

Queensland Competition Authority

QR Network's 2009 Access Undertaking

Assessment of Western System Asset Valuation

November 2009

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EXECUTIVE SUMMARY

QR Network (QRN) submitted a draft 2009 access undertaking (2009 DAU) to the Queensland Competition Authority (Authority) in September 2008. The Authority have engaged Everything Infrastructure (EI) to review QRN's proposed asset values and proposed maintenance and capital expenditure costs for the Western System as part of the 2009 DAU.

EI's assessment included:

- a general review of the documents to determine the character of the assets and work being assessed;
- identification of the major inputs used by QRN to develop the building blocks;
- an extensive review of the Depreciated Optimised Replacement Cost (DORC) valuation;
- benchmarking of DORC input costs, where possible, by comparing them to actual rates achieved in other similar projects;
- identifying the gaps in information and compiling a list of queries for clarification by QRN;
- a review of the capital expenditure proposal, including consideration of the differentiation of capital and maintenance items, quantum of costs and alignment with stated objectives of the expenditure;
- a review of the maintenance cost proposal including checking for any double counting with the capital expenditure claim, confirmation that the nature of the maintenance work was in alignment with the asset management strategy and the reasonableness of the quantum of expenditure; and
- a brief site visit to part of the Western System between Jondaryan and Helidon to verify the extent and nature of a sample of the current capital and maintenance project activity.

REVIEW OF THE OPENING ASSET VALUATION

QRN have established an opening asset value for the pre-existing Western System assets by adding:

- their valuation of the pre-existing Western System assets, determined using a DORC method as at August 2007; and
- a capital expenditure covering Capital Upgrades incurred over the 2007 and 2008 period.

The DORC valuation has been based on a full replacement of the assets to the Modern Engineering Equivalent (MEE) standard of a fully concrete sleepere track with 50kg/m rail, not on a valuation of the actual assets insitu along the Western System. This accords with the approach adopted in other rail networks for the valuation of pre-existing assets.

Overall it is EI's opinion that:

1. The approach adopted by QRN for optimisation appears to favour non-coal traffics. An alternative approach would assume that the whole Western System (less the branch lines and the dedicated grain facilities) were available to all traffics and to then adopt a utilisation factor based on train path usage by the coal traffics.
2. There are three main issues associated with the MEE approach for the Western System that appear unreasonable and likely to have resulted in an asset valuation above that considered reasonable:

- the costs used to build up the valuation to the MEE standard were valued at August 2007 which was at a time when the construction market was at or near its peak. A valuation using long term cost inputs would result in a lower valuation.
 - the MEE replacement cost would theoretically bring the asset to a condition that is “up-to-date” at the time of the valuation and Capital Upgrades should only be included in the opening asset valuation if they increased the capacity of the Western System.
 - the service capability, or operating condition, of the Western System is vastly different east and west of Toowoomba so the MEE standard could have been different for each section based on this difference in service requirements.
3. The adequacy of the benchmark rates used by QRN to determine the major DORC component costs varied greatly across each of the key “track”, “bridges”, “earthworks” and “signalling” components. Some were lower and others higher than EI would normally expect with the net effect in EI’s view of an overstatement of the ORC value
 4. The residual asset lives adopted by QRN have been amended to align with the QRN paper on asset lives for CQCR.
 5. The asset valuation determined by QRN at the valuation date of August 2007 should be depreciated by 21 months to determine the Opening Asset Value in July 2009.

REVIEW OF THE UT3 PERIOD CAPITAL EXPENDITURE

The major projects claimed as capital expenditure over the UT3 Period are:

- Surat Basin Track Upgrade Stage 4 at a total of \$13.60 million over the 4 years; and
- Columboola Balloon Loop and Main line Extension at \$33.825 million.

Overall, the forecast project costs for the Surat Basin Track Upgrade project are considered to be reasonable for the stated scope of works.

For the Columboola project, the price escalation and project contingencies values shown in the Business Case appear high, particularly considering that most of the costs are likely to be under strong negative pressure due to the poor economic conditions. If the price escalation factor was removed the total amount for the project would be close to the claimed amount at \$33.0M.

The system wide component of the claimed capital expenditure was considered reasonable and the financial interest amount appears consistent with claims made previously in other areas.

REVIEW OF THE UT3 PERIOD MAINTENANCE EXPENDITURE

It is EI’s opinion that the forecast maintenance costs should be lower than the amount claimed due to the expected lower pricing of the maintenance cost inputs over the UT3 period.

Based on the trends over the last eight years, the track component of the estimated incremental maintenance costs appears reasonable and consistent with immediate past practices for maintaining the appropriate standard of the

mainline. The other major components of the maintenance costs, structures and systems appear out of line with the actual expenditure trends since 2001 and an adjustment has been recommended.

OBSERVATIONS

Based on the information made available, EI observed:

- there were cost components of the DORC valuation that we considered to be high, low or missing altogether. The overall costs used in the claimed DORC valuation are considered to be high;
- the use of a high standard track in the DORC valuation, particularly for the Toowoomba to Macalister section, is questionable as the current standard of the Western System line is less than the Modern Equivalent Standard and there appears to be no intention to ever achieve this high standard for the entire length of the Western System;
- the use of August 2007 as the valuation date would lead to an overestimation of the asset valuation and forecast maintenance and capital expenditure costs as August 2007 appears to be close to the peak of long term cost trends for the rail construction industry;
- the claimed incremental capital expenditure is reasonable for the two major projects claimed and for the system wide and financial interest components; and
- the estimated incremental maintenance costs for the track appear reasonable and consistent with immediate past practices for maintaining the appropriate standard of the mainline, however the systems, structures and margin components of the claimed maintenance costs are considered to be high.

RECOMMENDATIONS

EI recommend that:

- the claimed opening asset value not be adopted as is and that a lower amount be calculated to reflect current market rates for the key cost input items and a lower equivalent standard in line with current standards for various sections of the mainline;
- the claimed capital expenditure, with the addition of the Surat Basin Track Upgrade Works for the period 2007/08 and 2008/09, be accepted as reasonable;
- the estimated maintenance costs be reforecast using current forecast cost inputs and any above trend maintenance costs be explained in detail; and
- more information be provided to identify the impact on the claimed amounts of decreasing coal haulage demand.

1. INTRODUCTION

1.1. CONTEXT AND NEED

QR Network (QRN) submitted a draft 2009 access undertaking proposal (2009 DAU) to the Queensland Competition Authority (Authority) in September 2008. The 2009 DAU is to apply for a four year regulatory period from July 1 2009 to June 2013 referred to as UT3.

The access undertaking includes a proposal for reference tariffs for coal-carrying trains on the Western System, which runs from Macalister in the Surat Basin, to Fisherman Islands at the Port of Brisbane.

The proposal includes an asset valuation of the Macalister-Rosewood section of the line. It also includes forecasts for incremental maintenance costs and incremental capital investment required to serve the coal freight traffic over the UT3 period.

In considering QRN's proposed undertaking, the Authority needs to assess whether the Western System reference tariffs are reasonable.

The Authority have engaged Everything Infrastructure (EI) to review QRN's proposed asset values and proposed maintenance and capital expenditure costs for the Western System as part of the 2009 DAU.

The Authority have sought Everything Infrastructure's view on whether the inputs and outputs QRN are using for establishing the proposed tariffs are reasonable.

1.1. PURPOSE AND OBJECTIVES

The purpose of this consultancy is to assist the Authority by undertaking a desktop study of the technical aspects of QRN's proposed reference tariffs for coal traffic on the Western System.

1.2. TERMS OF REFERENCE

The Terms of Reference that define the work required for this consultancy were dated 29 July 2008 and supplemented by a letter dated 3 October 2008.

1.3. STRUCTURE OF REPORT

This report includes 5 sections:

- Section 1 establishes the context, purpose and framework for the consultancy;
- Section 2 identifies the methodology used for the assessment and the sources of information;
- Section 3 describes the characteristics of the Western System corridor that relate to the assessment;
- Section 4 discusses the findings of the review and provides commentary on key issues arising from the review; and
- Section 5 presents the conclusions and draft recommendations.

2. METHODOLOGY AND SOURCES OF INFORMATION

2.1. METHODOLOGY OVERVIEW

The approach taken by this consultancy was to assess the reasonableness of each of the “building blocks” used by QRN to develop their 2009 DAU Western System Tariff and whether there was any double counting across each of the “building blocks”.

QRN “building blocks” included:

- a Depreciated Optimised Replacement Cost (DORC) valuation of the Western System between Rosewood and Macalister;
- an estimate of the incremental operating and maintenance costs over the UT3 period;
- an estimate of the incremental capital expenditure over the same UT3 period; and
- an apportionment of QRN's system wide and regional costs to the Western System over the UT3 period.

The consultancy assessment included:

- a general review of the documents to determine the character of the assets and work being assessed;
- identification of the major inputs used by QRN to develop the building blocks;
- an extensive review of the DORC valuation;
- benchmarking of DORC input costs, where possible, by comparing them to actual rates achieved in other similar projects;
- identifying the gaps in information and compiling a list of queries for clarification by QRN;
- a review of the capital expenditure proposal, including consideration of the differentiation of capital and maintenance items, quantum of costs and alignment with stated objectives of the expenditure;
- a review of the maintenance cost proposal including checking for any double counting with the capital expenditure claim, confirmation that the nature of the maintenance work was in alignment with the asset management strategy and the reasonableness of the quantum of expenditure; and
- a brief site visit to part of the Western System between Jondaryan and Helidon to verify the extent and nature of a sample of the current capital and maintenance projects.

We note that a review of the system-wide and regional costs proposed by QRN was based on work undertaken by QCA in the Central Queensland Coal Region and has not been replicated in this report.

2.2. SOURCES OF INFORMATION

QCA provided copies of the following documents:

- Western System Coal Tariff Development dated 30 September 2008;
- Volume 1 of QRN's 2009 draft access undertaking;

- Attachment H to Volume 1, a confidential Valuation report on Western System Depreciated Optimised Replacement Cost (DORC), prepared by Connell Hatch;
- QRN's Access Undertaking (2009) SEQ Cluster Capital Expenditure Costs November 2008; and
- QRN's Access Undertaking (2009) SEQ Cluster Maintenance Costs November 2008.

Additional information was provided by QRN at a meeting held at QCA offices on 5 February 2009.

A brief site visit was undertaken on 5 February and 6 February 2009 and recorded in a document titled "Site Visit Notes – Western System 5-6 February 2009". This site visit was hosted by QRN and provided the opportunity to view parts of the Western System, particularly around the Toowoomba Range area.

3. CHARACTERISTICS OF WESTERN SYSTEM CORRIDOR

3.1. WESTERN SYSTEM CORRIDOR OVERVIEW

The QRN Western System divides itself at Toowoomba. East of Toowoomba the line is in rolling to hilly country between Rosewood and Murphy's Creek then mountainous country between Murphy's Creek and Toowoomba. West of Toowoomba the track runs through flat to rolling country with a large proportion of it on black soil formation.

The track east of Toowoomba to Rosewood, the edge of the metropolitan rail network, is 104 km in length. West of Toowoomba is 108 km in length to Macalister and a further 86 km to Columboola. The precise chainages and distances are shown in Table 1.

The DORC valuation was based on the section of the Western System from Rosewood to Macalister.

Table 1 - Track section details (source: p20 Tariff Development paper)

Track Section	From	Chainage	To	Chainage (km)	Distance (km)
1	Rosewood	56.080	Toowoomba	160.60	104.52
2	Toowoomba	0	Macalister	108.51	108.51
				Total	213.03
3	Macalister	108.510	Columboola	194.78	86.27
				Total	299.30

3.2. DIFFERENCES BETWEEN MAINLINE EAST AND WEST OF TOOWOOMBA

East of Toowoomba the track is largely heavier rail, up to 60AS, on concrete sleepers and this standard of track is being extended, especially on the Range. West of Toowoomba the track is of lighter construction with 41, 47 or 53 kg rail on a mixture of timber and steel sleepers.

Whilst we have not sighted QRN's Asset Management Plan to determine the extent of planned work along the Western System corridor, QRN have indicated that they have no plans at this stage to upgrade the track west of Toowoomba, as the anticipated traffic doesn't warrant it. This view accords with the activity observed during the site visit and the documented claims for works as part of the 2009 DAU proposal.

QRN emphasis on upgrading the track east of Toowoomba is due to the steep and poorly aligned track on "the range", that is between Murphy's Creek at the bottom of the escarpment and Toowoomba at the top of it. Due to coal load on "the range" track and in order to reduce maintenance costs, QRN are now using the heaviest rail available and relatively heavy concrete sleepers. Lubricators are installed at frequent intervals to reduce wheel squeal and wear on rail and wheels. Even so, rail wear is high and this is compounded by the use of a check rail on all tight curves to obviate derailments due to flange climbing. The check rail itself also wears and its retaining bolts were seen to be broken in many places.

East of Toowoomba the formation is relatively stable but cut batters are prone to weathering and shedding material onto the track. In one case (Moggill's Wall) it was observed the sprayed concrete originally placed to stabilise the batter was breaking up and adding to the problem by falling in large chunks. QRN are proposing a program of works developed by Golder Associates to address cut and fill stability. West of Toowoomba the formation is in black soil country, some of which is montmorillonitic clay that is notoriously susceptible to

swelling with water. The resulting ground movement destabilises the formation and leads to additional maintenance input to maintain line and top and reduce twist that, in a worse case scenario, can lead to derailments.

East of Toowoomba the predominant rock type is sandstone that is weathered and interlaid with bands of softer material. The sandstone bands are thin, compared to Sydney and Hawkesbury sandstones.

West of Toowoomba the track is characterised by very long straights and flat grades with no cuts and timber drainage structures. West of Toowoomba the country rock is basalt, but overlaid by soil, particularly black soil, sedimentary deposits and alluvium.

The distinct differences between the railway east and west of Toowoomba result in the two different maintenance and replacement cost regimes. This is discussed further in the analysis of the maintenance and capital costs for the Western System in Section 4 of this report.

3.3. CONSTRAINTS ON CAPACITY

3.3.1. General

There are a number of constraints to increasing capacity along the Western System that have an impact on the capital and maintenance investment decisions being made by QRN. The key capacity constraints are:

- the limitation of the available paths through the metropolitan network from Rosewood to the port at Fisherman's Island;
- the impact of wet weather particularly through "the range" at Toowoomba;
- increased demand of other traffics using the Western System; and
- the possibility of an alternative path for coal to reach a port with the planned northern connection from the Surat Basin.

The constraints are described in this section and assessed in section 4 as part of the analysis of each of the incremental capital and maintenance expenditures.

3.3.2. Paths Through Metropolitan Network

The key corridors encountered by the Western System coal traffic through the Brisbane Metropolitan Area are:

- from the west, the Ipswich Line to Corinda corridor with freight traffic from the west and passenger traffic to and from Ipswich;
- Corinda to Yeerongpilly corridor with north coast traffic;
- Yeerongpilly to Park Road corridor with passenger traffic to and from Gold Coast and Beenleigh and narrow and standard gauge traffic from the south to the port; and
- Cleveland to Lytton Junction corridor with passenger traffic to and from Cleveland and standard gauge and narrow gauge traffic to and from the port.

In the Brisbane Metropolitan Area, QR intend to construct a third track including designing a quadruplicated track from Darra to Corinda, currently scheduled for completion in 2010. This is in preparation for the connection of the Springfield Branch Line at Darra under the SEQIP Programme. Once completed, the third

track project benefits aim to improve system reliability and robustness of services on this corridor through a better separation of freight from passenger traffic. Until SEQIP construction is completed, which is not expected before 2025, there remain significant constraints to achieve any coal growth through the Brisbane Metropolitan area.

Currently coal trains are loaded at three points west of Toowoomba. Coal trains are short, compared to trains on the CQCR system, and axle loads are lighter. When loaded, trains proceed toward Toowoomba where they are usually held pending availability of a through path to the port at Fisherman Island. At Rosewood, trains enter the metropolitan system where passenger traffic has priority. There is a 3 hour curfew at each of the morning and evening peak periods, so the availability of train paths is limited to parts of the day and early evening when train movements are not constrained by other factors.

Due to growth in passenger traffic within the metropolitan area, the headways between passenger trains are steadily reducing, increasing the difficulty of finding a through path for a freight train with very different performance characteristics to a shorter, lighter electric train.

As a result of the constraints of the metropolitan area, including increased passenger traffic demands, no storage loops, and extended curfews, it is often QRN's practice to hold trains at Toowoomba until a through path to the port can be assured. For this purpose, QRN have nominated four roads in Willowburn Yard as part of the optimised system. Each road can hold one coal train.

3.3.3. Weather

During wet weather, the black soil west of Toowoomba moves, and this results in speed restrictions for coal trains. East of Toowoomba on the Range access is not possible during wet weather so that regular daily and weekly maintenance is disrupted. In the event of prolonged wet weather, the need for maintenance can impact on the train paths available.

3.3.4. Other Traffic on the Western System

There is little passenger traffic west of Rosewood with only two westward and two eastward runs of the Westlander per week. There is other freight traffic including grain, livestock and general freight. The other traffic comprises 8% of the total traffic on a tonnage basis, the remaining 92% being entirely coal. However this is from a small base, the coal traffic being 5.5 mtpa at present and rising to 9.7 mtpa during the term of the undertaking.

The coal traffic is forecast to increase due to a new mine development at Columboola (near Miles) and growth in production from existing mines. This increasing traffic is feeding into an increasingly constrained route through the Brisbane metropolitan area. These two opposing forces may result in capacity being reached within the metropolitan system and on the surrounding area immediately west of Rosewood,

3.3.5. Alternative Route for Coal and Freight Traffic to a Port

The long term viability of the Western System for coal traffic using the Port of Brisbane will be impacted by the alternative route being proposed as part of the Surat Basin Railway project. The "missing link" between Wandoan and Theodore would allow the coal to be taken to Gladstone (R G Tanna, Barney Point or Wiggins Islands coal terminal). The development of this "missing link" has commenced with the Surat Basin Rail Consortium, which includes QR, a transport group and two coal mining companies, studying part of this link around Taroom.

The possibility of railing coal via the missing link to an established coal port with capacity to handle much larger ships than Fisherman Islands obviously bears upon the investment strategy of QRN for the Western System. In the event of the missing link being implemented the coal traffic would first travel westward to Miles, resulting in no coal traffic east of Jondaryan. Although the missing link route would be longer, the running time could well be shorter. The missing link route would also have fewer constraints, compared with the metropolitan route, resulting in higher utilisation of the above-rail assets by access holders.

The operation of a northern link would impact QRN's long term maintenance and capital investment strategy for the whole line between Jondaryan and Rosewood, in addition to upgrading the section from Jondaryan to Miles.

In undertaking this study, EI have proceeded on the basis that the "missing link" will not be implemented before the end of the UT3 period and therefore all proposed capital and maintenance expenditure applies to the main line east of Macalister.

4. REVIEW FINDINGS

4.1. GENERAL

The finding of the Consultancy review have been presented in the following sections:

- Opening Asset Valuation (section 4.2);
- Proposed Capital Expenditure (section 4.3); and
- Incremental Maintenance Expenditure (section 4.4).

4.2. OPENING ASSET VALUE

QRN have established an opening asset value for the pre-existing Western System assets by adding:

- a valuation of the pre-existing Western System assets, determined using a Depreciated Optimised Replacement Cost method, as at August 2007; and
- a capital expenditure covering Capital Upgrades incurred over the 2007 and 2008 period.

The DORC valuation was built up in line sections and was based on the use of unit rates for typical elements throughout the Western System. The DORC asset elements and their percentage contribution to the DORC valuation are shown in Table 2.

Table 2 – DORC Asset Elements

Asset Element used in DORC	% of total
Track	52
Signals	3
Bridges	14
Culverts	2
Earthworks	4
Tunnels	20
Land Acquisition	0
Telecom	5
Land	0
System	0
Regional	0
Electrical System	0
Power System	<1
	100%

The main elements contributing to the Replacement Cost valuation were Track, Bridges and Tunnels that made up 86% of the DORC valuation. The Track elements were built up using cost rates for each of the sub-elements sleepers, rail and ballast. The bridges replacement cost value was based on a standard unit rate per metre of bridge span for an average size bridge. The replacement cost for tunnels was based on a single unit rate per metre of tunnel. Using these inputs an Optimised Replacement Cost was calculated which was then depreciated using a straight-line depreciation method based on the actual or assumed date of installation and an assumed asset life.

QRN's DORC methodology was based on the following key assumptions:

- the replacement cost valuation was based on the Western System line from Rosewood to Macalister being fully replaced to a Modern Engineering Equivalent standard;
- part of the Western System line was optimised as it was not in use for the mainline coal operations;
- key cost inputs were derived from benchmark values from other similar projects;
- the valuation date was August 2007;
- residual lives and straight line depreciation of long life assets were largely based on experience from the Blackwater line; and
- the metropolitan section of the Western System, east of Rosewood, was not separately valued.

Each of the key assumptions used in the DORC valuation were reviewed and have been summarised in sections 4.2.1 to 4.2.4.

The reasonableness of the Capital Upgrades has been summarised in section 4.1.6.

4.2.1. Use of Modern Engineering Equivalent Standard in the DORC Valuation

Use of the Modern Engineering Equivalent (MEE) in valuing the replacement cost of an asset is defined as what it would cost to replace an old asset with a technically up-to-date new one with the same service capability, allowing for any differences both in quality of output and in operating costs.¹

The DORC valuation has been based on fully concrete sleepereed track with 50kg/m rail, not on a valuation of the actual assets insitu along the Western System. This accords with the approach adopted in other rail networks for the valuation of pre-existing assets.

However, EI has identified the following three main issues associated with using this MEE approach for the Western System:

- the costs used to build up the valuation to the MEE standard were valued at August 2007 which was at a time when the construction market was at or near its peak. A valuation using long term cost inputs would yield a lower valuation;
- the MEE replacement cost would theoretically bring the asset to a condition that is “up-to-date” at the time of the valuation and hence there is a question of whether further Capital Upgrades should be included in the valuation at all; and
- the service capability, or operating condition, of the Western System is vastly different east and west of Toowoomba so the MEE standard could have been different for each section based on this difference in service requirements.

These issues are explained in greater detail in the following sections.

4.2.1.1. DORC Valuation datum date of 31 August 2007

QRN have adopted an approach of valuing the replacement cost using a valuation date of 31 August 2007. We understand that August 2007 was selected as QRN had carried out a condition assessment on the

¹ http://www.med.govt.nz/templates/MultipageDocumentPage___10450.aspx#P841_208065

mainline assets around that time. The condition study resulted in a comprehensive asset inventory that was then used to assess the physical and economic residual lives for the various classes of assets.

Whilst use of the August 2007 valuation date was a reasonable approach for determining residual asset lives, longer term cost rates would have been more appropriate than using the peak August 2007 rates. For example the rate for 60 kg plain carbon steel rail in a competitively bid supply contract was \$1150/tonne in 2006. In 2003, the same product cost approximately \$850/tonne. This was an increase of approximately 35%. The market conditions during the 2006 to 2008 period were extremely tight and supply prices for most supply items relevant to the DORC valuation were at a premium to the long term average costs. This short term premium has been costed into QRN's August 2007 valuation of the replacement cost for the Western System. The potential impact of using longer term pricing for the opening asset valuation is discussed further in section 4.2.3 of this report.

4.2.1.2. Capital Upgrades

The claimed value of the Capital Upgrade component of the UT3 Opening Asset Base was \$28 million as shown in Table 3.

Table 3 – Capital Upgrade details (source: p7 QRN Submission)

Capital Upgrade Component	Claimed amount (\$M)
Surat Basin Track Upgrade: Stage 4	6.7
SW Coal: Mainline Upgrades for Additional Tonnages	13.5
Western System CAPEX	20.2
Allocation of System wide Capex	6.21
Applicable Financial interest	1.553
Total (unrounded)	27.964
Total (rounded)	28

In a memo from QRN dated 4 September 2009, the Capital Expenditure for the 2007/08 and 2008/09 years was revised. The revised claimed amounts are shown in Table 4.

Table 4 – Actual Capital Upgrade details as advised by QRN September 2009

	2007/08 (\$M)	2008/09 (\$M)	Total
Surat Stage 4 (Western System Asset Replacement Program)	5.4	0.05	5.45
Columboola	0.1	0	0.1
Jondaryan Track Upgrade	0.09	1.7	1.8
Total	5.6	1.75	7.35

EI queried whether the expenditure claimed as Capital Upgrades for the 2007/08 and 2008/09 years should be considered as maintenance expense or as part of the asset base. It was assumed for the purpose of this review that inclusion of the Capital Upgrades in the calculation of the opening UT3 asset valuation would be justifiable if the capacity of the Western System was increased from the time the DORC valuation was undertaken.

Of the four cost items originally claimed as part of the Capital Upgrades as shown in Table 3, only the SW Coal Mainline Upgrades for Additional Tonnages increases the capacity of the Western System mainline. The Capital Upgrade work identified as SW Coal: Mainline Upgrades for Additional Tonnage, also referred to as

the Jondaryan Coal Track Upgrade Project, includes approximately 20km of resleepering, replacement of 5 timber bridges, formation stabilisation, rail welding to 220m lengths for rail stability and reconditioning of 310 metres of track and an unspecified number of curves on part of the track. Whilst EI has not reviewed detailed cost estimates for this project, based on similar work for other projects, the claimed amount is of a reasonable order of magnitude and should be included in the Opening Asset Value (OAV). The amount claimed in the revised claim for Columboola should be treated in a similar way and should be included in the OAV.

The Surat Basin Track upgrade works is part of a 10 year program of upgrade works. The part of this program that was undertaken in the period following the August 2007 DORC valuation date to the OAV date at the start of the UT3 period, included 7.6 km of track reconditioning and the upgrade of 12 turnouts. The claimed amount for this work was considered reasonable by EI. In regard to the treatment of this expenditure, EI refer to the QR approval documentation for the Surat Basin Track Upgrade: Stage 4 project dated 29/6/06. In that documentation, QR confirmed that the project was necessary so that the track can be maintained to a condition suitable for the current coal traffic task. The Surat Basin project was, therefore, not associated directly with any increase in capacity but was considered to be essential to maintain the quality and serviceability of the existing asset. EI therefore recommend special treatment of the Surat Basin Track upgrade expenditure to avoid double counting between the asset valuation and the capital expenditure claim and to ensure QRN can properly recover the capital expended on maintaining the line. EI recommend that the total value of the Surat Basin Track upgrade program in the period after August 2007 be deducted, on a present value basis, from the DORC asset valuation and the Surat Basin Track upgrade expenditure of \$5.45M be included as part of the claimed capital expenditure for the 2007/08 and 2008/09 period.

The system wide capex projects referred to capital projects allocated on a statewide basis for which an 18% allocation was made for the full Western System. (source: p23 QRN Submission). According to QRN, system wide and regional CAPEX is allocated per the Capital Allocation rules in the QCA approved costing manual. The reasonableness of these system wide project costs has not been studied in detail, however, based on the Western System carrying only a small percentage of coal compared to the rest of the network and the maintenance effort being less than 3% of the overall QRN maintenance effort, the allocation of 18% appears high. There was also no evidence provided that the system wide CAPEX contributed to a capacity increase from the time the DORC valuation was made to start of the UT3 period. The claimed amount for the system wide CAPEX included two Western System specific projects, the Replacement of Toowoomba Interlocking and Toowoomba Range Stabilisation Works. The combined claimed amount for these two projects represented approximately 73% of the total system wide capex amount claimed for the 2007/08 and 2008/09 periods. The remaining amount claimed for the system wide capex is not material. Therefore, the total amounts claimed are considered to be reasonable.

The 5.8% amount allocated for financial interest for the Capital Upgrade projects has not been reviewed by the Consultancy, however it is noted that a return on capital using the weighted average cost of capital has already been included in the tariff calculation so this amount for financial interest of \$1.5M may not need to be included in the Opening Asset Value. EI has been advised by QCA that the amount allocated for financial interest represents interest during construction and that interest during construction has been accepted in other decisions.

In summary, for the assessment of the Capital Upgrades to be included in the Opening Asset Value for the Rosewood to Macalister section of the Western System, EI are of the opinion that:

- an amount of \$1.9 for Columboola and the Jondaryan Track Upgrade be included as Capital Upgrades in the Opening Asset Value;
- the Surat Basin Track upgrade works be treated as recoverable expenditure during the UT3 period not as part of the OAV; and
- there should have been a further two years of depreciation applied to the August 2007 valuation to arrive at the Opening Asset Value in July 2009. Depending on the assumptions for the component asset lives, the approximate amount of depreciation would be \$37.9M. (annual depreciation of \$21.7M for the 21 months from Aug 07 to Jul 09)

4.2.1.3. Variation in MEE Standard Along Western System

Part of the track between Rosewood and Toowoomba currently approaches the MEE standard used in the DORC valuation. The entire track west of Toowoomba is of a lower standard, and according to the information provided to this consultancy and observed during the site visit, there are no current plans to upgrade the mainline west of Toowoomba to the MEE standard used in the DORC valuation.

Valuing the asset from Toowoomba to Macalister at a lower MEE standard, reflecting the current difference in service capability of the asset and the operating future of various parts of the mainline, may result in a lower DORC valuation. As the Toowoomba to Macalister section represents approximately 56% of the DORC value and the track component is 52% of the total claimed DORC value, EI are of the opinion that a reasonable reduction of 10% in the cost of the track element for the track between Macalister and Toowoomba, would result in a reduction in the overall Rosewood to Macalister DORC valuation of approximately 2.9%.

4.2.2. Approach to Optimisation of the Western System

For the purposes of the DORC valuation, QRN optimised the Western System by selecting those assets, primarily track, that relate to mainline coal haulage only. We note that the exclusions from the optimised network were:

- branch lines not used by coal traffic;
- one track of the double track sections;
- sidings for grain, quarries, oil, etc; and
- sidings and refuges for bad-order cars or track maintenance equipment.

Whilst we have not been provided with QRN's detail rationale for their approach to optimisation process, we were able to base our assessment of reasonableness upon what can be deduced from the line section drawings where the coal-related assets have been highlighted.

Based on the information provided that coal represents approximately 70% to 80% of the train paths available on the Western System, it is EI's opinion that the approach adopted for optimisation in the QRN's DORC calculation favours the non-coal users of the track and an alternative optimisation approach be considered.

An alternative optimisation approach would be to identify a common network by assuming the whole Western System (less the branch lines, the dedicated grain facilities and the dedicated coal traffics) were available to all traffics and to then adopt a utilisation factor based on train path usage by the coal traffics..

4.2.3. Benchmark Cost Inputs Drawn from a “database” of Similar Project Costs

QRN state that the costs used as inputs into their DORC valuation were based on rates derived from similar projects constructed around the same time as the datum date of August 2007. The Consultancy was not shown details of these benchmarked projects so we relied on our own industry experience and information from other similar projects to assess the rates for the various cost components.

A review of the major asset classes was undertaken based on a comparison of “all up” rates. The major asset classes reviewed included track, bridges, earthworks and signals as shown in Table 2. These major assets made up over 70% of the total valuation.

Track

The rates shown for track in the original 2009DAU submission appeared high when compared directly to contemporary supply values. QRN confirmed in their response to EI questions, that the rates for concrete sleepers, rail and ballast were “all up” rates including installation.

The breakdown of the costs for the concrete sleepers, provided by QRN, showed separately the supply cost of the concrete sleepers. The cost provided by QRN was 62% higher than the cost to QRN from QR's sleeper manufacturing alliance established in 2006. Using the alliance cost amount for the sleepers would result in a reduction in the Optimised Replacement Cost (ORC) value for the Rosewood to Macalister section of approximately \$7.9 million or 1.3%.

As stated earlier, the steel rail price difference between 2003 and 2006 was 35%. If the unit rate for the rail used in the DORC calculation was reduced by a similar amount to reflect long term cost trends, then the ORC value would be reduced by approximately 5.6%.

We also noted in the questions provided to QRN that turnouts appear not to have been included in the valuation. There were 83 turnouts noted on the line diagrams provided for the optimised system. In their response to our questions, QRN confirmed the omission and agreed that the turnout cost should have been included. Inclusion of the turnouts would increase the ORC value by approximately \$4.8m or 0.8%.

Sidings have been treated as part of the main line for valuation purposes. We consider this is acceptable in the case of passing sidings, but not for equipment refuges and backtracks. A more appropriate value should be used, based on use of part-worn components as per QR policy. We also note that this is consistent with the Modern Engineering Equivalent standard. Removal of equipment refuges and backtracks would reduce the ORC value by approximately \$2m or 0.3%.

The overall cost rate used for the track component in QRN's DORC calculation, averaged over the whole length of the line, was computed to be approximately \$750,000 per kilometre. We consider this overall cost rate to be reasonable for a high standard track but unreasonable for a 50% depreciated track or a track with timber sleepers.

Bridges

There were 47 bridges with a total of 1.3km of bridge decking identified in the Rosewood to Toowoomba section of the DORC calculation. This number and extent of bridges is in conflict with the information provided in the Western System Information Pack – Issue 2 March 2006 (Information Pack). The Information Pack identified 68 timber bridges, 6 steel bridges and 5 concrete bridges for a total length of 2.2km of bridge decking. There is a similar discrepancy with the other sections of the Western System with the DORC identifying 33 in the Toowoomba to Macalister section and 38 in the Macalister to Columboola section. The Information Pack indicates that there are 22 timber bridges, 4 steel bridges and 3 concrete bridges in the section from Toowoomba to Dalby. Overall the DORC have included 126 structures identified as bridges. This compares with 108 shown in the Information Pack. In the QRN DORC valuation, bridges have all been valued by QRN at a standard rate per metre of span, regardless of type or location. As this is the sole rate used, we assumed that this includes substructure as well as superstructure. The rate appears to be in excess of achieved total (substructure and superstructure) costs in the CQCR. Accordingly, we asked for clarification of the substructure costs. QRN have subsequently confirmed that the rate is for both superstructure and substructure. On this basis we are of the opinion that the single averaged rate appears low. The rate used may be appropriate for the replacement of small timber bridges with concrete box culverts, but not for concrete bridges such as Doctors Creek. We are of the view that the bridge cost component of QRN's DORC is understated for concrete and steel bridges.

Adjusting the quantities and average lengths of bridges and increasing the standard cost rate by 5% for bridges would result in a reduction in the ORC of approximately \$10.9 million or 1.8%.

Earthworks

The embankments, cuttings and drainage elements are all assets that have been in place for a long time and, based on the limited inspection of the track during the site visit, little appears to have changed from their original state over one hundred years ago, with the exception of “the range”. Considerable work is being done and planned to stabilise the slopes throughout “the range”. The remaining earthworks west of Toowoomba is likely to continue to have a long physical life, probably far in excess of the line's economic life.

Inclusion of earthworks as an asset class for valuation may be problematic due to their extended and lengthy physical residual lives. We are of the understanding that none of the other DORC calculations carried out in Australia (NSW, Victoria, Western Australia, ARTC) have included earthworks in their calculations. Based on QCA advice that there is precedence for inclusion of earthworks as a depreciable asset within the CQCR decision, the earthworks component remains as part of the DORC valuation for the Western System.

Signals

“Signals” have been clarified to cover all level crossings. We note that the value used for all signals have standard values applied, varying according to the level of protection. This is not an unreasonable assumption to make. As the value of signal assets is approximately 3.1% of the ORC value, this averaging method is considered appropriate.

Tunnels

The DORC calculation includes 11 tunnels for a total length of 1.7km. These tunnels only appear in the Rosewood to Toowoomba section of the Western System. The Information Pack shows 11 tunnels for a total length of 1.6km, which is about 5% less than the length used in the DORC. Using the length of tunnels as shown in the Information Pack would result in a reduction in the ORC of approximately \$8.5 million or 1.4%.

Cost input summary

Our view of the reasonableness of the major DORC component costs varies across each of “track”, “bridges”, “earthworks” and “signalling” components used in the DORC calculation. The sub-components of the “track” costs, (ballast, sleepers and rail), appeared high, the turnout sub-component of the track assets were missing, “earthworks” were not specific to the whole track length, “bridges” quantities were high however the average costs appeared low, the tunnel lengths appeared overstated and the “signals” component appeared to be reasonable. Combining all the increases and reductions would result in a net reduction of the ORC value of approximately \$58.2 million.

4.2.4. Asset Residual Lives

As part of the review of the asset residual lives, EI compared the asset life adopted by QRN with the life of similar components in other rail systems. The results indicated that there were components where different asset lives could be adopted for the purposes of the DORC valuation. The major differences included:

- Concrete sleepers are rated as 35 years life whereas most other rail systems adopt 50 years. Adopting the longer life value would result in a longer depreciation period and a lower depreciation rate.
- Rail and Turnouts were rated by QRN as 35 years whereas other Australian railways adopt lives between 12 and 35 years. The QRN paper on UT3 Asset Lives for CQCR indicated for the asset class “Track Turnout Light” in the Moura system the proposed asset life would be 20 years.
- Earthworks residual lives were shown as 190 and capped 50 years whereas other jurisdictions do not include this asset, as it has a long residual life and, in the case of the Western System, has been in place for over 100 years.

Based on a study undertaken by Worley Parsons for QR and EI experience with similar assets in other rail network systems, the asset lives assumed for the purposes of this review are shown in Table 5.

Table 5 - Assumed Asset Lives

Asset item	Asset lives used in QRN claim	Assumed asset lives (yrs)
Sleepers (concrete)	35	50
Rail	35	20
Turnouts	35	20
Ballast	35	20
Top 600	190	50
Roads	50	38
Fences	15	20
Signals	30	20
Bridges	102	50
Culverts	99	50
Earthworks	190	100
Tunnels	100	100
Land Acquisition	50	50
Telecom	30	20
Power Systems	30	20

Based on the asset lives shown in Table 5, the annual depreciation amount would be approximately \$15.7M. The claimed amount of depreciation shown in the Connell Hatch DORC calculation spreadsheets was \$17.0M.

4.2.5. Summary of Opening Asset Value Assessment

The summary of the assessed changes to the Opening Asset Value is shown in Table 6.

Table 6 – Opening Asset Value Assessed Changes

Opening Asset Value Component		\$M
Capital Upgrade		
Columboola	0.1	
Surat Basin Track Upgrade	5.45	
Jondaryan Track Upgrade	1.8	
Capital Upgrade Total		\$7.35
August 07 DORC valuation		
Stated ORC Rosewood to Columboola	886.0	
Stated ORC Rosewood to Macalister	630.6	
Add: Optimised out components	31.8	
Deduct: Coal only sidings	(2.8)	
Adjust (1) - Sleepers	(7.9)	
Adjust (2) - Rail	(33.7)	
Adjust (3) - Turnouts	4.7	
Adjust (4) - Refuges	(2.0)	
Adjust (5) – Bridges	(10.9)	
Adjust (6) - Tunnels	(8.5)	
Common Network ORC (Aug 2007)		601.4
Common Network DORC (Aug 2007)		300.9

The equivalent DORC value, that is directly comparable to the Connell Hatch valuation as at August 2007, for a coal only system from Rosewood to Macalister would be \$286.3M.

4.3. CAPITAL EXPENDITURE

4.3.1. QRN Approach to Capital Expenditure

In the document "Western System Coal CAPEX Costs" QRN propose a suite of capital projects to be undertaken in the UT3 period. The total value of projects included is \$52.2 million as shown in Table 7. The major items claimed are:

- Surat Basin Track Upgrade Stage 4 at a total of \$13.60 million over the 4 years; and
- Columboola Balloon Loop and Main line Extension at \$33.825 million.

Table 7 - UT3 CAPEX Projects (p12 CAPEX costs submission)

	\$ ('000's)			
	2009/10	2010/11	2011/12	2012/13
Surat Basin Track Upgrade: Stage 4	3,900	3,600	3,100	3,000
Columboola Balloon Loop & Main Line extension	0	33,825	0	0
Western System CAPEX	3,900	37,425	3,100	3,000
Allocation of System Wide CAPEX	952	661	151	119
Western System CAPEX and System Wide allocation	4,852	38,086	3,251	3,119
Applicable Financial interest	285	2,240	191	183
Subtotal	5,137	40,326	3,442	3,302
Rounding adjustment	-1,037	-411	+658	+798
UT3 Forecast CAPEX	4,100	39,915	4,100	4,100

4.3.2. Surat Basin Track Upgrade

Further to the commentary on the Surat Basin Track Upgrade project shown in section 4.2.1.2, the Surat Basin Track Upgrade included as an UT3 CAPEX project is part of the 10-year on-going asset replacement program of estimated value of \$37.3M or \$3.7M per year averaged over the 10 year program.

For the UT3 Period, a large portion of the upgrade work is planned to occur along the sections close to Toowoomba. The Western System track structure consists of a combination of rail on timber, steel and concrete sleepers and the existing turnouts are predominantly 41 kg Fabricated Vees on timber sleepers. The Fabricated Vee turnouts are currently being replaced with new technology in the form of 60 kg Rail Bound Manganese (RBM) turnouts on concrete sleepers. The RBM turnouts have proven to be more effective operationally with fewer maintenance requirements.

The Surat Basin Track Upgrade project consists of 3 stages with Stage 1 being due for completion in the first two years of the UT3 Period 2009/10 and 2010/11. The work during the first two years of the UT3 Period includes replacement of 10 turnouts and reconditioning of 3.5 km of track between Gowrie and Toowoomba. The forecast amount for this work is \$7.5M. Based on comparable rates for similar turnout replacement and reconditioning work this amount claimed is reasonable.

The remaining UT3 Period works forecast for 2011/12 and 2012/13 has not yet been fully scoped but is intended to include further resleepering, rail welding, formation strengthening west of Gowrie and extension of passing loops on the Toowoomba range. The forecast cost of \$6.1M is a reasonable allowance for these project works.

Overall, the forecast project costs of \$13.6M over the four year UT3 period as shown in Table 5 is considered to be reasonable for the stated scope of works.

4.3.3. Columboola Balloon Loop and Main Line Extension Project

The claimed amount as shown in the QRN Submission for the Columboola Balloon Loop and Main Line Extension project was \$33.825M. According to the Business Case, signed off in September 2008, the total amount for the work from Macalister to Fisherman Islands was \$34.7M after allowing for project management at 0.47% of direct costs, QR services indicative margin on costs of 6.33%, price escalation contingency of 5.91% and an additional project contingency of 5.91%.

The scope of work for the main line extension part of the Columboola upgrade project includes track reconditioning, nine timber bridge replacements, replacement of timber and steel sleepers, formation stabilisation, rail joint elimination, undercutting, telecommunications and signalling upgrades and construction of additional holding and shunt roads. The track reconditioning involves the replacement of existing 41kg rail on wooden sleepers or on a 1 in 4 steel/wood pattern with 50kg rail on concrete sleepers in specific areas and with 60kg rail in other areas. This approach is considered reasonable as it is only the track east of Toowoomba that would require the heavier rail. The cost amount allowed in the business case for this scope of work for the Macalister to Rosewood section was \$9.7M. Based on the information provided for similar work being undertaken for the Surat Basin Upgrade project, this amount is considered to be reasonable.

The amount shown in the business case for the Rosewood to Fisherman Islands section was \$19.5M. There has been limited detail costing evidence provided to support this claim, however, it is noted that the Business Case refers to the project scope and cost estimate having been prepared and reviewed in accordance with QRN's procedures, including an estimates peer review. On that basis, EI believe the expenditure should be included in the UT3 forecasts and retrospectively reviewed as per other capital expenditure claims.

The project management allowance of 0.47% indicates that the project works are considered to be routine works without too many complexities requiring intensive project management activity. This assumption is reasonable for the scope of works described in the Project Plan and the Business Case.

The QR services indicative margin on costs of 6.33% also indicates a relatively simple and "business as usual" project. The quantum of the margin has not been assessed by EI.

The price escalation and project contingencies total 11.8% of costs. This value appears high, particularly considering that most of the costs are likely to be under strong negative pressure due to the poor economic conditions. The total contingency amount of 11.8% may have been applicable at times when the market was highly active, however the project is scheduled for 2010 that is likely to experience a different market environment. If the price escalation factor were to be not included, the total amount for the project would be \$33.0M, which remains similar to the currently claimed amount of \$33.825M.

4.3.4. Impact of Demand for Coal Services on Claimed Capital Expenditure

Due to the current economic conditions, the demand for coal services over the UT3 Period remains highly uncertain.

QRN has based its capital expenditure claim on a plan for adding additional capacity for train services over the UT3 Period. As stated in QR's Coal Rail Infrastructure Master Plan, Oct 2008, additional train paths can only be provided if:

- the infrastructure is capable of handling the extra gross tonnes;
- passing loops are of sufficient length to accommodate, at least, reasonable sized coal trains;
- refuge facilities and the signalling system in the Brisbane Metropolitan Area are compatible with freight train configurations; and
- the increased number of trains can operate safely on the network.

The essential infrastructure strategy required to increase export tonnage to 7.2 mtpa (W7) is chiefly strengthening the existing track. This work is predominantly covered by the Surat Basin Track Upgrade project, however parts of the Columboola project and a major part of the maintenance expenditure also aim to strengthen the track.

So if there is any reduction to the tonnage shown in Table 5 below, each of the major capital expenditure projects and a large part of the maintenance expenditure could be deferred.

To achieve up to 9.2mtpa of export tonnage (W9) identified in 2012 and 2013, QRN have identified a number of works that need to be undertaken to enhance capacity. These include constructing additional passing loops on the Toowoomba Range, implementing Remote Control Signalling from Toowoomba to Malu and further track strengthening. None of these projects, other than the Surat Basin Track Upgrade or Columboola track strengthening projects, have been separately identified in the Submission.

Table 8 - Tonnage Throughput supporting Western System Master planning

Western System Coal Services Long term planning scenarios	Net Tonnes (mtpa)			
		W7	W9	
Likely Timing	2009/10	2010/11	2011/12	2012/13
Export Contracted	5.2	5.2	5.2	7.2
Export New	0	2	2	2
Domestic Contracted	0.5	0.5	0.5	0.5
Domestic New	0	0	0	0
Total Tonnes	5.7	7.7	7.7	9.7

Note: (source: p21 Tariff Development paper and updated by QR Coal Rail Infrastructure Master Plan – 2nd Edition – Oct 2008, p112)

QRN's updated volume forecasts are shown in Table 9. The differences from the tonnages shown in Table 8 are a delay to the commencement of new exports by one year and a delay to the increase in the contracted export sales to beyond the UT3 period.

Table 9 – Updated Volume Forecasts

Western System Coal Services Likely Timing	Net Tonnes (mtpa)			
	2009/10	2010/11	2011/12	2012/13
Jondaryan to Swanbank	0.501	0.501	0.501	0.501
Ebenezer to Fisherman Island	0.194	0.194	0.194	0.194
Jondaryan to Fisherman Island	2.716	2.716	3.298	3.298
Wilkie Creek to Fisherman Island	2.328	2.328	2.328	2.328
Columboola to Fisherman Island	0	0.923	1.358	1.358
Total Tonnes	5.739	6.662	7.679	7.679

QRN state that the CAPEX is directly related to incremental increases in coal haulage therefore it should be possible to identify the CAPEX savings that would result from decreases in coal haulage.

4.3.5. System Wide Component of Claimed Capital Expenditure

The total amount allowed for the system wide capital expenditure over the UT3 Period is approximately 3.6% of the total UT3 Forecast CAPEX claimed. This amount is consistent with the Western System carrying only a small percentage of coal compared to the rest of the network. Whilst the projects identified as part the system wide capex projects did not appear to be capacity enhancing projects, they were essentially projects needed to maintain the Western System asset at reasonable serviceable levels. The claimed amount for the system wide capex allocation for the UT3 period therefore, in EI's opinion, is reasonable.

4.3.6. Financial Interest

The 5.8% amount allocated for financial interest for the capital expenditure projects has not been reviewed by EI, however EI believe it is consistent with claims made previously in other areas.

4.4. INCREMENTAL MAINTENANCE EXPENDITURE

4.4.1. QRN Approach to Incremental Maintenance

The maintenance works proposed by QRN are part of an ongoing program of maintenance works. The major maintenance activity is the mechanical resleepering that is carried out every 5 years and typically replaces one in four sleepers over a specific track section.

The proposal for maintenance costs was set out in the original QRN submitted document "Western System Coal Maintenance Costs" and amended in QRN's spreadsheet file "Copy of Western System Model UT3_TP allocation (June09)". The amounts claimed are summarised in Table 10. EI understand that the costs shown in Table 10 are unescalated (ie real) and are expressed in 2007/08 dollars.

Table 10 - UT3 Forecast Maintenance Expenditure for Rosewood to Macalister less incremental non coal traffic maintenance

	\$ (real 2007/08)			
	2009/10	2010/11	2011/12	2012/13
Track (excl Mechanised Resleepering)	6,643,258	6,287,243	6,475,919	6,034,427
Mechanised Resleepering	10,739,815	-	-	-
Sub Total Track	17,383,073	6,287,243	6,475,919	6,034,427
Trackside Systems	1,466,758	1,476,991	1,473,760	1,470,704
Facilities	-	-	-	-
Structures	2,419,128	1,170,052	1,848,155	998,948
Sub Total Non Track	3,885,886	2,647,043	3,321,915	2,469,652
Sub Total All Maintenance Activities	21,268,958	8,934,286	9,797,834	8,504,079
Margin for Overhead and ROA (15%)	3,190,344	1,340,143	1,469,675	1,275,612
Total	24,459,302	10,274,429	11,267,510	9,779,691

Note: 1. Amounts shown are based the Allocation 2 table in the worksheet titled "Maintenance" which is part of workbook titled "Copy of Western System Model UT3_TP allocation (June 09)"

4.4.2. Maintenance Cost Inputs

QRN emphasise throughout their Submission that there has been continuing upward pressure on the costs of their maintenance activities. In response to these cost pressures, QRN have significantly increased their forecast cost estimates for maintenance expenditure from their historical maintenance costs.

EI note that this upward pressure has eased since the time of the Submission and a lower escalation should be applied. As shown in the Queensland Government's 2009-10 budget papers², the forecast and projected inflation figures for the period from 2010 to 2013 are well below the actual figures in 2007 and 2008. The actual annual % change for inflation was 4.1% in 2007-08 and 3.75% in 2008-09. The forecast and projected inflation rates for the years 2009 -10 through 2012-13 ranges from 2.5% to 2.75%. The Wage Price Index has also reduced in a similar way to the inflation index.

To quantify the impact of a reduced escalation factor, the various components of the maintenance costs are required. QRN have provided the breakdown of maintenance costs in their paper titled "2009 Access Undertaking – Principles Paper, Price Setting". The key components of maintenance costs, as shown in the QRN paper, are fuel, accommodation, consumables and labour with the approximate weighting of each of these factors as shown in Table 11.

Table 11 - – Maintenance Cost Factors

Maintenance cost item	Weighting factor
Fuel	5%
Accommodation	3%
Consumables	32%
Labour	45%
Consumer Price Index	15%
Total	100%

The fuel costs, as shown in Figure 1, based on the Caltex terminal gate prices, were approximately 40% lower in March 2009 than as at June 2008. Using the March 2009 value would reduce the maintenance costs by 1.7% or approximately \$1.0 million over the UT3 period.

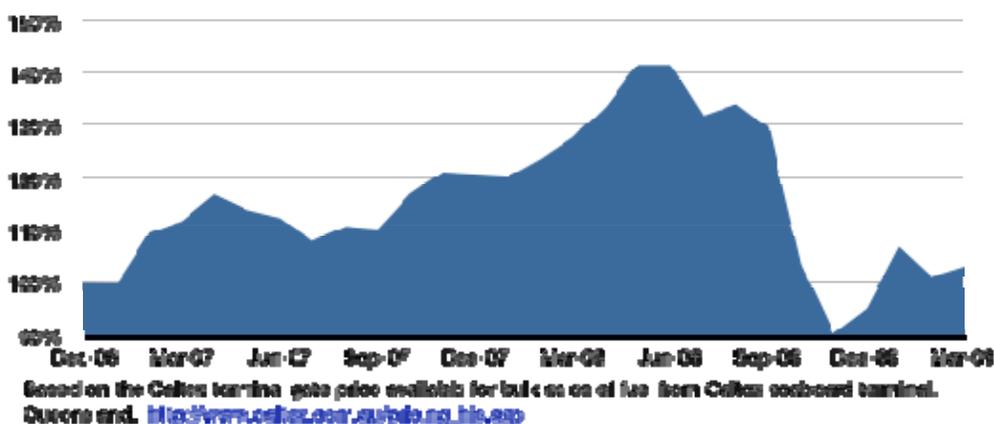


Figure 1 - Fuel cost trends

² Table 2.2 Economic forecasts/ projections, p11, Queensland Treasury and Australian Government 2009 10 Budget (<http://www.budget.qld.gov.au/budget-papers/2009-10/bp2-2-2009-10.pdf>)

For the consumables cost component of the maintenance costs, according to the QRN submission for the maintenance costs of CQCR, p152, the estimated direct consumable costs are primarily made up of items such as rail, sleeper ballast, track components and points and crossings. Each of these items would be subject to the same easing in market conditions over the UT3 period. An easing in pricing, in line with lower inflation forecasts and projections (from 3.75% in 2008 to 2.75% in 2013), for the consumables cost component would result in a 7.5% reduction in maintenance costs.

Given the current conditions and the trends for the mining industry over the next 12 months, it is EI's opinion that, due to the likely lower pricing of the cost inputs, the forecast maintenance costs should be 7.5% lower than the costs currently claimed.

EI are also of the opinion that the claimed margin of 15% for the maintenance work on the Western System is too high. Considering the highly mechanised and repetitive nature of the work, the low risk profile of the activities, particularly west of Toowoomba, and the forecast easing in market conditions, a margin reduced by at least 4% would be more reasonable.

4.4.3. Maintenance Cost Trends

QRN have confirmed the maintenance costs for the Western System since 2001. These are as shown in Figure 2 below. For the purposes of this review a base date of 2001 has been used for comparison purposes.

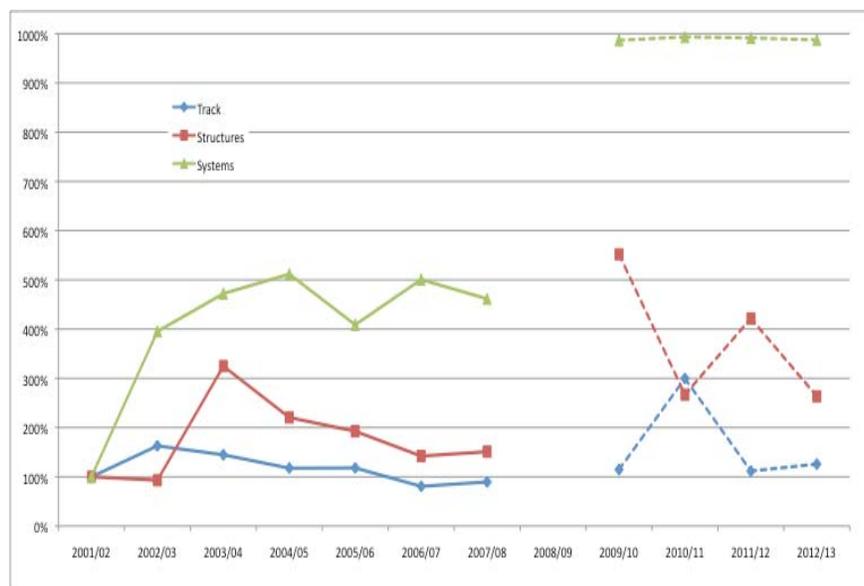


Figure 2 - Maintenance costs over time (using 2001/02 as the base for comparison purposes)

Note: Historical data provided by QRN in their response to EI information request and forecast data based on amounts shown in Table 9.

The timeline of maintenance costs shows that the maintenance of track costs are fairly consistent over the 10 years shown. There was a slight decrease over the period 2002 to 2008, however the forecast expenditure in 2009/10, 2011/12 and 2012/13 are in line with historical trends. The standout year for track maintenance is the forecast expenditure in 2010/11. This is predominantly associated with the scheduled mechanical resleeper activities.

Based on the trends over the last eight years:

- the track component of the estimated incremental maintenance costs appears reasonable and consistent with immediate past practices for maintaining the appropriate standard of the mainline; and
- the other major components of the maintenance costs, structures and systems appear high and there was no explanation provided as to why the forecast expenditure was not in line with the historical expenditure trends since 2001. If the maintenance expenditure for structures and systems was forecast to be in line with the longer term trend then the claimed expenditure would be reduced by 11% of the total claimed amount.

4.4.4. Summary of Review of UT3 Forecast Maintenance Expenditure

EI have undertaken a review of the information provided by QRN in relation to the UT3 Forecast Maintenance Expenditure and conclude the amount claimed could be reduced by:

- 9.2% to reflect lower forecast fuel and consumables costs;
- 11% for expenditure on non-track items being in line with long term historical expenditure trends; and
- 4% due to lower margins for Overhead and ROA.

Based on these reductions, the UT3 Forecast Maintenance expenditure would be as shown in Table 12.

Table 12 - UT3 Forecast Maintenance Expenditure

	2009/10	2010/11	\$	2011/12	2012/13
Total Claimed Expenditure	24,459,302	10,274,429		11,267,510	9,779,691
Lower forecast fuel costs	(425,379)	(178,686)		(195,957)	(170,082)
Lower forecast consumables costs	(1,837,638)	(771,922)		(846,533)	(734,752)
Lower structures and systems costs	(1,942,943)	(1,323,522)		(1,660,957)	(1,234,826)
Reduced margins for overheads & ROA	(1,012,667)	(400,015)		(428,203)	(382,002)
Total Adjustments	(5,218,627)	(2,674,145)		(3,131,650)	(2,521,662)
Total Revised Forecast Expenditure	19,240,675	7,600,285		8,135,859	7,258,030

5. OBSERVATIONS AND RECOMMENDATIONS

5.1. OBSERVATIONS

Based on the information made available, we observed:

- there were cost components of the DORC valuation that we considered to be high, low or missing altogether. The overall costs used in the claimed DORC valuation are considered to be high;
- the use of a high standard track in the DORC valuation is questionable as the current standard of the Western System line is less than the Modern Equivalent Standard and there appears to be no intention to ever achieve this high standard for the entire length of the Western System;
- the use of August 2007 as the valuation date would lead to an overestimate of the asset valuation and forecast maintenance and capital expenditure costs as August 2007 appears to be close to the peak of long term cost trends for the rail construction industry;
- the claimed incremental capital expenditure is reasonable for the two major projects claimed and for the system wide and financial interest components; and
- the estimated incremental maintenance costs for the track appear reasonable and consistent with immediate past practices for maintaining the appropriate standard of the mainline however the systems, structures and margin components of the claimed maintenance costs are high.

5.2. RECOMMENDATIONS

We recommend that:

- the claimed opening asset value not be adopted and that a lower amount be calculated to reflect current market rates for the key cost input items and a lower equivalent standard in line with current standards for various sections of the mainline;
- the claimed capital expenditure be accepted as reasonable;
- the estimated maintenance costs be reforecast using current forecast cost inputs and any above trend maintenance costs be explained in detail; and
- more information be provided to identify the impact on the claimed amounts of decreasing coal haulage demand.