater Electric	(1.49)
Goonyella	8.70
Goonyella Electric	1.06
Vermont Non-Electric	0.16
Vermont Electric	0.55
Moura	(6.14)
Newlands	(4.725)
<b>Total</b>	<b>5.25</b>

*Note: a positive number denotes monies to be **recouped from users** via the reference tariffs (a negative number denotes monies to be **returned to users** via the reference tariffs).*

*\* Entries into the account are recorded on the basis of the revenue impact of any over- or under-spending on forecast capital expenditure.*

The Authority has reviewed QR Network's submission and has confirmed that QR Network's revised estimate of \$5.25 million under-recovery of its capital expenditure over the term of the 2006 and 2008 undertakings is based on the Authority approved capital expenditure from 2005-06 to 2008-09 and uses the approved WACC of 8.43% to roll forward the balances in each year to 1 July 2009.

In revising its estimate, QR Network has also addressed the Authority's primary concerns by removing GAPE-related expenditure from the 2008-09 capital expenditure from its final calculations and separately identifying the amount of the under-recovery relating to the Vermont mine (which will be recovered from the mine over the next regulatory period).

However, the Authority notes that QR Network's calculations were based on *forecast* depreciation for its 2008-09 capital expenditure because, at the time of its submission, QR Network had not finalised the asset roll-forward based on the approved 2008-09 capital expenditure – the forecast estimate was based on an assumed asset life of 35 years for all assets and not the approved lives for each asset class.

While the difference is not material, it is a matter that will need to be resolved as part of the next revenue cap review (due October 2010 – see decision 1.6).

Accordingly, the Authority's decision is to approve QR Network's carry-over amount of \$5.25 million.

## **2.7 Accelerated Depreciation**

Existing assets, and assets included in QR Network's regulatory asset base during the term of the 2006 and 2008 undertakings, are depreciated based on asset lives endorsed by the Authority. These asset lives were developed in determining the opening asset value for the 2001

undertaking and applied again in determining and reconciling the opening asset value for the 2006 undertaking.

### *Background*

In its 2009 DAU, QR Network proposed that a new list of asset lives be applied to past and future capital expenditure to mitigate its investment risk. In particular, it proposed that assets with a remaining life:

- (a) *in excess of 20 years* – be effectively be capped and written off over 20 years from 1 July 2009; and
- (b) *less than 20 years* – be depreciated in accordance with the revised asset lives.

QR Network said it would review the appropriateness of this treatment in future regulatory periods if there was a material reduction in risk.

Stakeholders did not support either aspect of QR Network's proposal – that is, to revise the lives of existing assets or to place a 20-year cap on the life of new capital expenditure (QRC, sub no. 38: 59, Asciano, sub no. 33: 44, Stanwell, sub. no. 42: 4).

In its December 2009 draft decision, the Authority considered the issue of accelerated depreciation as part of its overall assessment of the balance of the risks and rewards proposed by QR Network in the 2009 DAU.

In doing so, the Authority accepted, in part, QR Network's proposal to accelerate depreciation on new investments over the term of the 2009 regulatory period, including that it apply:

- (a) a 20-year asset life to depreciate non-project specific capital expenditure included in the reference tariff calculations and recovered through access charges; and
- (b) the revised list of asset lives be used from 1 July 2009 to depreciate capital expenditure accepted into its regulatory asset base during the term of the 2009 undertaking.

However, the Authority did not consider it appropriate to re-open the depreciation rates applied to capital expenditure under the 2006 and 2008 undertakings and required that QR Network continue to use the pre-existing asset lives to depreciate those assets.

The Authority also considered it appropriate that the asset life for new investments should be a rolling 20-year life and not a fixed 20-year life – this would mean that, in the absence of any evidence of a material increase in asset stranding risk, assets which had their otherwise useful lives capped at 20 years in the 2009 undertaking would have depreciation calculated in the next undertaking on the basis of their remaining useful life or 20 years, whichever is least – in which case the depreciation profile would be convex rather than linear.

### *QR Network's 2010 DAU*

In response to the draft decision, QR Network accepted the Authority's proposed treatment of capital expenditure under the 2006 and 2008 undertakings and for new investments, i.e. that, for the former, the existing lives will not change and, for the latter, that the 20-year rolling asset life apply.

The QRC said the proposed rolling cap should not necessarily apply to all capital expenditure or necessarily be restricted to 20 years. Rather, the QRC believes that the details of the rolling cap (e.g. term) should be determined within QR Network's proposed framework for significant investments (QRC, sub. no. 75: 10).

In reviewing QR Network's confidential financial model, it is evident that QR Network has accepted the Authority's December 2009 draft decision by:

- (a) calculating depreciation for capital expenditure under the 2006 and 2008 undertakings using the existing asset lives approved under those undertakings (and not the newly proposed lower asset lives); and
- (b) calculating depreciation on the capital indicator using the 20-year asset life.

The Authority has again considered this matter as part of its overall assessment of the balance of the risks and rewards proposed by QR Network in the 2010 DAU and does not propose to change its position on this matter (discussed further in section 2.3). In particular, the Authority does not accept the QRC's argument that this arrangement should apply only to significant investments. All new investments run some asset stranding risk and the Authority believes that accelerated depreciation is a better approach to compensating QR Network for this risk than alternatives such as a higher WACC.

In particular, the Authority considers that accelerated depreciation will provide QR Network with cash flows earlier in the life of the asset than would otherwise be the case, but will ensure that, in the event that asset stranding does not eventuate, users of the network in 20 years' time and beyond will make a contribution to the assets installed today but still in use at that time.

Accordingly, the Authority accepts QR Network's proposal on the basis that it is consistent with this approach and with the Authority's December 2009 draft decision.

## 2.8 Operating Expenditure

Operating expenditure accounts for about 10% of QR Network's total forecast costs, comprising:

- (a) system-wide and regional (SWR) costs; and
- (b) an allowance for risk and self-insurance.

The Authority's consideration of SWR costs is set out below and its consideration of the risk and self-insurance allowance is considered in section 2.9.

### *System-wide and Regional Costs*

Operating expenditure reflects costs associated with the day-to-day operation of the Queensland below-rail network, including costs for infrastructure management, train control, yard control/safe-working and corporate costs. Operating expenditure is split into two separate categories, namely:

- (a) *regional costs* – those costs which can be directly attributed to the CQCR and are allocated among the systems based on the relative asset value of each system and the relative number of train paths forecast for each system; and
- (b) *system-wide costs* – those costs which are more generally related to running the business, such as management overheads. Some of these system-wide costs can be specifically identified as relating to the CQCR whereas others do not have a causal relationship and are allocated based on a calculated allocation.

In its 2006 access undertaking, the Authority approved system-wide and regional operating costs (SWR) of around \$25 million per annum.

## Background

QR Network's 2009 DAU proposed costs of around \$62.6 million per annum for all systems in the CQCR from 2009-10 to 2012-13. This represented a significant increase with, on average, costs being around 130% higher than the average annual allowance in the 2006 undertaking (as measured in 1 July 2009 dollars).

QR Network submitted that its business environment has changed significantly over the previous regulatory periods, particularly as a result of:

- (a) the evolution of QR Network's existing structure towards a 'stand-alone' business;
- (b) significant growth in network activity as a result of the demand for capacity in the light of the current coal boom; and
- (c) continuing pressures on input costs.

QR Network indicated that it included efficiency targets in its cost projections as it only proposed to escalate its costs based on CPI movements, even though majority of its costs are labour costs which tend to track above the CPI. This is discussed further in section 2.11.

Stakeholders' key concerns were that QR Network's operating costs should be determined by benchmarking to ensure that they are efficient and exclude costs associated with above-rail activities and multi-traffic operations (QRC sub no. 38: 66, Asciano sub no. 33: 47 and ARTC sub no. 32: 18).

In its draft decision, the Authority did not accept that QR Network had established a clear link between its proposed cost increases and the reasons for those increases. In particular, the Authority noted that it was not clear why operating costs were proposed to increase at a greater rate than volume increases and why QR Ltd would choose to make structural changes to its organisation that resulted in inefficiencies and cost increases to its customers.

Based on the analysis undertaken by its consultant, GHD, the Authority proposed a number of changes to QR Network's proposed operating costs. These changes resulted in costs that were 41% above the 2008-09 operating cost allowance but 11% below QR Network's proposed costs – that is, to around \$55.7 million per annum (excluding self insurance costs) from 2009-10 to 2012-13.

### *QR Network's 2010 DAU*

In its 2010 DAU, QR Network accepted the operating costs proposed by the Authority in its draft decision and, accordingly, proposed operating costs of around \$55.7 million per annum (excluding self insurance) from 2009-10 to 2012-13.

Stakeholders did not comment on this aspect of the 2010 DAU.

Accordingly, the Authority's decision is to accept the costs QR Network proposed in its 2010 DAU.

## **2.9 Risk and Insurance**

The Authority accepts that QR Network's revenues should include allowances for efficient insurance costs. In both the 2001 and 2006 undertakings, the Authority approved insurance costs as an 'annual risk premium' in QR Network's regulatory cash flows. However, the Authority had rejected past QR Network claims for self-insurance costs on the basis that the

claims were excessive and that QR Network had not established a properly constituted self-insurance scheme.

### *Background*

QR Network's 2009 DAU proposed risk and insurance costs for 2009-10 of \$6.8 million, which represented a 32% increase on the \$5.2 million escalated annual risk premium for 2008-09. The risk and insurance costs were split into a self-insurance premium of \$3.98 million, largely for uninsured costs in relation to derailments (86%) and bad weather (11%), and \$2.79 million of allocations of QR group corporate insurance premiums arranged internally through captive insurer *On Track Insurance*.

In addition, QR Network sought an annual allowance of \$0.4 million (or 10%) for managing a self-insurance program and a further one-off allocation of \$0.4 million for implementing the self-insurance program. QR Network also proposed that the cost of catastrophes, not addressed through policies with *On Track Insurance*, be covered by pass-through provisions.

QR Network's claim was supported by a confidential report by actuarial consultant, Finity, on the self-insurance premium and by a report on its own allocations of the group insurance premiums.

The Authority engaged PricewaterhouseCoopers (PwC) to assess the reasonableness of QR Network's risk and insurance claim. In general PwC found that Finity's estimate of self-insurance costs was likely to be understated and that the total of the proposed claim, including the allocations of premiums through *On Track Insurance* was reasonable (PwC, November 2009: 21). However, PwC found that QR Network had made an excessive claim for a margin to cover the cost of capital and profit – PwC believed that a 10% mark-up on the expected risk premium was more reasonable than the 20% mark-up proposed by QR Network.

In its December 2009 draft decision, the Authority found that QR Network had addressed some of its concerns about previous self-insurance claims by providing an actuarial assessment of its proposed self-insurance costs and by identifying the specific risks to be insured. However, it accepted PwC's advice that the cost of capital and profit for self-insurance should be 10% of the expected claims cost, rather than 20%.

The Authority rejected QR Network's claims for a \$0.4 million (or 10%) annual allowance for managing self-insurance and a \$0.4 million implementation cost as QR Network had failed to demonstrate that it had met the Authority's requirements for setting up a self-insurance function.

The Authority therefore proposed to reject the insurance cost claim of \$29.3 million over the 4-year undertaking period, and required QR Network to include a claim of \$26.7 million in its resubmitted DAU.

The Authority also:

- (a) required QR Network to demonstrate clearly that it had taken measures to remove any double-counting of its 'coal gang labour' cost between its self-insurance claim and its maintenance cost forecasts;
- (b) required QR Network to report on the effect on its planned maintenance with respect to derailments, as there was a concern that planned maintenance may be deferred as a result of derailments, giving QR Network an unintended benefit if planned maintenance was not sustained; and

- (c) proposed to approve a review event for costs greater than \$1 million arising from catastrophic events.

*QR Network's 2010 DAU*

QR Network accepted the Authority's proposed risk premium of \$26.7 million. It provided an estimate that coal gang labour used for self-insurance-related tasks would amount to \$1.76 million over the four years of the undertaking. However, QR Network argued that this amount was less than other potential claims such as an escalation in global premium levels, which it had not built into its original estimates (QR Network, sub. no 57: 58-59).

QR Network's 2010 DAU also included the Authority's proposed:

- (a) reporting requirement on the effect of derailments on planned maintenance, with some proposed amendments; and
- (b) review events for implementing a self-insurance scheme and claims for a pass-through for catastrophic events.

*Authority's Analysis and Draft Decision.*

QR Network has included in the 2010 DAU the same risk and insurance allowance the Authority proposed in its December 2009 draft decision. The Authority accepts as reasonable QR Network's claim that the value of coal gang labour used in completing tasks related to self-insured events is more than offset by other possible cost increases not included in QR Network's claim in the 2010 DAU. On that basis, the Authority accepts QR Network's proposed risk and insurance costs.

However, the Authority remains concerned that work to restore services after derailments may result in necessary maintenance on the central Queensland coal network not being completed. The Authority will require QR Network to report on this effect and, if it is material, expects QR Network to address this issue at the end of this regulatory period.

The Authority also notes that QR Network has included in the 2010 DAU a review event for administration costs once it has implemented a self-insurance scheme. It would appear that implementing the scheme is in QR Network's interests as both Finity's and PwC's reports indicate that a higher claim might be reasonable if based on better records of costs that an actuary could use to establish a risk premium.

## **2.10 Maintenance Costs**

Maintenance expenditure covers a range of activities, from routine activities (e.g. inspections, employing inertial cars to assess track geometry and manual maintenance of the vegetation around easements) to major capital-intensive activities such as rail grinding, mechanised resurfacing and ballast undercutting. As the costs associated with the majority of maintenance activities are observable, they can be directly attributed to the relevant line section.

*Background*

QR Network's 2009 DAU proposed significant increases in maintenance costs, in addition to the significant increases approved during the last undertaking period. QR Network's forecast maintenance costs of \$167 million for 2009-10 reflected an increase of about 63% over the costs approved by the Authority for 2008-09, with increases of further 24%, or \$40 million to \$207 million by 2012-13.

QR Network stated that its proposed costs were based on a comprehensive 'bottom-up' review of its maintenance program, including objectives, activities and the proposed maintenance approach (i.e. type and intensity of maintenance). QR Network also claimed previously unrecognised costs in asset charges and margins.

QR Network also proposed to escalate the maintenance cost allowance not by CPI but by a maintenance cost index (MCI) that is based on a weighted average cost of separate input price indices (see section 1.10).

QR Network provided detailed scoping data for several key maintenance activities, including ballast undercutting. However, QR Network claimed confidentiality on the detailed costing data for these (and other) activities as well as on related information in its 2009 DAU.

Stakeholders concerns on QR Network's maintenance proposal focussed on information transparency and cost reasonableness.

Overall, stakeholders indicated that QR Network's confidentiality claims limited their ability to comment on the reasonableness of its proposed costs. Despite this, the QRC raised particular concerns with QR Network's proposed margins as it did not want QR Network to recover more than its efficient costs by shifting service functions to its related parties to obtain higher margins.

While other stakeholders commented on the significant increase in QR Network's proposed costs, they also recognised the significant pressures in the rail infrastructure maintenance and construction sector to maintain the network with minimal disruptions to capacity and throughput levels.

In reviewing QR Network's proposed maintenance costs, the Authority's consultant, GHD, noted that:

- (a) the step increase in maintenance costs in the 2009 DAU reflected the low forecast costs submitted by QR Network in the 2006 undertaking; and
- (b) except for ballast-cleaning costs, maintenance costs over the term of the 2009 undertaking:
  - (i) are on a par with other networks (e.g. the ARTC's Hunter Valley coal network); and
  - (ii) largely grow in line with volumes.

In its December 2009 draft decision, the Authority indicated it was encouraged by QR Network's proposed underlying maintenance program but identified specific concerns associated with:

- (a) the absence of proposed productivity gains;
- (b) the inclusion of margins in a related party maintenance contract with QR Services; and
- (c) high ballast-cleaning costs.

The Authority commented that QR Network's proposed maintenance program was quite different to that described at the time of its 2007 maintenance cost DAAU, where short term rectification of maintenance issues (e.g. chase tamping) was the preferred strategy over a preventative maintenance regime. In contrast, the 2009 DAU was based on:

- (a) a structured program of planned track closures and associated works; and
- (b) adopting new strategies, for QR Network at least, to:
  - (i) identify early any possible deterioration in track conditions before it becomes a serious maintenance issue; and
  - (ii) reduce the impact of maintenance works on train operations.

The Authority commented that its proposed strategy will:

- (a) involve the re-capitalisation of maintenance equipment, which will lead to an increase in maintenance costs; and
- (b) result in efficiencies in routine maintenance tasks – and, if not, the wisdom of adopting capital intensive maintenance strategies would be questionable.

Accordingly, the Authority accepted GHD's advice that routine resurfacing and maintenance costs should be held constant over the term of the 2009 undertaking.

The Authority also questioned QR Network's use of margins over the top of actual costs in developing its maintenance costs forecasts. The Authority accepted that, in a competitive environment, maintenance service providers would earn a margin over costs. However, that is in an environment where the provision of maintenance services is acquired through a competitive tender process. In such cases, there can be some confidence that the contract price is efficient.

In contrast, QR Network has not subjected its maintenance contract to a tender process. There is, therefore, less confidence that QR Network's proposed costs are efficient. The Authority therefore accepted GHD's proposal to reduce the margin on certain cost items. The Authority also accepted GHD's proposal to rely on constant unit labour costs in developing the maintenance costs forecasts as the Authority was proposing to accept the use of the MCI to index maintenance costs.

With regard to the ballast costs, the Authority noted that excessively fouled ballast has been an issue since the first undertaking in 2001 when the Authority optimised the current depreciated replacement cost of the track to account for the excessive fouling.

QR Network has indicated in the past that:

- (a) 40% of the contamination is due to ballast ploughing at the unloading stations, where the coal is not removed sufficiently quickly from underneath the trains by the dump station conveyors and so it builds up and, as the train continues forward, it can settle on the horizontal sections of the wagons and fall off once the train continues its journey; and
- (b) 50% of the contamination relates to coal spilling from the wagons, whether that be off the top of over-filled wagons or through leaky bottom opening doors.

In its December 2009 draft decision, the Authority noted that, despite this, there had been no apparent change in QR Network's handling of the matter. No action appeared to have been taken to reduce overfilling of wagons, add any form of cover (chemical or other) to the wagons, address leaky bottom dump doors or clean away contamination caused by ballast ploughing (e.g. by washing the undersides of the wagons).

The Authority accepted that not all of these (and no doubt other) possible approaches to handling the issue are in QR Network's direct control. However, as the owner of the

infrastructure, QR Network has a responsibility to ensure that its ballast is not excessively fouled by users.

Therefore, in its 2009 December draft decision, the Authority allowed for ballast cleaning costs at the same rate per gtk as currently applies to ARTC in the Hunter Valley.

However, the Authority indicated it was willing to consider further evidence from QR Network on the question of whether or not QR Network's approach is efficient from a whole of coal chain perspective.

On the basis of these considerations, the Authority proposed to reduce, by around 29%, QR Network's claimed maintenance costs (see Table 2.8).

**Table 2.8: Maintenance Costs (end-of-year nominal \$million)**

	2009-10	2010-11	2011-12	2012-13
QR Network Proposed Maintenance Allowance	169	189	203	207
QCA Proposed Maintenance Allowance	127	135	141	143
<b>% Reduction</b>	<b>-25%</b>	<b>-29%</b>	<b>-31%</b>	<b>-31%</b>
QR Network Proposed ballast cost Allowance	30	44	53	53
QCA Proposed ballast cost Allowance	15	22	26	26
<b>% Reduction</b>	<b>-50%</b>	<b>-50%</b>	<b>-50%</b>	<b>-50%</b>

The Authority also proposed that a productivity factor be applied to QR Network's maintenance costs (discussed further in section 2.11).

#### Stakeholders' Comments on 2009 Draft Decision

The QRC argued that the Authority's draft decision did not adequately address maintenance deficits and said that the extent to which maintenance costs relating to ballast cleaning represent a maintenance deficit is not clear. On this, the QRC is concerned that users would be required to pay for the same maintenance cost activity twice over two regulatory periods, even though the maintenance activity would ultimately be done once (QRC, sub no. 75: 11-15).

The QRC considered that a clear process to identify maintenance deficits would provide greater certainty to industry and QR Network in the event that such a situation arose.

While Asciano supported escalating maintenance costs at the MCI, it indicated that its ultimate acceptance of this would depend on the final MCI composition and its application (Asciano, sub no. 49: 23).

In line with its comments on operating costs, Asciano supported the Authority's position but felt that it was difficult to assess if the maintenance costs were appropriate given that much of the analysis was confidential. It felt the confidentiality should be removed to allow users to assure themselves inefficient costs had been excluded (Asciano, sub no. 49: 25-26).

QR National was concerned that capacity would be affected if QR Network was not given a reasonable maintenance cost allowance:

*QR National is highly concerned about the implications of this rejection for train operations and the ability of QR Network to manage an efficient rail system. If QR Network can only recoup maintenance costs which are lower than realistic market value, it will be put in a position to cut costs at the expense of network capacity (QR National, sub no.50: 7).*

In addition, QR National indicated that, if the maintenance budget is insufficient, this will cause more speed restrictions and cause maintenance levels to fall behind demand on the network. This will not only affect network capacity but increase QR National's operating costs through increased crew requirements (QR National, sub no. 50: 7).

The ARTC questioned a number of GHD's comparisons between its Hunter Valley and QR Network's central Queensland coal networks. However, the ARTC indicated that the unit ballast treatment cost (\$/mgtk) that was compared with QR Network's was likely to have been overstated, as it represented a five-year program to establish a regular cleaning and maintenance cycle after 20 years of no significant maintenance or upgrade (ARTC, sub. no. 48: 5-6).

#### *QR Network's Response to December 2009 Draft Decision*

In its response to the Authority's December 2009 draft decision, QR Network identified a number of instances where it believed the Authority's methodology was incorrect; for instance it said the Authority had erred:

- (a) in its treatment of the margin, which had the effect of removing a 17%, rather than a 15%, margin and had omitted to reflect the change to the margin when adjusting ballast-cleaning costs;
- (b) in comparing QR Network's ballast-cleaning costs with the ARTC's Hunter Valley coal network, without taking into account factors including the proximity to major population centres and other rail networks, the different gauges and proportions of multiple-track sections, or the trade-off between maintenance and capital; and
- (c) when adjusting maintenance costs for removal of the GAPE project costs, in a way which ignored economies of scale and lack of flexibility in the use of on-track machines.

QR Network said its proposed 15% margin on maintenance costs covered costs associated with an appropriate return on assets, corporate overheads, working capital and a margin for profits, incentives and contingencies.

QR Network submitted a report by Deloitte, which said the Authority's approach of providing a margin only on direct labour costs removed the incentive for QR Services to invest in preserving or increasing asset efficiency, and might therefore have an impact on network throughput. Deloitte said the margin in QR Network's 2009 DAU proposal, and the Authority's decision on that proposal, were based on a 'simplistic contracting-style model which is not the most successful model for asset-intensive businesses' and did not provide an appropriate return on capital (QR Network, sub. no. 63: 6 and 9).

QR Network therefore proposed to reduce the margin and to separate it into different categories, namely:

- (a) *corporate overhead*: 5% – to cover services such as finance, employee relations, information technology, procurement costs and the activities of the chief executive;
- (b) *working capital*: 0.75% – to cover the timing differences between cash outflows (e.g. wages) and cash inflows;

- (c) *incentive/contingency (profit)*: 5% – to provide QR Services a profit incentive to meet forecasts, as QR Services now bears the risk of not performing to expectations, and to provide a contingency should actual costs exceed estimates; and
- (d) *incentives to invest*: 12% return on asset values – to give QR Services an incentive to invest in maintenance assets such as on-track machinery.

QR Network argued its approach to ballast fouling was efficient, and the Authority was wrong to cut the allowance for ballast undercutting using ARTC's Hunter Valley costs as a benchmark.

QR Network said the wider wheelbase and higher cubic capacity of coal wagons in the Hunter Valley created less need for overfilling those wagons. It submitted that central Queensland coal throughput would fall by at least 7% if wagons on QR Network's tracks were only filled to the sill. QR Network therefore allows loading above the sill as 'the value of the additional coal throughput to the supply chain has been greater than the incremental cost associated with the increase in ballast fouling' (QR Network, sub. no. 57: 81).

QR Network argued that, if tonnages were reduced by 7% to prevent fouling, tariffs per tonne would be expected to be 7% higher. Alternatively, 7% more trains would be required to transport the same tonnages.

QR Network added that, as coal fouling could not rise above a threshold of 30% of the volume of the ballast, it was taking measures to address coal fouling over the next seven to ten years. Studies over the past three years had shown that 80% of the fouling was caused by losses from the surface of the coal in the wagons. QR Network was considering using spray stations to reduce the dust from the surface of the loaded coal, and making changes to the design of coal load-outs.

QR Network was also planning to increase its program of ballast undercutting to clean fouled ballast. QR Network was reviewing the undercutting program to deliver efficiencies, but in the meantime it had delayed a plan to purchase 'spoil management wagons' to improve the productivity of ballast treatment, due to the 'significant and justified regulatory risk'.

QR Network said it would therefore remove the cost of those wagons from its maintenance cost proposal. However, QR Network said it would submit a revision to the maintenance costs as a review event during the 2009-13 regulatory period to reflect the outcomes of its efficiency review (QR Network, sub. no. 57: 60-89 and sub. no. 63: 1-21)

#### *QR Network's 2010 DAU*

In its 2010 DAU, QR Network confirmed the positions it set out in its response to the Authority's December 2009 draft decision.

QR Network also sought to refute suggestions that ballast-undercutting requirements were a 'catch-up' to address a maintenance deficit. It said maintenance costs in the first two undertaking periods had exceeded the allowances approved by the Authority, including \$87 million of extra spending from 2005-06 to 2008-09.

QR Network also presented data on historic undercutting levels, which showed it exceeded target levels between 2001-02 and 2005-06, but fell short between 2006-07 and 2008-09. It argued undercutting productivity was 'strongly influenced' by its ability to dispose of the removed ballast.

QR Network also included a table showing the breakdown of its maintenance costs, including the effect of the margins and overhead allowances it proposed in its response to the December

2009 draft decision. However, QR Network did not attempt to further justify its current proposal for a significantly higher maintenance cost estimate (QR Network, sub no. 70: 85-98).

In May 2010, QR Network provided a supplementary report on coal loss and ballast undercutting, in which it reiterated its earlier submission that:

- (a) coal loss predominantly occurs from the surface of the wagons with coal dust being the primary contributor; and
- (b) the Hunter Valley coal network is a poor comparator for assessing the efficiency of ballast undercutting.

In seeking to justify its past ballast cleaning regime, QR Network said that overfilling of the wagons was viewed as the best option given that the opportunity cost of additional throughput during a period of high commodity demand would exceed the ballast cleaning costs in the 2009 DAU. The supplementary report also presented a partial cost benefit analysis of other options for limiting future contamination but without forming a preferred view on a future strategy.

In its 2010 DAU, QR Network provided a revised maintenance cost proposal, which excluded the ballast spoil removal wagons and the associated costs (Table 2.9).

**Table 2.9: QR Network's 2010 DAU Maintenance Costs (\$2007-08m)**

<i>Item (\$2007-08m)</i>	<i>2009-10</i>	<i>2010-11</i>	<i>2011-12</i>	<i>2012-13</i>
Direct costs	136.03	138.78	140.96	141.16
Margin (5%)*	6.61	6.74	6.71	6.73
Corp overhead (5.75%)	7.82	7.98	8.10	8.12
Sub-total	150.46	153.50	155.77	156.00
Adjustment (non-coal)	(2.76)	(2.86)	(2.95)	(3.04)
<b>Total</b>	<b>147.70</b>	<b>150.64</b>	<b>152.82</b>	<b>152.96</b>

\* The margin has not been applied to asset charges.

#### *Stakeholders' Comments on 2010 DAU*

The QRC reiterated its previous concerns about cost-shifting between regulatory periods causing the coal industry to pay twice for the same maintenance task.

The QRC argued that the only commercial incentives for QR Network to improve its maintenance performance were the risk that the Authority would identify a difference between QR Network's actual costs, and the efficient level of maintenance determined by the Authority, or that the Authority would reduce asset values to reflect the condition of the assets.

The QRC said the undertaking needed incentives to ensure adequate maintenance was completed at an efficient cost, including an obligation to maintain the network, and a planning process which ensured the appropriate maintenance was undertaken.

The QRC said QR Network's maintenance allowance should be based on the quantum of work required to maintain the network. Any difference between that amount and an efficient cost would be addressed through a write-down of assets to reflect the current condition. QR

Network would be assured of recovering costs based on its actual maintenance scope through an 'unders and overs' mechanism. The condition of the network would be assessed at the end of the regulatory period, and the asset base further adjusted if necessary.

The QRC also argued that QR Network's incentive framework should include maintenance performance, and that the access agreements should not excuse QR Network from meeting its obligations to provide train paths on the basis of performing maintenance tasks (QRC, sub. no. 75: 11-15).

The QRC was also concerned about QR Network using margins on work performed by related parties to allow them to earn returns beyond the regulatory WACC. It considered the efficient cost for such services was the lesser of the market rate for outsourced services, or the cost at which QR Network or a related party performed the services (QRC, sub. no. 75: 9).

Xstrata and Rio Tinto supported the QRC's proposal. Xstrata submitted that QR Network's allowable revenues should provide for reasonable costs of required maintenance, and include incentives to ensure the cost was efficient and that the maintenance was undertaken in a manner that was sustainable over time. It proposed that QR Network's opening asset value be written down to the extent that past maintenance or operations resulted in the network deteriorating (Xstrata, sub. no. 77: 22). Rio Tinto said key performance indicators for maintenance should be included when developing an incentive regime for QR Network (Rio Tinto, sub. no. 73: 4).

#### *Authority's Analysis and Draft Decision*

The Authority has many of the same concerns with QR Network's 2010 DAU maintenance cost proposals that it had with QR Network's earlier proposals. That is, while the Authority is satisfied that QR Network is proposing a reasonable maintenance regime for the coal network over the term of the 2010 undertaking, it has concerns with the costing of that program of works. In particular, in relation to: productivity improvements in routine maintenance tasks; margins on direct costs for risk and profit; and ballast cleaning costs.

Prior to dealing with the substance of those matters, the Authority notes that, in its response to the December 2009 draft decision, QR Network argued that GHD had made several errors in its proposed adjustments, namely:

- (a) when GHD extracted GAPE-related costs from QR Network's submitted costs, it inappropriately reduced all maintenance activities in scope. For example, QR Network's proposed Newlands maintenance costs did not include an allowance for ballast cleaning but the ballast-cleaning allowance was still reduced as a result of the exclusion of GAPE;
- (b) GHD incorrectly removed the proposed margin, which had the effect of removing a 17%, rather than 15%, margin.
- (c) GHD misinterpreted the track and structures costs as involving a 4% real increase in direct wages when they did not.

GHD has reviewed these claims and has acknowledged these errors. Accordingly, the Authority has corrected them when adjusting QR Network's 2010 DAU maintenance cost proposal. However, they do not make a material difference.

In its 2009 draft decision, the Authority proposed to accept GHD's advice that routine resurfacing and maintenance costs should be held constant over the term of the 2009 undertaking. This decision was based on the assessment that QR Network should expect to achieve productivity gains in routine maintenance tasks given the significant re-capitalisation associated with its major program maintenance.

QR Network has not sought to address this decision in the material it has presented to the Authority since the release of the December 2009 draft decision. Accordingly, the Authority confirms its earlier decision to hold constant, on a per kilometre basis, routine maintenance costs for track and structures over the term of the 2010 DAU.

The Authority has, however, altered its proposed response to margins and ballast cleaning costs given the submissions from QR Network and stakeholders.

#### Margin

QR Network has argued its maintenance contract with QR Services is an alliance agreement, where risks are shared, and QR Services is rewarded for achieving its targets.

In its 2009 draft decision, the Authority decided to remove QR Network's proposed 15% margin largely on the basis that the maintenance contract had not been tendered and was with a related party – that is, the Authority was not confident that the proposed costs, with the margin, were efficient costs.

In its 2010 DAU, QR Network has reduced the size of the claimed margin, disaggregated it into separate categories and provided additional justification. Based on its review of this material, and the advice of its consultant, GHD, the Authority has concluded that:

- (a) it will accept the 5.75% margin for corporate overheads and working capital but that it should only apply to direct labour costs;
- (b) it will not accept the 5% margin for risk and profits because, even though it might be reasonable for such a margin to be in a commercially negotiated alliance contract, the Authority does not consider it is reasonable to have such a margin in a non-negotiated contract with a related party; and
- (c) while it is reasonable for an alliance contract to contain a profit margin based on a rate of return on capital equipment, the Authority believes that the regulated WACC of 9.96% is more appropriate than QR Network's proposed 12%.

In reaching these conclusions, the Authority considers that non-tendered arrangements with related parties should be costed on the same basis as if QR Network had undertaken the work itself. Were this the case, QR Network would receive only its normal WACC and it would not receive any additional margin for risk/profit in addition to estimated efficient costs. It would however incur an increased share of QR Ltd's overhead costs, as its cost base would be larger with the inclusion of the costs now being incurred by QR Services on its behalf.

The Authority's approach is consistent with this and the Authority has adjusted QR Network's proposed maintenance costs accordingly.

#### Ballast Fouling and Undercutting

In considering QR Network's 2010 DAU ballast cleaning proposal, the Authority focussed particularly on QR Network's proposals:

- (a) that the ARTC is an inappropriate benchmark for a range of reasons, including track gauge;
- (b) that QR Network's approach to ballast fouling has been efficient; and
- (c) to reduce the scope, and cost, of its ballast cleaning and to submit a revised application during the term of the undertaking.

The Authority accepts that there may be many good reasons why there are differences between the ARTC Hunter Valley and the QR Network central Queensland coal networks. However, the Authority would expect that these differences would be taken into account when decisions were made on how wagon loading and ballast fouling would be best handled. If, for instance, it is the case that narrow gauge networks are more susceptible to coal loss, then it may have been expected that greater vigilance would have been taken to preventing the fouling of the ballast when wagons were being filled.

In any case, the Authority considers that the ARTC ballast-cleaning costs remain a reasonable efficient benchmark. Indeed, the ARTC submitted that its current program of ballast cleaning is abnormally high as it has only recently reinitiated a substantive ballast-cleaning program after a long period of very little ballast cleaning.

The Authority notes QR Network's arguments that over-filling wagons may make better utilisation of available capacity, whether that be above- or below-rail capacity. However, this is only part of the capacity utilisation issue as fouled ballast results in additional speed restrictions during the wet season and additional track closures will be required to undertake the ballast cleaning. This loss of capacity, which the Authority understands may be up to 5 mtpa on the Goonyella system alone, affects not only the underutilisation of the below-rail network, it affects the entirety of the coal supply chain from mine to ship.

The Authority also remains unclear of the circumstances and the reasons why the ballast has become so contaminated that a seven- to ten-year program, at twice the cost of the ARTC's program, is now required. While the Authority remains to be convinced of this rationale, its outstanding concern is that there is a range of plausible explanations which have vastly different pricing implications.

If QR Network is proven to be correct, and it has adopted an efficient strategy of over-filling the wagons, allowing coal to foul the ballast and implementing a subsequent ballast cleaning program, then it is reasonable that the costs of that cleaning program be funded by the users of the network.

Alternatively, it is possible that the above-rail operator allowed its wagons to be over-filled because it did not want to purchase additional rolling-stock to meet its contract commitments. In such circumstances it is questionable why the customers of that network (i.e. the coal mines) should have to pay for the resultant ballast-cleaning costs if the below-rail network operator allowed this over-filling and ballast fouling to occur to enable it to meet its contractual commitments.

The Authority struggled with this issue when it made its December 2009 draft decision, and it is not in a much better position now, even with the additional material provided by QR Network. In particular, QR Network's cost-benefit analysis is a partial analysis only as it does not include the impact of track closures and speed restrictions.

The Authority has also struggled with understanding QR Network's response to the draft decision whereby it has proposed to almost halve its planned scope of ballast undercutting over the final three years of the regulatory period, from 125 km a year to about 70 km. At the same time, it has not provided any evidence to contradict its previous estimate that 125 kilometres of annual undercutting is necessary over seven to ten years.

While the Authority understands that QR Network is contemplating submitting an amending undertaking to approve increased maintenance cost allowance in the future, or to perhaps seek industry funding for additional ballast undercutting, the Authority prefers an approach whereby QR Network receives adequate funding for its required maintenance program. As a result, the

Authority has included in its proposed maintenance costs the costs associated with the spoil wagons that QR Network had included in its 2009 DAU but removed from its 2010 DAU.

However, given the outstanding concerns relating to the efficiency of past ballast cleaning programs, the Authority has deducted \$107 million from QR Network's asset base. This is the net present value of the difference between the ballast cleaning allowance provided by the Authority in this decision and the benchmark, ARTC ballast cleaning costs (summed over the seven years of the proposed program). This approach is not dissimilar to the approach the Authority adopted for ballast cleaning in the 2001 undertaking and that proposed by the QRC in response to the 2010 DAU.

The Authority will consider re-including this deduction in the future if QR Network is able to demonstrate that its past approaches to ballast fouling have been cost effective and that it has adopted an efficient approach to maintaining a sound ballast, whether that be through ballast cleaning and/or fouling prevention.

In order to address the more general concerns stakeholders have about ensuring the network is being efficiently maintained, the Authority is also introducing into the 2010 DAU a more general provision for future declines in network condition, beyond that associated with normal wear and aging, to be deducted from the asset base as well. As a balance to this, the Authority will also consider increases to the maintenance cost allowance in circumstances where QR Network is able to demonstrate that the condition of the track is declining despite the fact that it is spending its full approved maintenance allowance and its maintenance program and associated costs are efficient. This is not a matter for this decision, which focuses on schedule F of the undertaking, but it is a matter the Authority will address as part of its decision on the remainder of the undertaking.

Given these considerations, the Authority's view is that its proposed adjustments are reasonable in the circumstances. These, in combination with GHD's adjustments are in Table 2.10. QR Network proposed an allowance of \$151 million (average 2007-08 dollars) per year for its 2010 DAU, exclusive of the spoil wagons. As discussed, the Authority has adjusted QR Network's proposed allowance to largely remove margins and corporate overheads on direct costs. However, as the Authority has decided to provide an allowance for the spoil wagons, the Authority's final allowance is about \$149 million (average 2007-08 dollars) per year (Table 2.10).

**Table 2.10: Authority Adjustments to Maintenance Costs (\$2007-08m)**

<i>Item (\$2007-08m)</i>	<i>2009-10</i>	<i>2010-11</i>	<i>2011-12</i>	<i>2012-13</i>
<b>QR Final Proposal</b>	<b>147.70</b>	<b>150.64</b>	<b>152.82</b>	<b>152.96</b>
<i>less margin (5%)</i>	(6.61)	(6.74)	(6.71)	(6.73)
<i>less corp ovhd (5.75%) except. on labour</i>	(5.21)	(5.33)	(5.49)	(5.52)
<i>adjustment to routine maintenance</i>	0.00	(0.50)	0.13 <sup>a</sup>	0.97 <sup>a</sup>
<i>adjustment to asset charges (QCA WACC)</i>	(1.69)	(1.72)	(2.25)	(2.24)
<b>Sub-total</b>	<b>134.19</b>	<b>136.35</b>	<b>138.50</b>	<b>139.44</b>
<i>plus wagons and related costs</i>	0.78	11.27	18.00	17.45
<b>QCA Final</b>	<b>134.97</b>	<b>147.62</b>	<b>156.50</b>	<b>156.89</b>
QCA difference to QR Network	(12.73)	(3.02)	3.68	3.93

*a These increases reflect additional maintenance costs for new track added during the regulatory period.*

*b Includes asset charges (at QCA WACC), ballast, fuel, hire charges, plant maintenance, and on-costs.*

## 2.11 X-Factor

Incentive regimes typically include a mechanism to ensure that benefits associated with economies of scale and productivity improvements are shared between the regulated business and its customers. Regulators have commonly used an 'X-factor' to put this into effect, where 'X' is a percentage that is subtracted from the relevant cost increase, typically as part of periodic escalations to reflect price inflation.

### *Background*

QR Network's proposals for forecasting operating and maintenance costs in the 2009 DAU included a zero X-factor on the basis that it had included sufficient productivity improvements in its estimated expenditure.

The Authority's consultant, GHD, advised that QR Network's proposed productivity incentive for operating costs was not effective and that CPI-X remained the most appropriate long-term incentive mechanism. GHD suggested that 'X' should be 25% of CPI, based on an extensive review carried out in 2004 by the Economic Regulation Authority (ERA) of WA.

GHD reached similar conclusions about maintenance costs and the proposed MCI. It found that machinery QR Network was buying to perform maintenance tasks should be producing productivity improvements, and that the MCI should therefore be adjusted by the same 25% X-factor that it proposed for CPI with operating costs (GHD, September 2009: 66).

The Authority accepted these recommendations and proposed that a 25% X-factor reduction be applied to both operating and maintenance cost escalations.

### *QR Network's 2010 DAU*

QR Network again argued the X-factor should be zero, rather than 25%, and reiterated its claim that its forecast spending already included sufficient productivity improvements. QR Network said the precedent established for the WA rail industry, in a report prepared for the Economic Regulation Authority, was not relevant to QR Network's operations in Queensland.

QR Network argued GHD had not considered whether the assumed productivity gains by setting X to 25% were in fact realisable given that at least 50% of costs are fixed. It said that, to achieve this target, there would have to be significant cuts to variable costs which would reduce maintenance flexibility, and this would not meet the expectations of customers (QR Network, sub. no. 57: 93-96).

QR Network also proposed that, if an X-factor was applied, it should be applied to forecast annual escalations, when determining future tariffs, rather than ex-post at the time of the annual revenue cap review process. In proposing this, QR Network was concerned to minimise revenue cap adjustments.

#### *Stakeholder Comments*

The QRC supported applying an X-factor to QR Network's operating and maintenance costs (QRC sub no. 55: 6). Asciano supported the Authority's position on the X-factor, subject to finalisation of the MCI composition and application (Asciano, sub. no. 49: 23).

#### *Authority's Analysis and Draft Decision*

In response to QR Network's comments, the Authority accepts that QR Network has provided for the possibility of productivity improvements within some aspects of its cost estimates: for example, by only indexing operating costs by CPI. However, this is in the context where QR Network has proposed very significant increases in its operating and maintenance costs.

In addition, the Authority's consultant, GHD, maintained its view that it is appropriate to apply an X-factor to QR Network's operating and maintenance costs given QR Network's stated plans to increase productivity through its maintenance alliance agreement and through the use of new machinery.

GHD indicated that the quantum of the X-factor was considered in the context of a range of circumstances and that the most appropriate precedent was the study conducted for the ERA in 2004 (ERA, March 2004; IRIC, May 2004). The 25% was therefore derived from analysis within the same industry, and was modest in comparison to others proposed in other industries.

The Authority maintains its view that it is reasonable to anticipate some productivity improvements over the term of the 2010 undertaking and that the application of a transparent productivity factor is appropriate.

Accordingly, the Authority reaffirms its acceptance of GHD's recommendation and requires that QR Network apply an X-factor of 25% to the escalation of its operating and maintenance costs.

The Authority does, however, propose to take account of the X-factor in the manner preferred by QR Network – that is, with the adjustment factored into QR Network's costs and, therefore, its revenues. This does not have an NPV impact on total revenue collected but it will reduce revenue cap adjustments. This approach has been applied in the Authority's assessment of QR Network's tariffs, with the building block cost estimates of maintenance costs and operating costs being escalated by MCI-X and CPI-X.

At the end of each financial year, a reconciliation will occur to take account of the difference in revenues when the forecast MCI and CPI are substituted with the actual MCI and CPI data. Any under- or over-recovery of revenues will be recovered through the revenue cap adjustment process.

## 2.12 Reference Tariffs for the Central Queensland Coal Region

The 2008 undertaking provides for reference tariffs for coal-carrying train services on the CQCR to be calculated on the basis of recovering QR Network's efficient costs, including a return on capital, over the term of the undertaking.

In addition, the undertaking sets out the system volume forecasts (on a gross tonne kilometre basis) used to derive the reference tariffs and the corresponding system allowable revenues, or revenue caps, for each system in relation to the non-electric and electric infrastructure access charges.

### *Background*

QR Network proposed costs for all coal systems of around \$935 million per annum over the period 2009-10 to 2012-13, which comprised around \$781 million per annum for non-electric assets and \$155 million per annum for electric assets).

The main drivers for the proposed revenues included:

- (a) a capital expenditure provision of \$1.35 billion over four years;
- (b) a WACC of 11.76%;
- (c) forecast annual inflation of 2.8%;
- (d) maintenance and operating costs of, on average, around \$192 million and \$63 million respectively each year over the four years; and
- (e) volume forecasts of, on average, 227 million tonnes per annum.

The combined effect of these proposals was to increase reference tariffs by around 53% for users over the next regulatory period, excluding the effect of major expansions that may occur during the 2009 DAU period (such as GAPE) and the revenue cap under-recoveries from the 2006 and 2008 undertakings that will be recouped during the 2010 regulatory period.

QR Network's proposed reference tariffs were calculated based on the existing multi-part tariff structure, which consists of:

- (a) *cost reflective tariff components* – that recover a proportion of the required revenue through:
  - (i) a usage-based charge which reflects incremental maintenance costs, expressed on a gross tonne kilometre basis (AT<sub>1</sub>); and
  - (ii) a capacity charge that covers the incremental cost to QR Network of capacity, expressed per train path (AT<sub>2</sub>); and
- (b) *allocative tariff components* – that equally recover the remainder of the required revenue through:
  - (i) a per net tonne kilometre charge (AT<sub>3</sub>); and
  - (ii) a per net tonne charge (AT<sub>4</sub>); and
- (c) *electric tariff component* – that recovers the costs of the overhead electric infrastructure, expressed on an electric gross tonne kilometre basis (AT<sub>5</sub>).

The tariffs proposed also reflected QR Network's proposed amalgamation of the non-electric Blackwater and Goonyella clusters so that a single tariff applied within each of the systems and the proposed amalgamation of the electric Blackwater and Goonyella system tariffs so that a single tariff applied to all electric train services.

Stakeholders did not comment in general on the derivation of QR Network's proposed reference tariffs. However, stakeholders did comment on QR Network's proposed amalgamation of the Blackwater and Goonyella clusters and the proposed amalgamation of the Blackwater and Goonyella electric systems.

In its December 2009 draft decision, the Authority proposed to reject QR Network's reference tariffs and revenue caps. The Authority proposed to make a number of amendments to QR Network's cost estimates and parameters and, as such, proposed a set of reference tariffs and revenue caps to reflect those amendments.

The reference tariffs proposed by the Authority in its December 2009 draft decision resulted in increases of, on average, 26% compared with charges currently paid by users – around 28% less than the reference tariffs in QR Network's 2009 DAU.

The Authority's December 2009 draft decision also proposed to accept the amalgamation of the non-electric cluster tariffs into a single tariff for each of the Blackwater and Goonyella systems, but to reject the amalgamation of the Blackwater and Goonyella electric system tariffs into a single electric tariff (see section 1.3).

#### *QR Network's 2010 DAU*

In its 2010 DAU, QR Network proposed revised reference tariffs, volume forecasts and revenue caps for each system for the period 2009-10 to 2012-13.

QR Network proposed costs for all coal systems of around \$811.7 million per annum over the period 2009-10 to 2012-13, comprised of around \$660.6 million per annum for non-electric assets and \$151.1 million per annum for electric assets (see Table 2.11).

**Table 2.11: QR Network's 2010 DAU CQCR Annual Revenue Requirement CQCR (\$m)**

<i>Year</i>	<i>2009-10</i>	<i>2010-11</i>	<i>2011-12</i>	<i>2012-13</i>
<b>Non-electric Assets</b>				
Return on capital	\$329,923	\$348,674	\$354,120	\$356,437
Less inflation	\$76,272	\$80,629	\$81,885	\$82,427
Depreciation	\$126,273	\$140,943	\$150,105	\$158,478
Maintenance costs	\$148,976	\$156,062	\$164,291	\$173,918
Operating costs	\$61,286	\$63,027	\$66,383	\$68,268
Tax	\$14,727	\$23,171	\$28,914	\$29,582
<b>Total ARR</b>	<b>\$604,914</b>	<b>\$651,248</b>	<b>\$681,928</b>	<b>\$704,256</b>
<b>Electric Assets</b>				
Return on capital	\$41,706	\$48,203	\$59,799	\$70,916
Less inflation	\$9,639	\$11,140	\$13,816	\$16,393
Depreciation	\$32,932	\$38,023	\$45,824	\$53,906
O&M	\$41,866	\$52,893	\$55,887	\$90,454
Tax	\$6,741	\$6,855	\$6,309	\$3,031
<b>Total ARR</b>	<b>\$113,605</b>	<b>\$134,834</b>	<b>\$154,003</b>	<b>\$201,914</b>
<b>Grand Total ARR</b>	<b>\$718,519</b>	<b>\$786,082</b>	<b>\$835,931</b>	<b>\$906,170</b>

The main drivers for the proposed costs include:

- (a) a capital expenditure provision of \$1.06 billion over the four years;
- (b) a WACC of 10.81%;
- (c) forecast annual inflation of 2.5%; and
- (d) maintenance and operating costs of, on average, around \$172 million and \$63 million respectively each year over the four years.

The combined effect of these proposals is to increase proposed reference tariffs by around 39% for users over the next regulatory period. This is down from the 53% increase QR Network proposed in its 2009 DAU, but around 10% higher than the tariffs proposed by the Authority in its December 2009 draft decision.

QR Network's proposed reference tariffs were calculated based on the existing multi-part tariff structure (i.e AT<sub>1-4</sub> tariffs for non-electric infrastructure and an AT<sub>5</sub> tariff for the electric infrastructure). Consistent with the Authority's December 2009 draft decision, these tariffs included an amalgamation of the clusters to form a single system tariff in each of the systems for non-electric infrastructure and separate AT<sub>5</sub> tariffs for the Blackwater and Goonyella systems.

QR Network's proposed tariffs have been updated so that, where possible, previously forecast information has been replaced with actual information (including the approved 2007-08 and 2008-09 capital expenditure amounts).

Table 2.12 shows QR Network's proposed reference tariffs for each of the coal systems and the resulting revenue caps for non-electric and electric infrastructure. A comparison with the

proposed tariffs in QR Network's 2009 DAU and with the Authority's December 2009 decision proposed tariffs is also provided.

**Table 2.12: QR Network's 2010 DAU Reference Tariffs and Revenue Caps**

<i>Tariff Component</i>	<i>Blackwater</i>	<i>Goonyella</i>	<i>Moura</i>	<i>Newlands</i>
AT <sub>1</sub> – incremental maintenance (\$/gk)	0.78	0.54	1.45	1.51
AT <sub>2</sub> – incremental capacity (\$/train path)	1,829	1,159	548	245
AT <sub>3</sub> – allocative component (\$/ntk)	4.46	4.55	9.97	6.24
AT <sub>4</sub> – allocative component (\$/nt)	1.50	0.98	1.24	0.89
AT <sub>5</sub> – electric infrastructure (\$/egtk)	4.31	1.90	-	-
<b>2010 DAU \$/net tonne avg (AT<sub>1-4</sub>)</b>	<b>3.91</b>	<b>2.38</b>	<b>3.01</b>	<b>2.22</b>
<b>2010 DAU electric tariff (AT<sub>5</sub>) \$/'000egtk</b>	<b>4.31</b>	<b>1.90</b>	<b>-</b>	<b>-</b>
<b>QCA Dec '09 \$/net tonne avg (AT<sub>1-4</sub>)</b>	<b>3.86</b>	<b>2.38</b>	<b>2.41</b>	<b>1.74</b>
<b>QCA Dec '09 electric tariff (AT<sub>5</sub>) \$/'000egtk</b>	<b>4.37</b>	<b>1.71</b>	<b>-</b>	<b>-</b>
<b>2009 DAU \$/net tonne avg (AT<sub>1-4</sub>)</b>	<b>4.40</b>	<b>2.55</b>	<b>3.14</b>	<b>2.52</b>
<b>2009 DAU electric tariff (AT<sub>5</sub>) \$/'000egtk</b>	<b>2.37</b>	<b>2.37</b>	<b>-</b>	<b>-</b>
<b><i>Revenue Cap – Non-electric (AT<sub>2-4</sub>)(\$m)</i></b>	<b><i>2009-10</i></b>	<b><i>2010-11</i></b>	<b><i>2011-12</i></b>	<b><i>2012-13</i></b>
Blackwater	\$213.3	\$239.6	\$251.4	\$257.6
Goonyella	\$224.2	\$254.0	\$288.3	\$295.5
Moura	\$32.6	\$45.4	\$46.5	\$47.9
Newlands	\$29.1	\$32.8	\$33.6	\$34.5
<b><i>Revenue Cap – Electric (AT<sub>5</sub>)(\$m)</i></b>				
<i>Blackwater</i>	\$58.7	\$68.3	\$66.7	\$85.0
<i>Goonyella</i>	\$64.2	\$72.8	\$82.4	\$84.6

*As set out in schedule F, part B of the 2010 DAU*

The Authority has assessed QR Network's proposal, including the amendments QR Network has made since it submitted its 2009 DAU to revise its cost elements and parameters and replace forecast information with actual information where possible.

The Authority notes that QR Network's proposed 2010 DAU tariffs, while lower than the 2009 DAU tariffs proposed, will still result in a significant increase in access charges for users on the Blackwater and Goonyella systems for both non-electric and electric assets, but will result in a slight decrease in the access charges for the users on the Moura and Newlands systems (see Table 2.13).

**Table 2.13: CQCR Current vs QR Network's 2010 DAU Reference Tariffs<sup>17</sup>**

<i>System</i>	<i>Current Tariff<sup>a</sup></i>	<i>QR Proposal</i>	<i>% Increase from Current</i>
<b>Non-Electric Access Charges (\$/nt)</b>			
Blackwater	2.95	3.91	32%
Goonyella	1.54	2.38	54%
Moura	3.18	3.01	-5%
Newlands	2.43	2.22	-9%
<b>Weighted Avg Increase</b>			<b>32%</b>
<b>Electric Access Charges (\$/egtk)</b>			
Blackwater	2.30	4.31	88%
Goonyella	1.23	1.90	55%
<b>Weighted Avg Increase</b>			<b>69%</b>
<b>Weighted Average Increase CQCR</b>			<b>39%</b>

<sup>a</sup> Current tariff estimates represent the average composite price per tonne for each system (as at 1 July 2009).

The Authority has largely been able to reproduce the tariffs in the 2010 DAU based on QR Network's proposed costs.

Sections 2.1 to 2.11 of this chapter outline the Authority's assessment and decision in relation to each of the elements underlying QR Network's cost build-up and reference tariffs. In particular, the Authority proposes to reduce:

- (a) *the return on capital* – based on a WACC rate of 9.96% as against QR Network's 10.82%. (see section 2.3); and
- (b) *maintenance costs* – providing an allowance of \$163 million over the period 2009-10 to 2012-13 as against QR Network's \$173 million (see section 2.10).

In addition, the Authority has taken into account a \$107 million reduction in the opening asset value of QR Network's regulatory asset base for the CQCR to account for fouled ballast (see section 2.10).

The combined effect of the Authority's proposed adjustments increases the charges users can expect to experience – that is, the Authority proposes to approve reference tariffs that are around 27% higher than current tariffs, which is comprised of a:

- (a) 21% increase in current non-electric reference tariffs; and
- (b) 57% increase in current electric reference tariffs.

Table 2.14 sets out the Authority's tariffs which take account of the Authority's proposed reductions mentioned above.

<sup>17</sup> All tariffs presented in the table are as at 1 July 2009.

**Table 2.14: CQCR Current vs Authority's Proposed Reference Tariffs<sup>18</sup>**

<i>System</i>	<i>Current Tariff<sup>a</sup></i>	<i>QCA Proposal</i>	<i>% Increase from Current</i>
<b>Non-Electric Access Charges (\$/nt)</b>			
Blackwater	2.95	3.60	22%
Goonyella	1.54	2.16	40%
Moura	3.18	2.73	-14%
Newlands	2.43	2.04	-16%
<b>Weighted Avg Increase</b>			<b>21%</b>
<b>Electric Access Charges (\$/egtk)</b>			
Blackwater	2.30	4.28	86%
Goonyella	1.23	1.66	35%
<b>Weighted Avg Increase</b>			<b>57%</b>
<b>Weighted Average Increase CQCR</b>			<b>27%</b>

<sup>a</sup> Current tariff estimates represent the average composite price per tonne for each system.

**Appendix 1** sets out the proposed reference tariffs in detail (i.e. the tariff components AT<sub>1</sub>-AT<sub>5</sub> for each system) and, based on these, the proposed revenue caps for non-electric and electric access charges.

#### *Individual Tariff Components*

As discussed earlier, the reference tariff is comprised of multiple components, including cost reflective components (AT<sub>1</sub> and AT<sub>2</sub>), allocative components (AT<sub>3</sub> and AT<sub>4</sub>) and, where applicable, an electric tariff component (AT<sub>5</sub>).

Importantly, the existing arrangements provide QR Network with surety of receiving the revenues associated with the AT<sub>2-4</sub> components and the AT<sub>5</sub> component as the revenues associated with these form QR Network's revenue cap for non-electric and electric infrastructure charges respectively.

#### Background

Following a review of its methodology for determining the incremental maintenance and incremental capacity reference tariff components, QR Network's 2009 DAU proposed:

- (a) for the incremental maintenance tariff component (AT<sub>1</sub>):
  - (i) to reduce the maintenance tariff component (AT<sub>1</sub>) by, on average, 26% over the Blackwater, Moura and Newlands systems (leaving the Goonyella AT<sub>1</sub> rate consistent with the rate in the 2006 and 2008 undertakings but rolled forward to 1 July 2009);
- (b) for the incremental capacity tariff component (AT<sub>2</sub>):
  - (i) to retain the current AT<sub>2</sub> reference tariff for the Blackwater, Goonyella and Moura systems (approved as at July 2005) and roll it forward to March 2008 using the Rawlinson's building price index and then to July 2009 using a simple average of the quarterly changes in the Rawlinson's index between July 2005 and March 2008 (1.68% per quarter); and

<sup>18</sup> All tariffs presented in the table are as at 1 July 2009.

- (ii) apply the Goonyella system's AT<sub>2</sub> reference tariff for Newlands system on the basis that this would ensure that it would more closely align the capacity characteristics of the Newlands and Goonyella systems when the GAPE project is complete.

In general, stakeholders found it difficult to comment on QR Network's proposed AT<sub>1</sub> tariff component indicating they would rely on the Authority to determine the reasonableness of QR Network's proposal (QRC sub no. 38: 76, Asciano sub no. 33: 51).

With regard to the revised AT<sub>2</sub> rate, Asciano supported retaining the AT<sub>2</sub> component but indicated that it did not see any clear link between the costs and the escalation method QR Network used (Rawlinson's index) and that it was premature to align the Newlands rate with GAPE costs.

In its December 2009 draft decision, the Authority proposed that both of QR Network's proposals be rejected and that the incremental maintenance and capacity rates used during the 2006 and 2008 undertakings continue to apply. In particular, the Authority considered that:

- (a) for AT<sub>1</sub> – it appeared counter-intuitive that the variable component of maintenance costs would be declining at the same time as QR Network is seeking significant increases in maintenance costs; and
- (b) for AT<sub>2</sub> – it was not appropriate to align the Newlands AT<sub>2</sub> rate with that applied in Goonyella at this time. Consistent with other matters involving the GAPE project (i.e. the capital expenditure discussed in section 1.2), the Authority considers that any such amendments should be delayed until the arrangements associated with the pricing of the GAPE can be considered in their entirety.

QR Network's 2010 DAU

In its 2010 DAU, QR Network accepted the incremental maintenance and incremental capacity tariff components (AT<sub>1</sub> and AT<sub>2</sub> respectively) proposed by the Authority in its December 2009 draft decision (see Table 2.12 above).

The Authority is satisfied that QR Network has relied on the correct AT<sub>1</sub> and AT<sub>2</sub> rates (as approved and used in the 2006 and 2008 undertakings) and has appropriately rolled them forward in a manner consistent with that proposed in the Authority's December 2009 draft decision.

Accordingly, the Authority's decision is accept the AT<sub>1</sub> and AT<sub>2</sub> rates proposed by QR Network in its 2010 DAU.

### 2.13 Western System

QR Network's 2006 access undertaking contained a reference tariff of \$10.50/000gtk for coal-carrying train services on the western system, which connects Surat Basin and West Moreton mines with the Port of Brisbane. By the June quarter of 2009, the tariff had been indexed to \$11.99/000gtk, which equates to an average haulage cost of around \$5.36/net tonne.

#### *Background*

In the 2009 DAU, QR Network calculated a ceiling price of \$32.00/000gtk for its western system tariffs. Rather than seeking to set a tariff at the ceiling price, QR Network proposed a tariff of \$22.07/000gtk.

The Authority reviewed the opening asset value and the operating, maintenance and capital expenditure proposed by QR Network to derive its ceiling price, and determined that a reasonable tariff was \$16.81/000gtk, based on QR Network's estimate of its contracted volumes. The Authority also accepted as reasonable QR Network's argument that the tariff west of Rosewood could be extended across the metropolitan system, given the methodology the Authority had used to assess the tariff.

The Authority noted stakeholders' concern that a tariff that varied in direct proportion to tonnages would lead to a windfall gain for QR Network if above-rail investments in higher-capacity trains increased volumes without material investment or other contribution by QR Network. The Authority therefore required QR Network to split the western system tariff of \$16.81/000gtk into two parts:

- (a) an AT<sub>1</sub> volume-based charge of \$8.41/000gtk; and
- (b) an AT<sub>2</sub> cost per train path of \$3,962.

These charges only applied to the Surat Basin coal mines. The closer-in West Moreton mines around Ipswich, which used only the metropolitan system, would be charged a one-part volume-based tariff of \$16.81/000gtk.

#### *QR Network's 2010 DAU*

QR Network rejected the Authority's proposed methodology for deriving the western system tariff, including the Authority's treatment of the capital base, investment, and operating and maintenance spending. It used a different methodology to derive a ceiling price of \$15.17/000gtk and \$3,962/train path. However, QR Network accepted the Authority's proposed tariff and two-part tariff structure as being below that ceiling, and included them in the 2010 DAU.

#### *Stakeholders' Comments*

The QRC considered that QR Network had not demonstrated that the level of tariffs had been derived on a robust methodology, or that the methodology was suitable for 'rolling forward' for the next undertaking. The QRC, therefore, proposed that the current tariffs remain in place until replaced in an undertaking from the new government-owned corporation which will own the western system below-rail assets (QRC, sub. no. 75: 10-11).

Syntech Resources, which is due to start transporting coal over the western system in late 2010, echoed the QRC's concerns about approving a tariff without finalising the methodology. Syntech supported the split tariff structure proposed by QR Network in the 2010 DAU. It said that, since train paths were the key capacity constraint, it made sense for the tariff to charge for access to those paths. Further, the distance taper created by the fixed portion of the tariff was an accepted feature of tariffs in central Queensland. (Syntech, sub. no. 80: 3).

#### *Authority's Analysis and Draft Decision*

QR Network has included in the 2010 DAU the same western system coal tariffs that the Authority proposed in its December 2009 draft decision. While stakeholders have criticised this approach, the Authority does not believe that the issues they have raised are sufficient to alter the Authority's view that the tariffs that it had proposed, and which QR Network has now adopted, are reasonable. Accordingly, the Authority proposes to accept the western system tariffs included in the 2010 DAU.

However, there remains outstanding the question of the most appropriate way of deriving these tariffs.

In its December 2009 draft decision, the Authority accepted that it was desirable to have a transparent and repeatable methodology for determining reference tariffs on the western system. The Authority has not changed its view that such an approach will provide access holders and their customers with the ability to plan future rail haulage operations with some degree of certainty. The Authority had sought to do this through its approach to deriving a western system coal tariff.

Conversely, QR Network has maintained its view that a reasonable tariff is one that sits below a ceiling tariff.

QR Network said it rejected the Authority's methodology for assessing the tariff in part because it included a *pro rata* adjustment of the capital expenditure between coal and non-coal services. QR Network said that, in order to recover this capital expenditure in full, this would require it to make an equivalent *pro rata* reduction in the rebates it paid to western system miners which underwrote the capital expenditure through access facilitation deeds (AFDs).

However, the Authority believes that this is a narrow interpretation of the Authority's development of the western system tariff. Indeed, the Authority gave careful consideration to the treatment of capital expenditure when it developed its methodology for assessing the western system tariff, and thought it had put forward a reasonable view on these matters.

In its December 2009 draft decision, the Authority found that it was reasonable to apply a *pro rata* adjustment to new capital expenditure, as the new investment improved the standard of the track for both coal and non-coal services – it was therefore reasonable that such expenditure be allocated to both coal and non-coal services.

It is worthwhile repeating the point the Authority made in its December 2009 draft decision that, as capacity is expanded and extra train paths are allocated to coal, the *pro rata* allocation to coal for all existing assets will also increase. This effect will be amplified by the extension of the western system tariff across the metropolitan system. The Authority concluded that, on the basis of its analysis, that it was highly probable that the coal-carrying train services would, in effect, pay for all of these new investments (QCA, December 2009: 87).

Moreover, despite its claims about the unreasonableness of the Authority's approach, QR Network has not demonstrated that the new capital expenditure would not have been required in the absence of coal traffics, nor has QR Network demonstrated that the investments, which are almost all on the mainline shared with other traffics, are required only for coal.

It is apparent, therefore, that the Authority and QR Network are still quite some distance apart on the appropriateness of the methodology for deriving the western system tariff even if they are in agreement on the quantum of that tariff. It is also apparent that the Authority has not achieved its desired objective of finalising a repeatable and transparent methodology for deriving the western system tariff. However, in order for there to be greater certainty about future tariffs, the Authority is keen to work with QR Network to develop an agreed approach for future undertakings.

In addition, as QR Network has proposed a tariff that does not raise the issue of a *pro-rata* allocation of capital expenditure, the Authority does not consider that this triggers QR Network's ability to make a *pro rata* adjustment to AFD rebates to the miners.

The Authority also notes that QR Network has proposed that the western system tariff in the 2010 DAU will apply for 'Surat Basin mines and Columboola', but has not included

Columboola as a loading point in schedule F, part C of the 2010 DAU. The Authority considers that QR Network will need to submit a DAAU in order to introduce a Columboola reference tariff. The Authority therefore requires that QR Network delete the reference to Columboola in clause 3.5 of schedule F, part C in the 2010 DAU.

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**Decision 2.1**

**The Authority requires that QR Network delete the reference to ‘Columboola’ in clause 3.5 of schedule F, part C in the 2010 DAU.**

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**APPENDIX 1:  
AUTHORITY'S PROPOSED CQCR REFERENCE TARIFFS AND REVENUE CAPS**

<i>Tariff Component</i>	<i>Blackwater</i>	<i>Goonyella</i>	<i>Moura</i>	<i>Newlands</i>
AT <sub>1</sub> – incremental maintenance (\$/gtk)	0.78	0.54	1.45	1.51
AT <sub>2</sub> – incremental capacity (\$/train path)	1829.45	1159.06	548.59	245.28
AT <sub>3</sub> – allocative component (\$/ntk)	4.02	4.10	8.95	5.67
AT <sub>4</sub> – allocative component (\$/nt)	1.35	0.86	1.10	0.79
AT <sub>5</sub> – electric infrastructure (\$/egtk)	4.28	1.66	–	–
\$/net tonne avg (AT <sub>1-4</sub> )	3.60	2.16	2.73	2.04
<b><i>Premium / Discount (\$/ntk)</i></b>				
Rolleston	2.95			
Minerva	1.41			
Vermont		1.58		
Stanwell	-1.41			
<b><i>Revenue Cap – Non-electric (AT<sub>2-4</sub>)((\$m)</i></b>				
	<b><i>2009-10</i></b>	<b><i>2010-11</i></b>	<b><i>2011-12</i></b>	<b><i>2012-13</i></b>
Blackwater	\$194.9	\$219.4	\$230.1	\$235.8
Goonyella	\$202.3	\$229.0	\$260.0	\$266.5
Moura	\$29.3	\$40.8	\$41.8	\$43.1
Newlands	\$26.3	\$29.6	\$30.4	\$31.1
<b><i>Revenue Cap – Electric (AT<sub>5</sub>)((\$m)</i></b>				
Blackwater	\$55.8	\$66.1	\$64.5	\$82.3
Goonyella	\$55.0	\$62.5	\$70.9	\$72.7

**APPENDIX 2**

## Approved monthly volumes by system (,000 gtk)

<b>Month</b>	<b>Blackwater</b>	<b>Goonyella</b>	<b>Moura</b>	<b>Newlands</b>
Jul 2009	2784104	2958974	208990	322487
Aug 2009	2845456	2895103	196053	318315
Sep 2009	2664174	2822890	194221	302066
Oct 2009	2735676	2909258	197735	266286
Nov 2009	2607085	2811327	190895	289807
Dec 2009	2689752	2790315	179507	289180
Jan 2010	2727429	2842251	196739	288964
Feb 2010	2368360	2378635	194327	208087
Mar 2010	2748226	2593676	213227	283161
Apr 2010	2787724	2936630	208857	309081
May 2010	2920604	3021252	210893	329812
Jun 2010	2959721	2965906	205776	295623
Jul 2010	3003106	3263263	280508	349708
Aug 2010	3069284	3192823	263144	345184
Sep 2010	2873742	3113184	260685	327563
Oct 2010	2950869	3208434	265401	288763
Nov 2010	2812162	3100433	256220	314269
Dec 2010	2901333	3077260	240935	313590
Jan 2011	2941973	3134536	264065	313355
Feb 2011	2554659	2623244	260828	225652
Mar 2011	2964406	2860399	286195	307063
Apr 2011	3007011	3238621	280330	335170
May 2011	3150343	3331945	283062	357651
Jun 2011	3192537	3270908	276194	320577
Jul 2011	3073433	3606964	280508	349708
Aug 2011	3141160	3529106	263144	345184
Sep 2011	2941039	3441079	260685	327563
Oct 2011	3019972	3546361	265401	288763
Nov 2011	2878017	3426984	256220	314269
Dec 2011	2969276	3401370	240935	313590
Jan 2012	3010868	3464679	264065	313355
Feb 2012	2614484	2899536	260828	225652
Mar 2012	3033826	3161669	286195	307063
Apr 2012	3077429	3579727	280330	335170
May 2012	3224117	3682880	283062	357651
Jun 2012	3267300	3615414	276194	320577
Jul 2012	3068883	3606974	298639	349708
Aug 2012	3136510	3529116	280153	345184
Sep 2012	2936685	3441089	277535	327563
Oct 2012	3015501	3546371	282556	288763
Nov 2012	2873757	3426994	272782	314269
Dec 2012	2964880	3401380	256509	313590
Jan 2013	3006411	3464689	281134	313355
Feb 2013	2610614	2899544	277687	225652
Mar 2013	3029335	3161678	304695	307063
Apr 2013	3072873	3579737	298450	335170
May 2013	3219345	3682891	301359	357651
Jun 2013	3262463	3615425	294047	320577

**LIST OF SUBMISSIONS**

<i>Organisation/ Individual</i>	<i>Submission number</i>
Asciano	33, 49, 78
Anglo American	47
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Rio Tinto Coal Australia	41,52*,73
Stanwell Corp	42
Syntech Resources	80
Xstrata	43,45,54,77
Vale	79

*\* Claims of confidentiality have been made for part or all of these submissions*

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