QUEENSLAND COMPETITION AUTHORITY

Draft Report

Seqwater Irrigation Price Review 2013-17

Volume 2

Central Lockyer Valley Water Supply Scheme

December 2012

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SUBMISSIONS

This report is a draft only and is subject to revision. Public involvement is an important element of the decision-making processes of the Queensland Competition Authority (the Authority). Therefore submissions are invited from interested parties. The Authority will take account of all submissions received.

Written submissions should be sent to the address below. While the Authority does not necessarily require submissions in any particular format, it would be appreciated if two printed copies are provided together with an electronic version on disk (Microsoft Word format) or by e-mail. Submissions, comments or inquiries regarding this paper should be directed to:

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The **closing date** for submissions is **22 February 2013**.

Confidentiality

In the interests of transparency and to promote informed discussion, the Authority would prefer submissions to be made publicly available wherever this is reasonable. However, if a person making a submission does not want that submission to be public, that person should claim confidentiality in respect of the document (or any part of the document). Claims for confidentiality should be clearly noted on the front page of the submission and the relevant sections of the submission should be marked as confidential, so that the remainder of the document can be made publicly available. It would also be appreciated if two copies of each version of these submissions (i.e. the complete version and another, excising confidential information) could be provided. Again, it would be appreciated if each version could be provided on disk. Where it is unclear why a submission has been marked "confidential", the status of the submission will be discussed with the person making the submission.

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Public access to submissions

Subject to any confidentiality constraints, submissions will be available for public inspection at the Brisbane office of the Authority, or on its website at www.qca.org.au. If you experience any difficulty gaining access to documents please contact the office (07) 3222 0555.

Information about the role and current activities of the Authority, including copies of reports, papers and submissions can also be found on the Authority's website.

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GLOSSARY

Refer to Volume 1 for a comprehensive list of acronyms, terms and definitions.

EXECUTIVE SUMMARY

Ministerial Direction

In January 2012, the Authority was directed to recommend irrigation prices to apply to particular Seqwater water supply schemes (WSS) from 1 July 2013 to 30 June 2017 (the 2013-17 regulatory period). A copy of the Ministerial Direction forms Appendix A to Volume 1.

Summary of Price Recommendations

The Authority's recommended irrigation prices to apply to the Central Lockyer Valley WSS for the 2013-17 regulatory period are outlined in **Table 1** together with actual prices since 1 July 2006.

Table 1: Prices for the Central Lockyer Valley WSS (Nominal $/ML)

	Actual Prices							*Recommended Prices*			
	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Central Lockyer Valley											
Fixed (Part A)*	0.0	2.92	5.84	8.87	11.79	12.21	12.37	0.00	0.00	17.87	20.47
Volumetric (Part B)	27.36	28.16	29.51	30.44	31.35	32.48	32.90	18.48	18.94	19.42	19.90
Central Lockyer Valley – Morton Vale Bulk Charges											
Fixed (Part A)*								13.01	15.39	17.87	20.47
Volumetric (Part B)								9.35	9.59	9.83	10.07
Morton Vale Pipeline (Unbundled)											
Fixed (Part C)	-	-	-	-	-	-	-	13.06	13.38	13.72	14.06
Volumetric (Part D)	-	-	-	-	-	-	-	24.84	25.46	26.10	26.75
Morton Vale Pipeline (Bundled)											
Fixed (Part A+C)	14.60	15.96	17.76	19.38	20.94	21.69	21.98	26.07	28.77	31.59	34.53
Volumetric (Part B+D)	24.99	27.39	30.47	33.23	35.90	37.19	37.68	34.19	35.05	35.93	36.82

*Source: Actual Prices (Seqwater 2012) and Recommended Prices (QCA 2012). * Note the Part A charges do not apply from 2006-07 to 2014-15 as individual irrigator nominal WAE has not been issued.*

While the Morton Vale Pipeline contract still has effect, the Authority has provided indicative termination fees for the 2013-17 regulatory period in the event the contract is renegotiated (Table 2).

Table 2: Termination Fees (Nominal $)

Tariff Group	***Termination Fee $/ML***			
	2013-14	2014-15	2015-16	2016-17
Morton Vale Pipeline	163.35	167.42	171.71	176.0

Source: QCA (2012)

Draft Report

Volume 1 of this Draft Report addresses key issues relevant to the regulatory and pricing frameworks, renewals and operating expenditure and cost allocation, which apply to all schemes.

Volume 2, which comprises scheme specific reports, should be read in conjunction with Volume 1.

Consultation

The Authority has consulted extensively with stakeholders throughout this review. Consultation has included inviting submissions from and meeting with interested parties. The Authority also commissioned a consultant to undertake a review of Seqwater's proposed costs.

Comments on the Draft Report are due by **22 February 2013.** All submissions will be taken into account by the Authority in preparing its Final Report due by **30 April 2013**.

1. CENTRAL LOCKYER VALLEY WATER SUPPLY SCHEME

1.1 Scheme Description

The Central Lockyer Valley water supply scheme (WSS) is located near the town of Gatton in South East Queensland (SEQ).

The scheme supplies water for the Morton Vale Pipeline, recharges the groundwater areas adjacent to Lockyer Creek, and supplies downstream area-based surface-water entitlements.

The scheme is located in the Clarendon Sub-artesian Area which is a benefitted groundwater area, with irrigators metered and charged for their groundwater use.

An overview of the key characteristics of this WSS is provided in **Table 1.1.**

Table 1.1: Key Scheme Information for the Central Lockyer Valley WSS

	Central Lockyer Valley WSS
Business Centre	Gatton
Irrigation Uses of Water	Agriculture (dairy, vegetable and forage crops)
Urban water supplies	Laidley Golf Club

Source: Seqwater (2012am).

The Central Lockyer Valley WSS supplies water to two tariff groups, identified as:

(a) the Central Lockyer Valley tariff group which includes customers who have: Risk A and Risk B priority surface water entitlements (205 customers); customers who have bore licences within the benefited ground water areas (113 customers); Laidley Golf Club; Crowley Vale Water Board; one non-riparian stock and domestic user; and Seqwater; and

(b) the Morton Vale pipeline tariff group which includes another 51 irrigation entitlement holders who are supplied from the Morton Vale Pipeline.

As the Moreton Resource Operations Plan (ROP) has yet to be amended to include this WSS, the scheme is regulated under an Interim Resource Operations Licence (IROL).

The IROL includes the scheme interim water allocations (IWAs) (also referred to as water access entitlements or WAE in this report). These IWA are as identified in Table 1.2.

Table 1.2: Summary of Entitlements - Central Lockyer Valley and Morton Vale

IWA	*User/customer*	*No of customers*	*MP Volume (IWA)*	*HP Volume (IWA)*	*Comment*
Surface Water – Morton Vale	Irrigators	51	3,470		Customer contracts in place
Surface Water – Central Lockyer	Irrigators	205	3,115		No volumes attributed to individual customers
Ground Water – Central Lockyer	Irrigators	113	9,335		No volumes attributed to individual customers
Risk A (MP)	Crowley Vale Water Board - Irrigation	1	325		
Risk A (MP)	Stock and domestic	1	10		
Risk A (MP)	Laidley Golf Club	1	60		
Distribution losses	Seqwater			184	Held by Seqwater for Morton Vale Pipeline.
Total			16,315	184	

Source: Seqwater (2012am).

While some allocation is defined as Risk A or Risk B, these allocations are a form of medium priority allocation. The only high priority allocation in the scheme relates to distribution losses held by Seqwater for the Morton Vale Pipeline.

Of the major categories, IWA described as "Details of Other Existing Water Supply Responsibilities" are recognised in the IROL as three separate types with relevant volumes as follows:

(a) 3,470 ML of medium priority (surface water) WAE with customer volumes attached have been attributed to the 51 users on the Morton Vale Pipeline. The individual volumes are specified in contracts and customers pay Part A charges;

(b) 3,115 ML of Risk A and Risk B (medium priority) surface water WAE. The IROL states these are expected to be the same in terms of supply reliability. No customer volumes are attributed to these individual licences. Instead, these WAE are area-based licences and nominal volumes are yet to be defined for individual landholders. In accordance with the 2006 SunWater review, no Part A charges are applied; and

(c) 9,335ML of medium priority groundwater WAE. As in (b) above, no customer volumes are attributed to these individual licences. Accordingly, these WAE holders do not currently pay Part A charges.

Irrigation and total (all sectors) WAE are summarised by priority group in Table 1.3. The volume of irrigation WAE relevant to the Authority's investigation is 16,245ML of medium priority equivalent WAE, including Crowley Vale Water Board. The only other non-

irrigation users in the scheme are the Laidley Golf Club (60ML) and stock and domestic users (70ML). This explains the 70ML difference between total WAE and irrigation WAE in Table 1.3.

Table 1.3: Water Access Entitlements

Customer Group	*Irrigation WAE (ML)**	*Total WAE (ML)*
Risk A, B and Medium Priority	16,245	16,315
High Priority	0	184
Total	**16,245**	**16,499**

Source: Seqwater (2012am). Note: Irrigation total includes Crowley Vale Water Board WAE (325ML), but excludes Laidley Golf Club (60 ML) and non-riparian stock and domestic users (10 ML) as Crowley Vale is an irrigation customer, where as the others are non-agricultural uses.*

1.2 Bulk and Distribution Infrastructure

Bulk Assets

Bulk water services involve the management of storages and WAE in accordance with regulatory requirements, and the delivery of water to customers in accordance with their WAE.

The full supply storage capacity and age of the key infrastructure are detailed in Table 1.4.

Table 1.4: Bulk Water Infrastructure in the Central Lockyer Valley WSS

Storage Infrastructure	*Capacity (ML)*	*Age (years) **
Bill Gunn Dam (Lake Dyer),	6,950	24
Clarendon Dam (Lake Clarendon)	24,300	20
Kentville Weir	480	n.a-
Jordan I Weir	456	n.a
Jordan II Weir	30	n.a
Wilson Weir	234	n.a
Clarendon Weir	233	n.a
Glenore Grove Weir	339	n.a
Laidley Creek Diversion Weir	44	n.a
Showgrounds Weir,	24	n.a
Crowley Vale Weir	8	n.a

Source: Seqwater (2012am). Note If an age is not provided, construction occurred 1940-1990 (Seqwater 2012d).*

The characteristics of the main water assets are:

(a) Bill Gunn Dam (Lake Dyer) – dam/off-stream storage, zoned earth embankment; and

(b) Clarendon Dam (Lake Clarendon) – dam/off-stream storage, zoned earth embankment.

Other bulk assets include gauging stations, Clarendon diversion channels, the Redbank Creek and Clarendon pump stations.

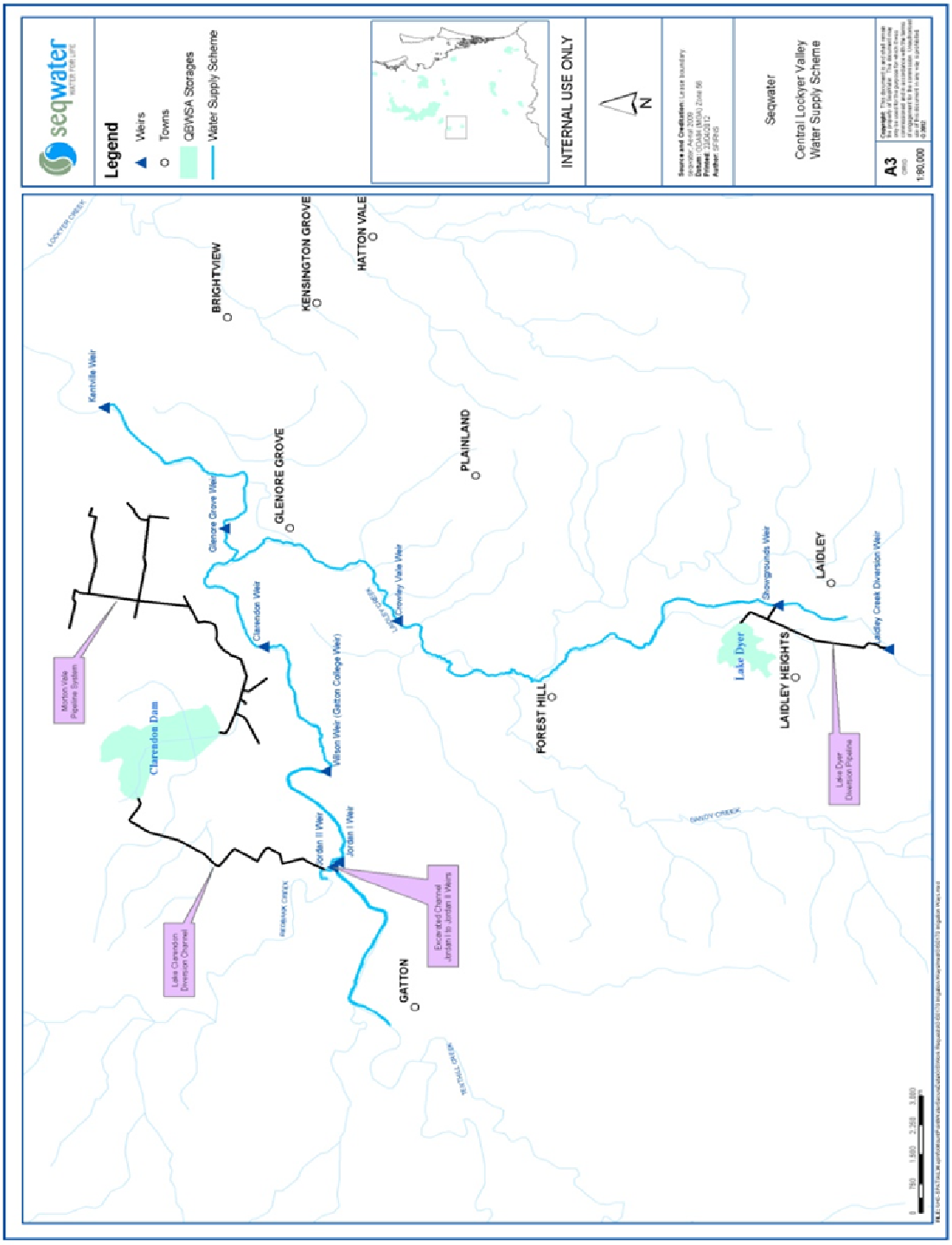
Further details of the bulk water assets are contained in the scheme network service plan (NSP) (Seqwater 2012d).

Distribution Assets

The scheme includes the Morton Vale Pipeline, which is a 1200 mm diameter, reinforced concrete, gravity-fed pipeline delivering water from Lake Clarendon to customers of the Morton Vale Pipeline tariff group.

The location of the Central Lockyer Valley WSS and key infrastructure are shown in **Figure 1.1**.

Figure 1.1: Central Lockyer Valley WSS Locality Map



Source: Seqwater (2012am).

1.3 Network Service Plans

The Central Lockyer Valley WSS NSP presents Seqwater's:

(a) forecast operating and renewals costs, including the proposed renewals annuity;

(b) risks relevant to the NSP; and

(c) proposed lower bound reference tariffs (cost-reflective prices).

No customer service targets have been documented for this scheme.

Seqwater has also prepared additional papers on key aspects of the NSPs and this price review, which are available on the Authority's website.

1.4 Consultation

The Authority has consulted extensively with Seqwater and other stakeholders throughout this review on the basis of the NSPs and supporting information. To facilitate the review the Authority has:

(a) invited submissions from interested parties;

(b) met with stakeholders to identify and discuss relevant issues;

(c) published notes on issues arising from consultation;

(d) commissioned independent consultants to review aspects of Seqwater's submissions;

(e) published all reports and submissions on its website; and

(f) considered all submissions and reports in preparing this report for comment.

The Ministerial Direction forms Appendix A to Volume 1.

2. REGULATORY FRAMEWORK

2.1 Introduction

Under the Ministerial Direction, the Authority must recommend the appropriate regulatory arrangements, including price review triggers and other mechanisms, to manage the risks associated with identified allowable costs.

During the negotiations that preceded the 2006-11 price path, the Central Lockyer Valley WSS Tier 2 group chose to retain the existing price cap arrangement for both the Central Lockyer Valley and Morton Vale Pipeline systems. The Tier 2 group also opted to take up a drought tariff option for the Morton Vale Pipeline tariff group. In the 2011-13 interim price period, the price cap arrangement was continued.

2.2 Stakeholder Submissions

Seqwater

Seqwater identified a range of generic risks considered relevant to allowable costs across all schemes (refer Volume 1).

Seqwater considers that volume risk should be borne by customers through a tariff structure where the fixed charge recovers fixed costs and where the volumetric charge recovers costs that vary with demand.

In regard to risks related to managing water and costs, Seqwater submitted that, (and as noted in Chapter 1), there are various forms of WAE in place in the Central Lockyer Valley WSS. These include:

(a) IWAs with customer volumes attached for Crowley Vale Water Board, Laidley Golf Club and stock and domestic users, to which Part A (fixed) charges apply;

(b) IWAs with medium priority customer volumes attached in the Morton Vale Pipeline, to which Part A charges currently apply;

(c) IWAs for surface water, area-based licences to which no customer volumes are attached and no Part A charges apply; and

(d) IWAs for medium priority groundwater users to which no customer volumes are attached and no Part A charges apply.

[The Authority's investigation applies to all IWAs noted above, except for the Laidley Golf Club and stock and domestic users.]

Seqwater noted that it bears volume risk in the Central Lockyer tariff group as nominal individual customer volumes are not assigned to all customers. Seqwater advised that current prices were set based on the assumption that a ROP would be finalised for the system, and that irrigators would be issued with permanent entitlements for their Risk A, Risk B and all medium priority WAE. However Seqwater has not recovered any Part A tariff revenue from holders of Risk A, Risk B and some medium priority WAE. Seqwater submitted it had foregone $152,000 in 2011-12 unrecovered Part A tariff revenue.

Seqwater submitted that this is an untenable situation, and that if an alternative tariff structure is not implemented for the 2013-17 regulatory period, Seqwater will fail to recover lower bound costs.

The current CSO agreement, established between SunWater and the then Department of Environment and Resource Management (DERM), did not take into account the lost revenue (i.e. the CSO was established assuming that customer volumes would be known by 2007-08 and that the Part A charges would be applied to all WAE).

Seqwater submitted that a volumetric only charge should be set to recover total costs, based on an assumed level of water use. To ensure that Seqwater is not exposed to short term volume risk if actual water use is less than forecast, a revenue cap should apply to this tariff group. An adjustment should be made at the start of the next regulatory period to adjust for any identified under or over recovery of revenues.

If customer volumes are specified [by the Department of Natural Resources and Mines (DNRM)] during the regulatory period, then fixed charges should apply from the start of the following year.

In the context of cost risk, Seqwater considers that it should not bear the risk associated with costs it is not able to control, such as unforeseen events and costs that are difficult to forecast. Accordingly, Seqwater considers that an end-of-period adjustment for such costs is appropriate (Seqwater 2012g).

Other Stakeholders

The Queensland Farmers Federation (QFF 2012) submitted that as DNRM are yet to assess [and issue] individual customer WAE, there is no basis to apply a fixed charge.

Moreover, QFF and Brimblecombe (2012) noted that Seqwater has proposed a [volumetric] tariff to recover total fixed and variable costs, whereas during 2006-12, customers have not had to pay fixed charges. That is, water planning has not kept pace with water pricing reforms, and fixed costs should only be passed on when tradeable entitlements [water allocations] have been adequately assessed and implemented in the Central Lockyer Valley WSS.

The QFF also noted that Morton Vale customers hold separate contracts which were executed around 1995 with the Primary Industries Corporation. The contract covers a nominal allocation [nominal WAE] for each customer, a capital charge over a 30-year term, payment for the take of water from Lake Clarendon and an early termination fee.

QFF expressed concern about the terms and conditions relating to the Morton Vale Pipeline contract. The imposition of any charges (waived during the current price path) could have an impact on customers' capacity to pay the Authority's recommended charges.

During the Authority's Round 1 consultations, irrigators noted that specifications on water licences are likely to vary from property to property depending on their location and when they were issued.

Irrigators also noted that some Morton Vale irrigators surrendered their IWAs and sold their properties. It is not clear that new owners can access water, in the absence of trading. In some cases, their access [physical works] to the Morton Vale Pipeline has been removed by the service provider [previously SunWater].

QFF (2012) also submitted that customer service standards have been established in all schemes except the Central Lockyer Valley and Central Brisbane River WSSs. Customers in the Central Lockyer Valley (excluding Morton Vale) question how prices can be assessed without defined service standards.

QFF noted that there has been no release from Bill Gunn Dam in 20 weeks and customers are being charged for natural flows.

2.3 Authority's Analysis

Summary of Risks and Cost allocation

The Authority has, in Volume 1, analysed the general nature of the risks confronting Seqwater and recommended that an adjusted price cap apply for all WSSs. The proposed allocation of risks and the means for addressing them are outlined in **Table 2.1.**

Table 2.1: Summary of Risks, Allocation and Authority's Recommended Response

Risk	*Nature of the Risk*	*Allocation of Risk*	*Authority's Recommended Response*
Short Term Volume Risk	Risk of uncertain usage resulting from fluctuating customer demand and/or water supply.	Seqwater does not have the ability to manage these risks and, under current legislative arrangements, these are the responsibility of customers. Allocate risk to customers.	Cost-reflective tariffs.
Long Term Volume Risk (Planning and Infrastructure)	Risk of matching storage capacity (or new entitlements from improving distribution loss efficiency) to future demand.	Seqwater has no substantive capacity to augment bulk infrastructure (for which responsibility rests with Government). Seqwater has some capacity to manage distribution system infrastructure and losses provided it can deliver its WAEs.	Seqwater should bear the risks, and benefit from the revenues, associated with reducing distribution (and bulk) system losses (where/when the loss can be permanently traded).
Market Cost Risks	Risk of changing input costs.	Seqwater should bear the risk of its controllable costs. Customers should bear the risks of uncontrollable costs.	End of regulatory period adjustment for over- or under-recovery. Price trigger or cost pass through on application from Seqwater (or customers), in limited circumstances.
Risk of Government Imposts	Risk of governments modifying the water planning framework imposing costs on service provider.	Customers should bear the risk of changes in water legislation though there may be some compensation associated with National Water Initiative (NWI) related government decisions.	Cost variations may be immediately transferred to customers using a cost pass-through mechanism, depending on materiality.

Source: QCA (2012).

Drought Tariff

In the 2006-11 price path, a 'drought tariff' arrangement applied in the Morton Vale Pipeline tariff group. Under this arrangement, the fixed Part A charge decreased when water availability (as measured by the announced allocation) was low and increased when water availability was high. Any variance between actual revenue received and the revenue target was to be carried forward to the next price path – that is, a revenue cap form of price control applied.

Since Seqwater took over from SunWater (1 July 2008) the drought tariff has not applied. Seqwater has advised that it has insufficient past data to calculate the extent of under- or

over-recovery arising from the application of the price cap arrangements during the current price paths.

The Authority therefore proposes to make no retrospective adjustments for drought tariff revenues, in the absence of relevant data.

Central Lockyer Valley Tradeable WAE

For Central Lockyer, some IWAs are allocated to individual customers and can be temporarily traded. Some are not allocated to individuals and cannot be traded.

Under current arrangements with IWAs in place, temporary transfers have been limited. The volumes of temporary water traded for the Central Lockyer Valley WSS are identified in Table 2.2, and are immaterial.

Table 2.2: Volume of Water Traded in Central Lockyer ValleyWSS (ML)

	2008-09	*2009-10*	*2010-11*	*2011-12*
Temporary	0	6	0	0

Source: Seqwater (2012am).

The absence of permanent trading means that risks are less able to be ameliorated by irrigators or by Seqwater as there are limitations to their ability to sell water to other parties (that is, total risks are higher). To allow customers and Seqwater to better manage demand risk, the Authority considers that permanently tradeable water allocations should be in place for every Seqwater irrigation customer.

For this purpose, the Authority recommends that relevant ROPs (or sections of ROPs) be amended and permanent water allocations be issued in the balance of Seqwater's irrigation WSSs by 30 June 2015.

Such an arrangement will also allow water (WAE) to be directed to highest and best uses over time (through trading) and is consistent with recommendations to this effect at the previous (2005-06) Tier 1 and Tier 2 (SunWater Irrigation) price review.

Allocation of Fixed Costs under Current Arrangements.

As noted in Volume 1, the Authority recommends that fixed costs should be allocated to customers on the basis of nominal customer WAE if headworks utilisation factors (HUFs) do not apply.

For Central Lockyer Valley WSS, there are no WAE identified for most irrigators and therefore there is no estimate of the capacity to which each irrigator is entitled. In their absence, it is not possible to assign fixed costs to individual irrigators. The Authority has considered several options:

(a) Seqwater's preferred option which is to apply a revenue cap and then use the volumetric charge to recoup all fixed and variable costs. This would see volumetric charges increase from about $30/ML to around $300/ML;

(b) basing the fixed costs on estimates of irrigable land held by each irrigator. No such estimates are available;

(c) basing the fixed costs on estimates of total land holding. The ratio of irrigable land to total land holding is variable for many irrigators (and adjustments for each individual for this purpose would be administratively costly);

(d) estimating the fixed charge on the basis of the number of ML allocated to the scheme. This would represent the charge per ML that would apply if the tradable water allocations (which the Authority recommend be put in place by 30 June 2015) were indeed put in place. In the absence of the number of MLs of WAE allocated to individual irrigators, Seqwater would have to forego this revenue until the permanently tradable WAE are put in place. This option is similar to what has effectively occurred in the 2006-12 price path and cost Seqwater $152,000 in 2011-12.

Option (d) would only represent a small portion of the ensuing CSO and would minimise price changes once the tradable WAE are put in place. It is proposed to proceed on this basis.

In response to the QFF's comment that fixed charges should only be passed on when individual WAEs are determined, the Authority's recommended approach of option (d) should address this concern.

Distribution Losses

Long term volume risks are primarily associated with augmenting current infrastructure or reducing distribution losses to address future water supply needs. If Seqwater can demonstrate to Government that it has permanently reduced the amount of distribution losses, then loss WAEs can, under certain conditions be sold, increasing the WAE available to customers from the bulk WSS. Due to the limited distribution loss WAEs in Seqwater irrigation schemes, the Authority recognises that this only gives Seqwater a limited ability to respond to higher demand.

In the Morton Vale Pipeline, Seqwater hold a small volume of high priority distribution loss WAE (in the form of an IWA) which cannot be permanently traded. Therefore, Seqwater cannot currently respond to higher demand (for example) through selling loss WAE. This is the case, at least, until these WAE become tradeable water allocations (as recommended by the Authority). In any case, the volume (184ML) is not material enough to provide significant long term volume risk management options, but once it has been reviewed as part of DNRM's amendment to the ROP, it may (if converted to another purpose and sold) reduce the cost-reflective prices by allocating fixed costs over an increased volume of nominal customer WAE (reducing per ML fixed tariffs).

Thus, the Authority recommends that DNRM determine the required efficient volume of distribution loss WAE in this WSS, for the Morton Vale Pipeline, by 30 June 2015.

Morton Vale Pipeline Contract

In regard to the Morton Vale Pipeline Contract, the Authority notes that the contract requires Seqwater to only supply water to customers to satisfy customer requirements when there is a sufficient level of water availability. Therefore, the contract attributes supply risk to Morton Vale customers. This is consistent with SunWater and Seqwater supply contracts and the generally regulatory framework in this regard.

The Authority considers that the terms and conditions of the Morton Vale Pipeline Contract are outside the scope of the Ministerial Direction for this review.

On the issue of access to the pipeline, new (or existing) irrigators adjacent to the Morton Vale Pipeline should be able to purchase WAE once permanent trading is in place in this WSS. Physical access is an operational matter that should be addressed as part of discussions (commercial dealings) occurring between Seqwater and customers.

Service Standards

In response to QFF, on the absence of service standards, the Authority notes that Service Standards (also referred to as the combination of Water Supply Arrangements and Service Targets) were established for most SunWater WSSs in 2001 in consultation with customers.

Subsequently, the relevant Water Supply Arrangements and Service Targets were transferred to Seqwater for most of its irrigation schemes. However, there are no specified Service Standards in the Central Lockyer Valley WSS (where agreement could not be reached in 2001). The Authority considers that Seqwater should establish service standards for the scheme in consultation with customers.

In response to QFFs concern that customers are being charged for natural flows, the Authority notes that natural flows through a supplemented scheme are generally taken into consideration as part of the water planning processes, and as such, are considered to form part of the legitimate yield of a supplemented scheme.

3. PRICING FRAMEWORK

Under the Ministerial Direction, the Authority is required to recommend Seqwater's irrigation prices (and tariff structures) to apply from 1 July 2013 to 30 June 2017, for each of the tariff groups in the seven relevant WSSs.

3.1 Tariff Groups

The Ministerial Direction specifically directs the Authority to adopt the tariff groups as proposed in Seqwater's NSPs.

Currently there are two tariff groups in the Central Lockyer Valley WSS:

(a) Central Lockyer Valley (bulk); and

(b) Morton Vale Pipeline (distribution).

Seqwater proposed in its NSP that the current tariff groups continue.

In accordance with the Ministerial Direction, therefore, the Authority will adopt the proposed tariff groups for this WSS.

3.2 Tariff Structure

Previous Review 2006-11

Central Lockyer Valley WSS

In the 2006-11 price path, a case was identified for a 70:30 ratio of fixed to variable costs for Central Lockyer Valley Valley WSS, given the agreed forecast water usage of 65%.

It was agreed, however, that during 2006-11, tariff structures would vary as outlined in **Table 3.1**.

Specifically, Part A (fixed) tariffs were forecast to recover zero percent of this WSS's revenue in 2006-07, gradually increasing to 37% of revenue by 2010-11. Similarly, Part B (variable) tariffs were expected to recover 100% initially, decreasing to 63% of revenue.

Table 3.1: Seqwater's Central Lockyer Valley WSS Tariff Structures 2006-11

Tariff Group		*2006-07*	*2007-08*	*2008-09*	*2009-10*	*2010-11*
Central Lockyer	Part A %	0	14	23	31	37
	Part B %	100	86	77	69	63

Source: SunWater (2006a).

The forecast revenue shares reflected a gradual increase toward the lower bound cost ratio of 70:30, as well as the expectation that the Government would finalise the Moreton ROP for this WSS and, in so doing, introduce permanently tradeable water allocations for each customer by 2007-08. This would have allowed the application of Part A charges from 2007-08. To date, permanently tradable water allocations have not been introduced.

In the 2005-06 review, the Central Lockyer Valley WSS was identified as a Category 3 Scheme as the Government considered it was too onerous to achieve lower bound during the 2006-11 price path.

Under the current Ministerial Direction, irrigation prices are to be set to increase in real terms at a pace consistent with the 2006-11 prices until the scheme reaches cost recovery.

Morton Vale Pipeline

In the 2006-11 price path a ratio of 70:30 (fixed to variable) costs for Morton Vale Pipeline was adopted, given an agreed forecast water usage reflecting 25% of total nominal WAE. This was maintained across the 2006-11 price path.

Seqwater has also advised that for the Morton Vale Pipeline tariff group a supply contract between irrigators and Seqwater has been in place since 1995. This contract was entered into by customers to secure the development of the pipeline.

The contract requires that customers pay [bundled] Part A and B charges as well as a specified (indexed) annual fixed capital charge per ML of WAE towards the capital cost of the pipeline. In 1995, these arrangements were agreed to by customers. However, the capital charge has not been levied in recent years (that is, 2006-12).

Stakeholder Submissions

Seqwater

As noted in Chapter 2, given Seqwater cannot levy a fixed charge on irrigators of the Central Lockyer Valley tariff group (as DNRM is yet to issue volumes of customer nominal WAE), Seqwater proposes that an interim volumetric charge apply that recovers total fixed and variable costs with an end-of-period adjustment to ensure revenue adequacy. The WAE for which individual customer volumes are yet to be specified (12,460 ML) is more than 75% of medium priority (or equivalent) WAE in this WSS.

Consistent with the approach taken in SunWater for distribution systems, Seqwater submitted that in the Morton Vale Pipeline tariff group, unbundled tariff structures should apply. That is, distribution system customers should face transparent and separate bulk (Part A and B) and distribution (Part C and D) tariffs.

Other Stakeholders

L. Brimblecombe (2012) submitted that each tariff structure should be clear and easy to understand when entering into contracts.

During Round 1 consultation (June 2012) in this scheme, stakeholders:

(a) suggested that there are pumping costs associated with the off-stream storages and that these are likely to be a variable cost as they relate to water use; and

(b) were not certain what combination of Part A and Part B would be beneficial and considered that the Authority's Draft Report needs to provide some insight.

Authority's Analysis

The Authority has, in Volume 1, analysed the tariff structure and the efficiency implications of the tariff structure, to apply to Seqwater's schemes.

The Authority considers that, in general, aligning the tariff structure with fixed and variable costs will manage volume risk over the regulatory period and send efficient price signals. To signal the efficient level of water use, the Authority recommends that all, and only, variable costs be recovered through a volumetric charge. Further, with respect to the Round 1 consultation concern, the Authority notes that the nature of costs to be incorporated in fixed and volumetric charges is detailed in Chapter 6 below.

These arrangements should provide clarity for contractual negotiations. Also in respect of the preference for certainty (Brimblecombe 2012), a four year price path and clear timelines for the issuance of permanently tradeable water allocations should provide a degree of certainty over the regulatory period – notwithstanding any within period price adjustments that may be required (see previous chapter)..

As outlined in Volume 1, Chapter 3: Regulatory Framework, the Authority recommended that in the absence of a nominal allocation, for individual irrigators, the bulk fixed charge should be allocated on the basis of nominal WAE currently allocated to the scheme as a whole (that is, IWA). The variable charge should accord with the Authority's general approach (that is, reflecting variable costs).

As noted in Chapter 2, the Authority recommended that the fixed (Part A) charge should not be applied to customers of the Central Lockyer Valley tariff group until DNRM issues tradable water allocations. To ensure Seqwater's revenue is cost reflective, the Government could compensate Seqwater for the foregone revenues until permanently tradable customer WAE are introduced. Once this occurs, the Part A tariff should apply to customers of the Central Lockyer Valley tariff group who (then) hold such WAE.

Morton Vale Pipeline Contract

As earlier noted, the Morton Vale Pipeline Contract, which specifies a nominal volume of WAE per property, requires that customers pay an annual fixed capital charge (towards the capital cost of the pipeline) and (in addition) annual irrigation water charges set by Government (the subject of the Authority's current irrigation pricing review for 2013-17).

In 1995, these arrangements (including the specified capital charge) were agreed to by customers to secure the development of the Morton Vale Pipeline in the form of an explicit contract.

On this basis, the Authority does not propose to opine on the specified amount of the capital charge in the Morton Vale Pipeline Contract.

The Authority also notes that Government set irrigation water charges in 2000, and again in 2006, which included a price path towards (lower bound) cost recovery, in addition to the capital charge.

Pumping Costs

The Authority notes that (variable) pumping costs are essentially determined by the cost of electricity.

The Authority's findings regarding electricity costs are outlined further below.

3.3 Water Use Forecasts

Previous Review

During the 2006-11 price paths, water use forecasts played an essential role in the determination of the tariff structures and prices.

In the previous review, up to 25 years of historical data was collated for nominal WAEs, announced allocations and volumes delivered. The final water usage forecasts were based on the long term average actual usage level. Where there was a clear trend away from the long term average, SunWater adjusted the forecast in the direction of that trend.

Usage forecasts also took into account SunWater's assessment of future key impacts on water usage, such as changes in industry conditions, impact of trading and scheme specific issues (SunWater, 2006a).

For the Central Lockyer Valley WSS, SunWater (2006b) assumed a water usage forecast of 65% of WAE in the Central Lockyer Valley tariff group and 25% for Morton Vale tariff group.

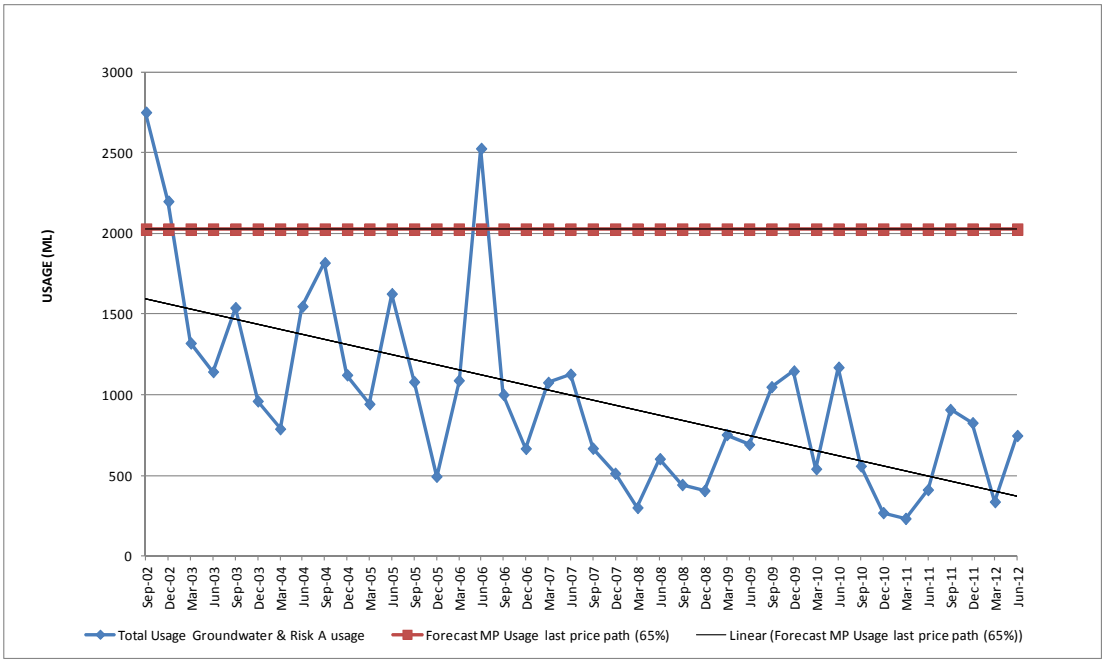
Stakeholder Submissions

Seqwater

Figure 3.1 and **Figure 3.2** show the historic water use data for the Central Lockyer and Morton Vale Pipeline tariff groups as submitted by Seqwater (2012am).

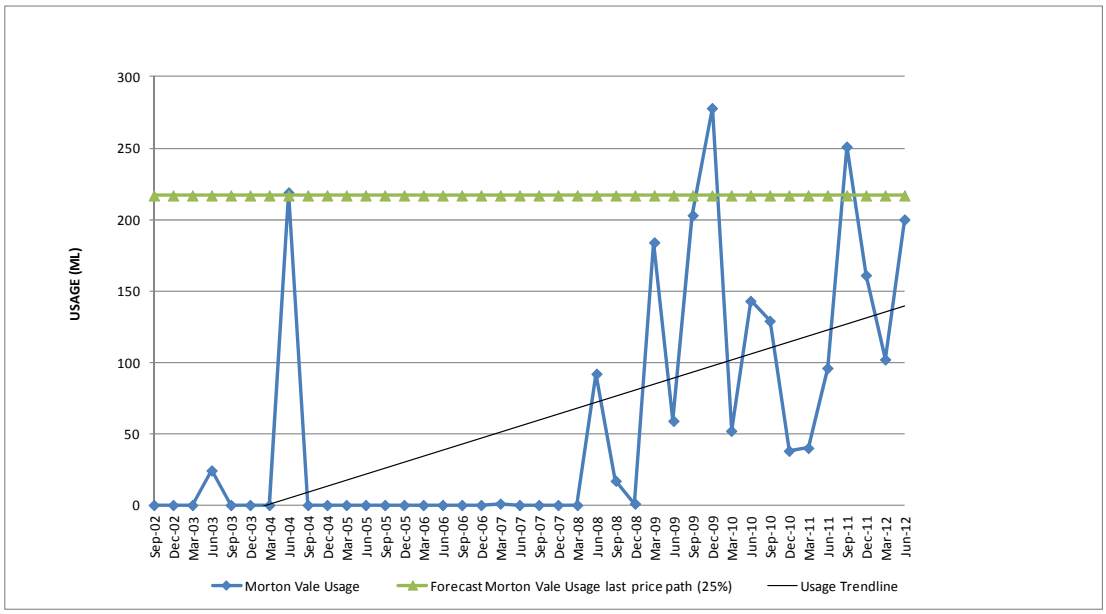
Seqwater (2012am) submitted that average actual water usage over the previous price path period was much lower (2645ML/year) than the volumes forecast (8,096ML/year). Over the 9 years to December 2011, Seqwater advised that average usage was 3,935ML per year.

Figure 3.1: Water Usage for the Central Lockyer Valley Tariff Group



Source: Seqwater (2012am).

Figure 3.2: Water Usage for the Morton Vale Pipeline Tariff Group



Source: Seqwater (2012am).

Seqwater noted that announced allocations for medium priority water for Central Lockyer Valley bulk supply were zero percent from 2003-04 to 2006-07 (four years), and were 20% in 2007-08 and 81% in 2008-09. Announced allocations were 100% since 2009-10.

Average water use in Central Lockyer Valley tariff group was 2,645ML per annum compared to the forecast average of 8,096ML per annum over the same period.

During the 2006-11 price path, average annual water use in the Morton Vale Pipeline tariff group was 209ML per annum compared to the forecast 877ML per annum.

Other Stakeholders

Stakeholders in Round 1 consultations considered that due to currently full water storages, water use is likely to be higher than historical averages for 2012-13 and 2013-14 (first year of the regulatory period).

Authority's Analysis

Stakeholders in the Central Lockyer Valley WSS consider that due to currently full water storages, water use is likely to be higher than historical averages for 2012-13 and 2013-14 (first year of the regulatory period). While this may turn out to be correct, significant uncertainty exists.

The application of two-part tariffs removes the need for water use forecasts, where the fixed tariff reflects fixed costs and the volumetric tariff reflects variable costs.

Water use data is, however, required for the Seqwater irrigation review to address Government's requirement that current prices (that is, revenues) be maintained and to estimate the cost-reflective volumetric tariffs. The Authority's estimated water use forecasts are based on long term averages (see Chapter 6).

3.4 Distribution Losses

Introduction

Seqwater holds WAEs to account for distribution losses involved in delivering water to to Morton Vale Pipeline customers.

In the previous price path, the costs of distribution losses were allocated to distribution users.

There are no bulk losses WAE in the Central Lockyer Valley tariff group, which is consistent with the situation found in SunWater bulk schemes.

Stakeholder's Submissions

Seqwater

Seqwater (2012a) submitted that distribution loss WAEs are held for losses incurred in supplying customer WAE and that prices should incorporate costs relating to distribution and bulk loss [where they apply] WAE. Seqwater supports the Authority's (SunWater) findings that:

(a) costs associated with distribution losses are to be recovered exclusively from distribution system customers; and

(b) customers should not pay for distribution loss WAE that are in excess of requirements to meet actual losses.

Seqwater (2012a) submitted that for Morton Vale Pipeline only limited data on actual distribution losses has been recorded and that it reports only total nominal loss WAE to DNRM (not actual distribution system losses).

Seqwater (2012s) noted that, based on past experience, actual losses are likely to be substantially lower than the 184 ML of nominal WAE. However, there is insufficient historical data available for an assessment of appropriate losses in the Morton Vale Pipeline.

Accordingly, Seqwater considers that no adjustment should be made by the Authority (Seqwater 2012s). Seqwater has proposed to adopt the SunWater approach to the treatment of distribution losses for pricing purposes. Therefore, Seqwater proposes to calculate the (lower bound) cost reflective Morton Vale Pipeline tariffs by incorporating the bulk water costs attributable to the full 184ML of high priority distribution loss WAE.

Table 3.2 below identifies Seqwater's nominal (high priority) distribution loss WAE as a portion of total WAE in the scheme and as a portion of Morton Vale Pipeline total WAE.

Table 3.2: Morton Vale Pipeline Distribution Loss IWA (ML)

Tariff Group	*MP Loss WAE*	*HP Loss WAE*	*Customer WAE*	*Total WAE*	*Loss WAE as a % of Total WAE*
Central Lockyer Valley WSS *	0	184	16,315	16,499	1.1%
Morton Vale Pipeline	0	184	3470	3,654	5.0%

Source: Seqwater (2012am). Note: Central Lockyer Valley WSS includes Morton Vale Pipeline (whole of scheme).

Other Stakeholders

QFF (2012) submitted that distribution losses in Morton Vale should be assessed to determine if there is a case to have excess distribution losses paid for by Seqwater at no cost to the irrigation scheme.

Brimblecombe (2012) commented that distribution losses should be nil in Moreton Vale Pipeline.

Authority's Analysis

As noted in Volume 1, the Authority accepts that loss WAE are a valid consideration in establishing the cost of providing distribution services as they relate to the additional storage infrastructure required to ensure the level of supply required by distribution customers.

However, the Authority also considers that, in principle, customers should not pay for loss WAEs held by Seqwater in excess of that needed to meet actual loss requirements.

The Authority notes that in Seqwater's case, on the basis of the available information, it is not possible to estimate efficient loss WAE and for that reason has recommended DNRM review the loss WAE in schemes, such as the Central Lockyer WSS, where ROP amendments are needed to make permanent water trading available.

Distribution customers do benefit from high priority losses, as these may be released to fill the pipeline for all users and are not (in the Morton Vale Pipeline tariff group) used to deliver high priority water. Periodically emptying of the distribution system may also be also necessary at time because, prior to the irrigation season, major distribution system maintenance work may require such an action.

The Authority has been able to confirm that Seqwater's practice of using high priority loss WAE to supply medium priority customers is consistent with the water planning framework.

In Morton Vale Pipeline there are no high priority customers. Nevertheless, 100% of high priority loss WAE could be required from time to time to ensure the integrity of the distribution system.

Accordingly, the Authority accepts that the bulk cost allocated to the 184 ML of high priority distribution loss WAE in this WSS, should be met by (medium priority) customers of the Morton Vale Pipeline tariff group.

The Authority, however, notes that currently there is insufficient historical data available to determine a lower, efficient amount of loss WAE.

The Authority therefore recommends that the volume of distribution loss WAEs in this WSS should be reviewed by DNRM (and Seqwater) as part of the recommended amendments to the Moreton ROP by 30 June 2015.

Once the results of the reviews are known, any material impact on prices can be taken into account either through a within or end of period adjustment.

3.5 Termination (Exit) Fees

Introduction

It is SunWater's current practice to charge termination fees when a distribution system WAE is permanently transferred to another section of the scheme, generally the river.

The only Seqwater tariff group where termination fees currently apply is the Morton Vale Pipeline tariff group.

Stakeholder Submissions

Seqwater

Seqwater submitted that supply contracts exist between irrigators of the Morton Vale Pipeline and Seqwater. These contracts provide for an early termination of the capital charge. The termination fee in such a circumstance is to be calculated as the present value (PV) of outstanding capital charge payments to 2026, discounted at a nominal interest rate of 5% per annum.

In addition, the contract requires the irrigator to continue to pay ongoing (annual) water charges. These water charges constitute those prescribed for the supply of water from Lake Clarendon as determined annually under the Water Resources (Rates and Charges) Amendment Regulations or subsequent legislation.

Seqwater submitted that, regardless of the merits of the Authority's approach to the calculation of termination fees, as outlined in the SunWater review 2013-17, the contracts between Seqwater and Morton Vale Pipeline customers set out an agreed approach to the calculation of termination fees.

Accordingly, Seqwater (2012a and 2012s) submitted that should the Authority recommend termination fees to apply to customers of the Morton Vale Pipeline, the conditions of the existing contract will have precedence.

Other Stakeholders

QFF (2012) submitted that termination fees for the Morton Vale Pipeline, and past Government decisions regarding the establishment of the pipeline, should be reviewed to clarify any issues that could affect pricing.

Further, QFF stated that the implications of the termination fee provision in the Morton Vale Contract need to be clarified.

Authority's Analysis

In Volume 1, the Authority noted that the purpose of a termination fee is to ensure that a customer's departure does not result in a financial cost to Seqwater or, as currently occurs,

to remaining customers. However, it should also provide an incentive to Seqwater to reduce costs following a customer's departure from a distribution system.

The Authority recommended a planning period of 20 years for the calculation of the renewals annuity and an annual rolling (recalculation of the) annuity (discounted by the Authority's recommended weighted average cost of capital (WACC)). Consistent with this approach, the Authority recommended that the termination fee for each year will reflect 20 years of fixed costs (which include forecast renewals and fixed operating expenditure), although due to the rolling annuity approach over the next four-year regulatory period, 23 years of data will be incorporated.

The Authority has recommended that costs not recovered via the termination fee are not to be passed on to customers in the form of higher (future) annual water charges. By not recovering all fixed costs, Seqwater has an incentive to reduce costs or seek out new customers, once a customer has departed the distribution system.

The Authority's approach results in a termination fee that equates to a multiple of about 11 times the distribution system fixed water charge (that is, 11 times the Authority's published cost-reflective Part C tariff), including GST.

If such an approach was to be taken, a lower multiple could be applied at Seqwater's discretion should it be consistent with Seqwater's commercial interests (for example, in the interests of more efficient or reconfigured distribution system management).

However, in this WSS, the Authority notes that the methodology underpinning the termination fee outlined in the Morton Vale Pipeline Contract (1995) differs from that recommended by the Authority as part of the SunWater irrigation pricing review 2012-17.

Irrespective of the precedence of the conditions of the Morton Vale Pipeline Contract, it would be possible for Seqwater and customers to renegotiate the Morton Vale Pipeline Contract so as to recoup capital charges and other prudent and efficient fixed costs, whilst excluding variable costs (which would not be incurred upon exit).

Past termination fees and the Authority's recommended termination fees are detailed in Chapter 6: Draft Prices (below).

4. RENEWALS ANNUITY

4.1 Introduction

Ministerial Direction

Under the Ministerial Direction, the Authority is required to recommend a revenue stream that allows Seqwater to recover prudent and efficient expenditure on the renewal and rehabilitation of existing assets through a renewals annuity.

The Ministerial Direction also requires the Authority to have regard to the level of service provided by Seqwater to its customers.

Previous Review

During the 2000-06 and 2006-13 price reviews, a renewals annuity approach was used to fund asset replacement.

As discussed in Volume 1, the renewals annuity for each WSS was developed in accordance with the Standing Committee for Agriculture and Resource Management (SCARM) Guidelines (Ernst & Young, 1997) and was based on two key components:

(a) a detailed asset management plan, based on asset condition, that defined the timing and magnitude of renewals expenditure; and

(b) an asset restoration reserve (ARR) to manage the balance of the unspent (or overspent) renewals annuity (including interest).

The determination of the renewals annuity was then based on the present value of the proposed renewals expenditure minus the ARR balance.

The allocation of the renewals annuity between high and medium priority users was based on water pricing conversion factors (WPCFs).

Issues

In general, a renewals annuity seeks to provide funds to meet renewals expenditure necessary to maintain the service capacity of infrastructure assets through a series of even charges. Seqwater's renewals expenditure and ARR balances include direct, indirect and overhead costs (unless otherwise specified).

The key issues for the 2013-17 regulatory period are:

(a) the establishment of the opening ARR balance (at 1 July 2013), which requires:

  (i) reviewing whether renewals expenditure in 2006-13 was prudent and efficient. This affects the opening ARR balance for the 2013-17 regulatory period; and

  (ii) the unbundling of the opening ARR balance for bulk and distribution systems (where applicable).

(b) the prudency and efficiency of Seqwater's forecast renewals expenditure;

(c) the methodology for apportioning renewals between medium and high priority WAEs; and

(d) the methodology to calculate the renewals annuity.

The Authority's general approach to addressing these issues is outlined in Volume 1.

The Authority notes that Seqwater has estimated that it has under management about 74 bulk water storage assets relevant to entitlement holders in the SEQ, including irrigators, local governments, industrial users and the SEQ Water Grid Manager (WGM). Seqwater (2012am) submitted that asset management practice within Seqwater does not distinguish between irrigation and non-irrigation assets; that is, assets are managed as a portfolio and not on an industry sector basis.

Seqwater submitted that renewals and refurbishments are determined through a strategic asset management process. This process and its outcomes are documented in the Facility Asset Management Plans (FAMPs), which are being rolled out across all assets.

Seqwater submitted that irrigation assets are currently not as advanced in this process as the high priority water treatment plants, although preliminary condition and criticality data for Irrigation Meter fleets in the Central Lockyer Valley WSS have been collected. This information will form a substantial part of asset management plans for these assets.

Some of the assets were renewed during 2006-13. Others are eligible for renewal over the 2013-17 regulatory period. Depending on their asset life, some are renewed several times during the Authority's recommended 20-year planning period.

It was therefore not practicable within the timeframe for the review, nor desirable given the potential costs, to assess the prudency and efficiency of every individual asset.

The Authority has relied on its consultants Sinclair Knight Merz (SKM) to comment upon Seqwater's renewals expenditure items. Across all schemes, a total of 12 forecast and two past renewals items were reviewed. The Authority also reviewed meter replacement costs.

The findings of these detailed reviews are applied where possible to other similar renewal items to determine the prudency and efficiency of this expenditure.

4.2 Seqwater's Opening ARR Balance (1 July 2013)

A renewals annuity approach requires ongoing accounting of renewals expenditure and revenue.

The opening ARR balance for 2013-17 (as at 1 July 2013) is based on the opening ARR balance for the current price path (1 July 2006), less renewals expenditure, plus renewals revenue and an annual adjustment for interest over the 2006-13 period.

Previous Review

The 2006-11 price paths were based on the opening ARR balance at 1 July 2006.

In bundled WSSs with related bulk and distribution systems such as Central Lockyer, the closing ARR balance for the 2006-11 price paths reflects the combined bulk and distribution system renewals cash flows.

Seqwater submitted that the opening balance for the Central Lockyer Valley WSS was $137,215 (including Morton Vale Pipeline).

In Volume 1, the Authority noted that the opening ARR balance in 1 July 2006 is not subject to review for the 2013-17 regulatory period.

Submissions

Seqwater

Seqwater engaged Indec Consulting (Indec, 2012) to establish the 1 July 2013 opening ARR balances. Indec established opening bundled ARR balances for 1 July 2013 by:

(a) for the period 2000-06, applying urban and industrial revenue and expenditure to the previously approved irrigation only opening 2006 ARR balance. This established a closing ARR balance on a whole of scheme (or all sectors) basis at 30 June 2006;

(b) calculating balances based on all sectors actual renewals expenditure and revenue from 1 July 2006 to 30 June 2011;

(c) applying the available Seqwater actual and forecast renewals expenditure and revenue for 2011-12 and 2012-13 for all sectors; and

(d) applying Seqwater's proposed interest rate of 0% between 2000-06 and 9.69% over 2006-13.

Unbundling

In bundled WSSs with related bulk and distribution systems such as Central Lockyer Valley the closing ARR balance for the 2006-11 price paths reflects the combined bulk and distribution system renewals cash flows. To create opening ARR balances for 2013-17, therefore, the scheme needs to be unbundled into separate ARR balances.

As noted in Volume 1, Indec Consulting (Indec 2012) proposed a 'revenue transfer' methodology to allocate the relevant portion of distribution system revenues, related to bulk costs only, from a distribution system ARR to the corresponding bulk ARR.

Indec's methodology has two key steps. However, the approach varied for each period due to data limitations, especially for 2000-06. For this reason, 2006-13 was presented before 2000-06, as the 2000-06 estimates are generally derived from 2006-13 estimates.

Step 1 – Estimating total bulk revenues paid by distribution customers:

(a) for 2006-13, total bulk revenues paid by distribution customers were estimated by multiplying the bulk Part A and Part B tariffs by distribution customer WAE and water use, respectively [achieving a retrospective unbundling of tariffs]; and

(b) for 2000-06, Indec applied the ratio of bulk revenues (determined in (a) above) to total distribution system revenue for 2006-13 to total distribution system revenues for 2000-06 to determine the bulk revenue paid by distribution customers in 2000-06;

Step 2 – Estimating the renewals portion of the total bulk revenue paid by distribution customers for 2000-13. Indec used the ratio of the renewals annuity to total lower bound costs in each year (as determined by Government for the previous two price paths).

This allowed an approximation of the renewals bulk revenue, paid by Morton Vale Pipeline customers from 2000-13, to be transferred as a cash inflow to the associated bulk ARR accounts.

Past Renewals Expenditure 2006-13

Actual direct renewals expenditure was below that initially forecast over the period in both tariff groups (Table 4.1).

Table 4.1: Forecast and Actual Renewal Expenditure 2006-11 (Nominal $)

Tariff Group	*Forecast 2006-11*	*Actual 2006-11*	*Variance*
Central Lockyer Valley	990,296	177,863	(812,433)
Morton Vale Pipeline	56,344	19,437	(36,907)

Source: Indec (2012). Note: Nominal totals are used in this table. A broad comparison of nominal values over the period is considered reasonable in view of the distribution of costs over the period.

Annual amounts of expenditure are shown in Table 4.2, allocated between direct and non-direct costs.

Table 4.2: Past (Actual) Renewals Expenditure 2006-11 (Nominal $)

Tariff Group	*2006-07*	*2007-08*	*2008-09*	*2009-10*	*2010-11*
Central Lockyer					
Direct	20,072	44,531	4,962	41,521	66,777
Non-direct	11,722	13,289	1,511	12,647	20,338
Total	**31,794**	**57,820**	**6,473**	**54,168**	**87,115**
Morton Vale Pipeline					
Direct	0	16,159	0	1,111	2,167
Non-direct	0	5,304	0	339	661
Total	**0**	**21,463**	**0**	**1,450**	**2,828**

Source: Indec (2012).

Seqwater's forecast renewals expenditure for 2011-13 are based on a combination of actual renewals expenditure for 2011-12 and forecast expenditure for 2012-13. The relevant amounts are as shown in Table 4.3.

Table 4.3: Renewal Expenditure 2011-13 (Nominal $)

Tariff Group	*Actual 2011-12*	*Forecast 2012-13*	*Total*
Central Lockyer Valley	51,286	502,394	553,680
Morton Vale Pipeline	1,000	9,000	10,000

Source: Indec (2012).

Opening ARR Balances 1 July 2013

Based on the steps noted above, Seqwater's submitted opening balances for 1 July 2013 are as shown in Table 4.4.

Table 4.4: Opening ARR Balances, 1 July 2013 (Nominal $)

Tariff Group	*Seqwater Bundled- 1 July 2006*	*Seqwater Unbundled - 1 July 2006*	*Seqwater Proposed ARR Balance - 1 July 2013*
Central Lockyer	137,215	(100,955)	(345,554)
Morton Vale Pipeline	n.a	238,170	984,581

Source: Indec (2012)

Other Stakeholders

Central Lockyer Valley

During Round 1 consultation, stakeholders were pleased with the (net) positive renewals balance in the Central Lockyer WSS and the fact that Seqwater's original forecast negative annuity effectively acts as an offset to total (operating) costs allocated to customers of this distribution system.

Irrigators representing both tariff groups noted that a further submission on renewals balances was due from Seqwater to the Authority prior to the Draft Report and that, if accepted by the Authority, this may change renewals balances generally. Irrigators hoped to retain the positive balance in this bulk tariff group.

[Note: As noted above, the Authority received a further update from Seqwater on 31 October 2012. As a result, the previously positive balance of $0.46 million for the Central Lockyer Valley WSS has now become negative $0.35 million. By contrast, for Morton Vale Pipeline, the previously positive balance of $0.35 million has increased to positive $0.98 million – see Table 4.4 and preceding analysis.]

Morton Vale Pipeline

During Round 1 consultations irrigators recalled that the capital charge for Morton Vale Pipeline customers was waived by SunWater for the first two years of the 2006-11 price paths due, in part, to the decision not to pressurise the pipeline for customers (this decision represented avoided renewals expenditure for SunWater). Irrigators noted that this (agreed) reduction in service particularly impacts customers whose off-takes are higher than the outlet in Lake Clarendon. As the pipeline is currently gravity fed, when storage in Lake Clarendon is low these customers cannot access water.

Irrigators also recalled, but could not be definitive in this regard, that the decision was a deferral of this renewals expenditure. Accordingly, irrigators are hopeful that (through consultation with Seqwater) this postponed renewals expenditure could eventually be agreed and implemented to ensure that the affected irrigators eventually have the same level of service as other Morton Vale Pipeline customers.

Authority's Analysis

The 1 July 2006 opening ARR balances for each (bundled) scheme were approved by Government and are therefore accepted by the Authority.

Unbundling

Seqwater has sought to apportion bundled 2000-06 renewals revenue (in the absence of the required unbundled actual revenues) on the basis of actual unbundled revenue that applied during the 2006-13 period.

As part of the SunWater review, to unbundle 2000-06 revenue, the Authority preferred a longer period than the five years (2006-13) on the basis that renewals revenue, which formed the basis for pricing, was based on forecast renewals expenditure over a renewals planning period (which at the time was 30 years).

The Authority also considers that the five year period submitted by Seqwater would be susceptible to atypical revenue conditions during flood or drought.

Accordingly, for SunWater the Authority based its unbundling on the proportions of bulk and distribution renewals expenditure for 2000-36. The Authority's recommended approach results in changes to opening 2006 balances.

The effect of the Authority's unbundling approach on 2006 ARR balances is shown in Table 4.5.

Table 4.5: Impact of Unbundling Methodologies – (Nominal $ All Sectors)

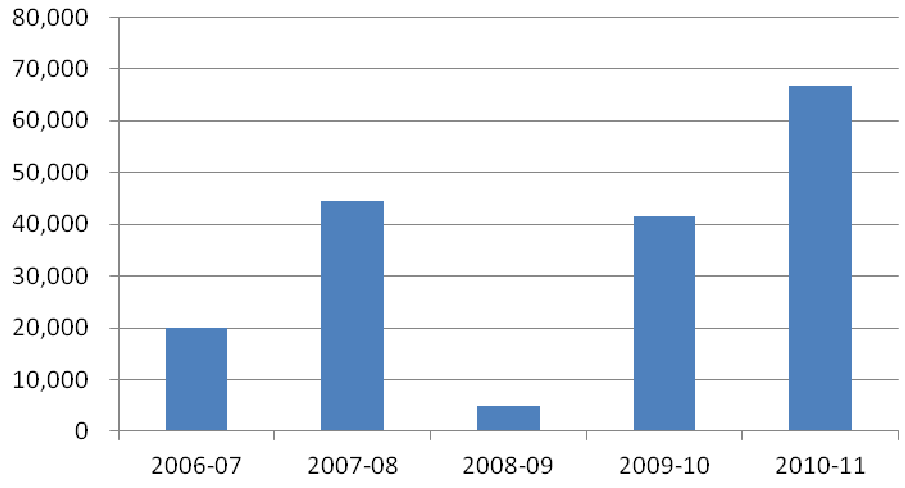
Tariff Group	*Seqwater Unbundled ARR Balance 1 July 2006*	*Authority Unbundled ARR Balance 1 July 2006*
Central Lockyer Valley	(100,955)	197,494
Morton Vale Pipeline	238,170	(60,280)

Source: Indec (2012).

Renewals Expenditure 2006-13

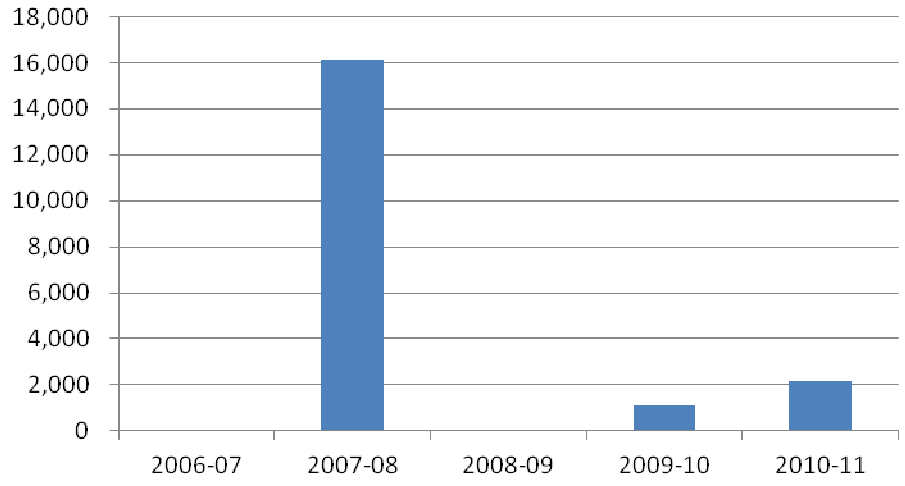
The total direct renewals expenditure over 2006-13 is detailed in Figures 4.1 and 4.2 for Central Lockyer Valley and Morton Vale Pipeline respectively.

Figure 4.1: Past (Actual) Direct Renewals Expenditure, Central Lockyer Valley 2006-11 (Nominal $)



Source: Indec (2012).

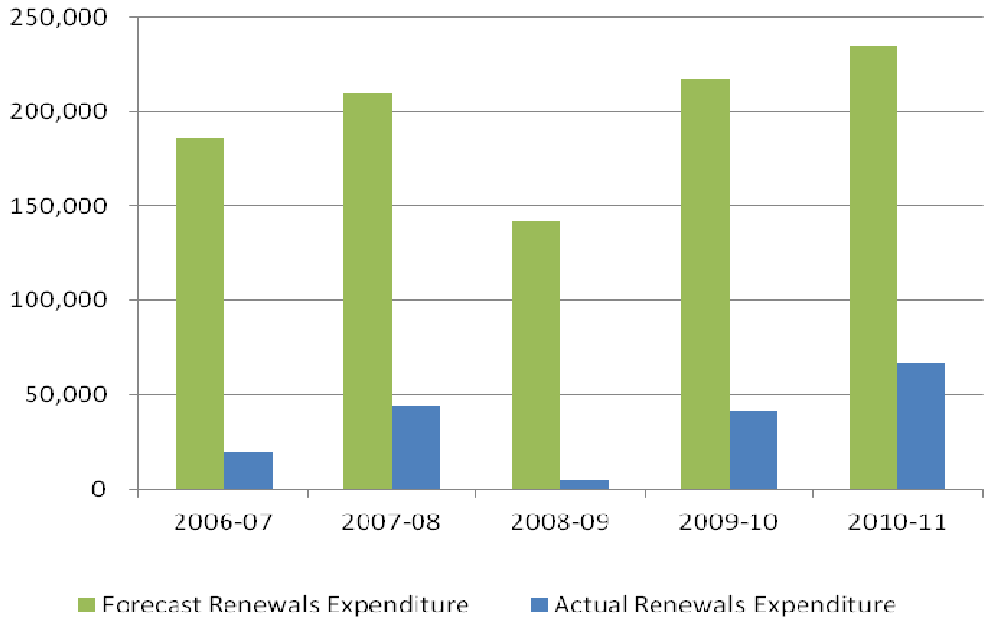
Figure 4.2: Past (Actual) Direct Renewals Expenditure Morton Vale Pipeline, 2006-11 (Nominal $)



Source: Indec (2012).

A comparison of forecast and actual direct renewals expenditure in the Central Lockyer Valley WSS for 2006-13 is shown in Figure 4.3.

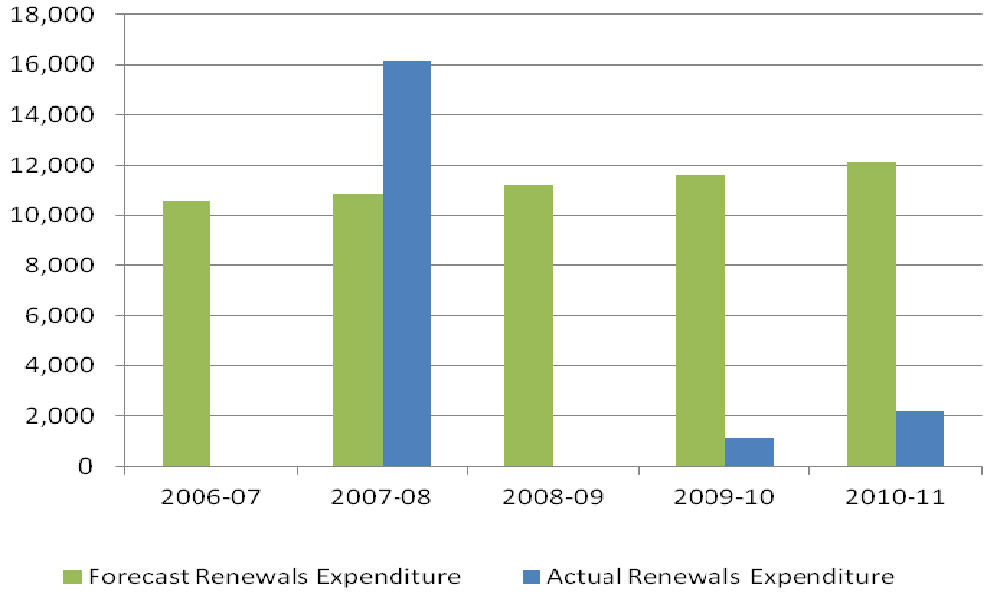
Figure 4.3: Comparison of Forecast and Actual Direct Renewals Expenditure, Central Lockyer Valley, 2006-11 (Nominal $)



Source: Indec (2012).

The same comparison for Morton Vale Pipeline appears in Figure 4.4.

Figure 4.4: Comparison of Forecast and Actual Direct Renewals Expenditure, Morton Vale Pipeline, 2006-11 (Nominal $)



Source: Indec (2012).

In relation to the prudency and efficiency of past renewals, the Authority notes that for the first two years of the 2006-11 price paths SunWater managed the renewals expenditure program. Relevant WSSs were transferred to Seqwater on 1 July 2008.

For the SunWater review, the Authority excluded from prices 4% of unsampled renewals expenditure during 2006-11. This was on the basis that the Authority's reviews of a sample of past renewals items indicated cost savings of approximately 4%.

If the seven (now Seqwater and former SunWater) WSSs had been part of the SunWater review, the 4% cost reduction would have applied, as the same (SunWater) approach applied to asset planning and expenditure in the (now) Seqwater WSS.

The Authority recommends, therefore, that 4% of past renewals expenditure, for the two years that these WSSs remained under SunWater's management (1 July 2006 to 30 June 2008), be deducted from Seqwater's ARR balances.

The question remains whether any cost reductions should also apply for 2008-13, once the WSSs were transferred to Seqwater.

As previously outlined, the Authority engaged engineering consultants SKM to review Seqwater's renewals items for prudency and efficiency. The Authority has not specifically reviewed any past capital expenditure items in the Central Lockyer Valley WSS.

SKM found that based on the inability of Seqwater to substantiate renewals expenditure incurred in 2008-09 (the first year of operating the former SunWater schemes), expenditure incurred in this year could not be considered prudent or efficient.

For 2009-10 and beyond, however, Seqwater has recorded renewal expenditure in a more detailed and verifiable way. As part of the SKM review, two past renewals items were selected in the Mary Valley Scheme with the findings considered for application to other renewals items.

These items were:

(a) recreational maintenance associated with the Mary Valley tariff group at a cost of $110,602 in 2008-09 and $123,293 in 2010-11; and

(b) infrastructure maintenance (reactive maintenance) associated with the Pie Creek tariff group at a cost of $31,015 in 2008-09 and $36,172 in 2010-11.

Although these items are defined as maintenance, the Authority considered that the nature of the expenditure is predominantly renewals related.

Expenditure in 2010-11 was considered to be prudent and efficient.

In response to other stakeholder comments, the Authority notes that Seqwater's initial proposed ARR balances were substantially changed in its November NSPs. The Central Lockyer Valley WSS opening balance for 1 July 2013 changed from the significant positive amount ($457,940) to a negative amount (-$345,554). The Authority's analysis estimated a positive amount of $229,406.

Conclusion

As outlined in Volume 1, Chapter 5: Renewals Annuity:

(a) a cost saving of 4% is to apply to past renewals, consistent with the Authority's approach to SunWater, for the period 2006-08 when SunWater operated the now Seqwater assets;

(b) as Seqwater has been unable to substantiate past renewals expenditure during its first year of operating the former SunWater schemes (2008-09), renewals expenditure in that year has been reduced to zero, apart from the inclusion of one verifiable capital expenditure item for access stairs at Jordan Weir; and

(c) all renewals expenditure 2009 to 2013 is to be accepted, unadjusted.

Accordingly, based on this approach, the Authority recommends that past renewals expenditure be adjusted as shown in Table 4.6**.**

Table 4.6: Review of Past (Direct) Renewals Expenditure 2006-13 (Nominal $)

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13 (Forecast)*
Central Lockyer Valley							
Seqwater Proposed	20,072	44,531	61,533	41,521	66,777	51,286	502,394
Actual	31,794	57,820	6,473	54,168	87,115	51,286	502,394
Authority Recommended	19,595	43,159	4,810	41,521	66,777	51,286	502,394
Morton Vale Pipeline							
Seqwater Proposed	10,602	10,822	11,184	11,633	12,103	1,060	9,393
Actual	0	16,159	0	1,111	2,167	1,060	9,393
Authority Recommended	0	15,672	0	1,112	2,167	1,060	9,393

Source: Indec (2012) and QCA (2012).

Opening ARR Balance (at 1 July 2013)

Based on the Authority's assessment of the prudency and efficiency of past renewals expenditure, the recommended opening ARR balance for 1 July 2013 for Central Lockyer Valley WSS is $229,141, and for Morton Vale Pipeline the ARR balance is $415,426 compared to Seqwater's proposed balances of negative $345,554 and positive $984,581 respectively.

4.3 Forecast Renewals Expenditure

To calculate a renewals annuity, it is necessary to determine if forecast renewals expenditure is prudent and efficient.

Prudency and Efficiency of Forecast Renewals Expenditure

Submissions

Seqwater

Seqwater (2012a) has based its renewals expenditure forecast, for the purpose of irrigation prices for the period 2013-17, on significant and predictable renewals expenditure items

only. Seqwater has not attempted to include minor renewals projects (under $10,000) or water treatment plants in recreation areas (regardless of cost) as part of its forecast costs.

Seqwater's approach was adopted to focus the renewals forecasting effort on major predictable items of renewals expenditure. Seqwater used the existing Facility Asset Management Plans (FAMPs); the existing asset maintenance program; reports from site safety and dam safety inspections; and advice from operators.

Seqwater then evaluated potential items against criticality [that is, whether or not the item is critical to maintain, for example, water supply or regulatory compliance] and other criteria. Seqwater also conducted workshops with local staff, as well as site inspections, to validate and adjust the scope and timing of forecast renewals items.

Seqwater submitted a summary of the significant (higher than average value) proposed renewals expenditure items for the Central Lockyer Valley WSS as presented in Table 4.7**.**

Table 4.7: High Value Forecast Direct Renewals Expenditure 2013-17 (Real $'000)

Facility	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Central Lockyer Valley WSS				
Clarendon Dam	52	52	52	52
Clarendon Diversion Channel	26	57	40	0
Bill Gunn Dam	0	45	85	25
Lake Dyer Diversion	26	0	0	0
Water Meters	132	132	168	168
Total	**236**	**286**	**345**	**245**
Morton Vale Pipeline				
Reticulation	0	31	0	0
Water meters	0	0	17	17
Total	**0**	**31**	**17**	**17**

Source: Seqwater (2012am). The table contains items that have a higher than average value (HAV) and which would have an impact of 10% or greater on the annuity.

The major expenditure items incorporated in the above estimates are:

(a) Clarendon Dam - Replace rip rap rock on dam wall at a cost of $52,000 each year from 2013-14 to 2016-17;

(b) Clarendon Dam Pump Station - Refurbish electrical control equipment at a cost of $25,000 in 2013-14;

(c) Bill Gunn Dam - Replenish rip rap on embankment at a cost of $25,000 each year from 2014-15 to 2016-17;

(d) Bill Gunn Dam - Refurbish pump house at a cost of $30,000 in 2015-16; and

(e) Morton Vale reticulation outlet works – refurbishment of inlet baulks ($13,000 in 2014-15) and refurbishment of inlet screens ($18,000 in 2014-15).

The major expenditure items after 2016-17 include:

(a) Water Meters – Refurbishment at a cost of $168,000 in each year of 2017-18, 2018-19, 2019-20, 2020-21 and 2021-22; and

(b) Bill Gunn Dam (Lake Dwyer Diversion) - Renewal of Reinforced Concrete (RC) Pipeline in 2037-38 at a cost of $773,000. [As this cost is outside the Authority's recommended planning period it does not appear in the figures below and cannot be reflected in the Authority's irrigation prices.]

As part of its renewals program, Seqwater is also seeking to recover the cost associated with water meters. Specifically, Seqwater's business case in this regard outlines costs for: replacing existing meters; moving meter locations to comply with Workplace Health and Safety (WHS) requirements; and modifying existing meter works to comply with the meter manufactures' specifications (to ensure accuracy).

For Central Lockyer Valley and Morton Vale Pipeline, the proposed metering costs are as detailed in Table 4.8. Seqwater indicated that meter refurbishments are required at a cost of $132,000 per year in 2013-14 and 2014-15 and $168,000 per year from 2017-18 to 2021-22 inclusive.

Table 4.8: Seqwater's Proposed Metering Costs (Real $'000)

Tariff Groups	*Phase 1: 2012-13 to 2014-15*	*Phase 2: 2015-16 to 2021-22*	*Phase 3: 2022-23 to 2035-36*	*Total*
Central Lockyer Valley	264	1176	490	1,930
Morton Vale Pipeline	0	119	42	161

Source: SKM (2012). Note: Costs in each column are the sums of costs within the indicated range of years.

Seqwater's forecast renewal expenditure items greater than $10,000 in value, for the years 2013-14 to 2035-36 are provided in Appendix A.

Other Stakeholders

QFF (2012) submitted that irrigation customers have queried the flood related costs for the timing of all significant renewals except renewals expenditure associated with the Bill Gunn Dam-Lake Dwyer diversion pipeline.

L. Brimblecombe (2012) agreed with the need for bulk renewals as long as the figures and plans are realistic.

Authority's Analysis

The Authority commissioned SKM to review Seqwater's procurement, asset performance and condition assessment policies and procedures and to determine whether they represented good industry practice.

SKM concluded that although Seqwater may not currently have good asset condition information due to the lack of condition information transferred from previous operators, the policies and procedures Seqwater has adopted to assess the condition of its assets will rectify this situation over time. Accordingly, SKM consider Seqwater's approach represents good industry practice.

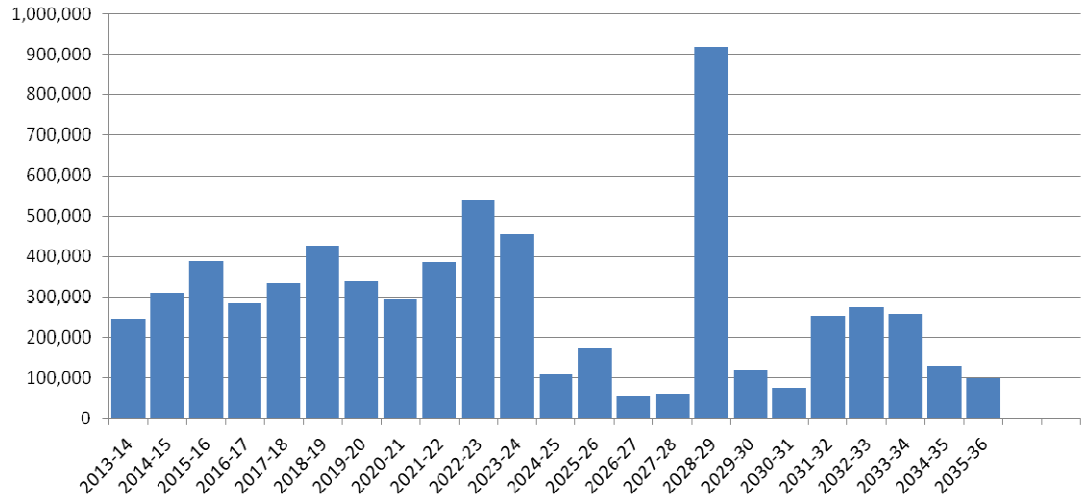
SKM concluded that Seqwater has made progress in developing robust asset management processes and procedures for comprehensive asset information.

Total Costs

Seqwater's proposed renewals expenditures for 2013-36 for the Central Lockyer Valley WSS are shown in **Figure 4.5**. The Morton Vale Pipeline forecast expenditures appears in **Figure 4.6**.

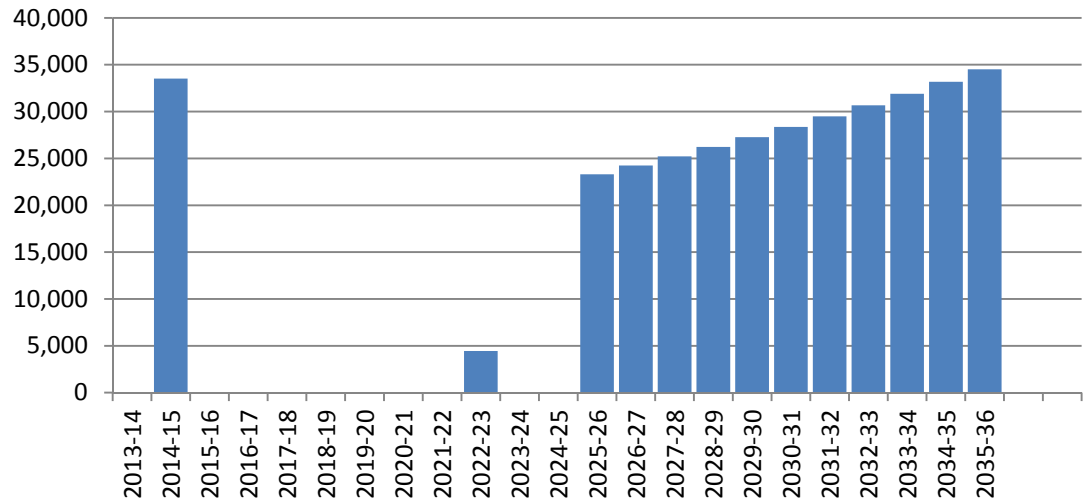
The Authority has identified the direct cost component of this expenditure, which is reviewed below. The indirect and overheads component of expenditure relating to these items is reviewed in Chapter 5 – Operating Expenditure.

Figure 4.5: Forecast Renewals Expenditure, Central Lockyer WSS, 2013-2036 (Nominal $)



Source: Seqwater (2012at).

Figure 4.6: Forecast Renewals Expenditure, Morton Vale Pipeline, 2013-36 (Nominal $)



Source: Seqwater (2012ax).

In response to QFF's comments, Seqwater has confirmed that insurance is applicable to flood related damage and that for the purpose of pricing no flood related costs have been included when forecasting renewals expenditure on the expectation that insurance revenues will account for all flood related damage costs.

Item Reviews

Consultants SKM reviewed the prudency and efficiency for a sample of items across all Seqwater WSSs. Those of relevance to Central Lockyer Valley WSS are discussed below.

Items reviewed included:

(a) specific items sampled in the Central Lockyer Valley WSS (Items 1 to 6); and

(b) items reviewed in other WSSs where the conclusions were considered by SKM to be appropriate for potential application to Central Lockyer Valley WSS or Morton Vale distribution system (Items 7 to 14).

Item 1: Clarendon Dam Embankment – Refurbishment of Riprap

Seqwater

This renewals item is scheduled to occur each year over a 6-year period from 2013-14 to 2018-19 inclusive at a cost of $52,000 per year, or $312,000 in total.

A similar project, not reviewed in detail by SKM, involves a $50,000 expenditure on earthworks formation at Clarendon Dam in 2020.

Other Stakeholders

No other stakeholders provided comment on this item.

Consultant's Review

Project Description

Clarendon Dam is an off-stream storage with an earth and rock-fill embankment dam, approximately 4.2km in length. Earth dams are susceptible to erosion by wave action if they are not adequately protected. In response to this issue, the designers of the Clarendon dam included a layer of rock (or riprap) on the lake side of the embankment to absorb and disperse the wave energy.

The rock was sourced from two quarries: Phase I rock was sourced from Harlaxton Quarry near Toowoomba and Phase III rock from Ropley Road Quarry near Tent Hill Creek. Since the completion of the dam in the mid 1990's, the Phase III rock has deteriorated due to the wetting and drying cycles experienced by the raising and lowering of the lake levels. The rock has deteriorated to such an extent that Seqwater now considers sections of the riprap ineffective.

The project proposes to add additional rock to deteriorated areas of the dam face. It is intended to undertake these works over a six year period from 2013-14 financial year through to 2018-19 financial year with the timing of the works to coincide with low lake levels. Seqwater has programmed the works over a number of years to remain flexible – the rate of the works undertaken being dependent on the rate of deterioration as monitored and the availability of materials.

Project Status

The expenditure for this project is programmed to commence in the 2013-14 financial year. In the Seqwater Asset Delivery Framework is classified as pre-implementation, in the Concept and Feasibility stage, meaning prior to the preliminary design. SKM considered the current position of the project in the Seqwater Asset Delivery Framework as appropriate given the value and timing of this refurbishment project.

Provided Documentation

The documents used for this review are:

(a) information Request Response – QCA Irrigation Price Review 2013-17: RFI003 Central Lockyer Valley WSS, Clarendon Dam Embankment – Refurbish Rip Rap, Seqwater, 8 August 2012; and

(b) Extract from SunWater Report 'Clarendon Dam – Strategy to Refurbish Rip-Rap', SunWater, May 2007.

The level of documentation available for this project is minimal and in SKM's consideration should be further advanced than it currently is given the level of expenditure and the fact that it is programmed to commence within 12 months.

Prudency

The renewal of the embankment riprap is necessary to protect the Clarendon Dam earth embankment from erosion due to wave action on the lake. Not undertaking this renewals expenditure could have consequential unacceptable impacts on dam safety. The safe operation of the Clarendon Dam is in turn required to collect and store water for use in the Central Lockyer Valley Water Supply Scheme.

In summary, the renewal of the riprap is required for the operation the Clarendon Dam and is therefore necessary to operate the Central Lockyer Valley Water Supply Scheme.

The Clarendon Dam embankment was commissioned in 1993, and hence is currently 19 years old. The timing of the renewal of the riprap is based on condition assessments.

Seqwater's standard useful asset life for dam embankment and dam civil works is 200 years. Hence, the renewal of the riprap commencing in 2013-14 will occur much sooner than the nominal useful asset life would predict.

From its investigations, SKM indicated that the rock sourced from Ropley Road Quarry was known to have poor durability characteristics at the time of construction and vulnerable to slaking (deterioration from wetting and drying cycles). Standard procedure during the construction of an earth dam is to undertake rigorous and frequent testing of the soils and rock used to construct the dam. Hence, the supply of riprap with a lower durability by the dam constructor was an informed decision.

This decision would be based on balancing the cost of sourcing and transporting rock with superior durability characteristics from a quarry further afield, and using rock from Ropley Road Quarry with a shorter asset life.

Whilst specific documentation of this decision was not sighted, SKM believes this to be a reasonable explanation for the course of events during construction, and that the dam owner knowingly accepted the risk. Hence, recourse against the supplier is not considered to be a feasible action for Seqwater.

The SunWater report recommended that Seqwater put in place a regular (12 monthly) deterioration monitoring programme. SKM understands that such monitoring occurs as part of annual dam inspections, and will continue throughout the proposed renewal works to focus works on areas of greatest need.

The scope of works is to place 1,800 m^3 of 200mm new nominal diameter riprap on the upstream face of the dam. The rock will be placed in patches where the deterioration of the existing riprap is of most concern. The work is expected to take place over six years, with an average of 300 m3 of rock being placed each year.

SKM considered this approach to be consistent with the need identified in the SunWater report, with the addition of flexibility in the works programme.

On the basis that the safe operation of Clarendon Dam is required to operate the Central Lockyer Valley Water Supply Scheme, and condition of the riprap (as per the SunWater report and as seen on-site) the project has been assessed as prudent.

Efficiency

The key performance standard for this project is the quality of the rock to be used. The SunWater report identified the Withcott Quarry as the nearest potential source of riprap. However, the report was not conclusive on the suitability of the rock from this quarry and recommended further testing, including petro-graphic analysis, MBV and Wet/Dry Variation testing to be undertaken. The alternative offered in the SunWater report is Harlaxton Quarry near Toowoomba.

An economic analysis may indeed show that the patch replacement of riprap with a locally sourced rock (cheaper but with lower durability) may be preferred to importing rock from a

distant quarry (expensive but higher durability). Such an analysis should be part of Seqwater's option analysis and will be reflected in the investment required for these works.

Seqwater provided a summary of annual costs as per Table 4.9.

Table 4.9: Summary of Costs – Clarendon Dam riprap refurbishment

Item	*Seqwater Estimate*	*SKM Estimate*
Design	$3,000	$5,500
Procurement	$2,500	$2,500
Supply and Installation		
Supply to site and placement of 300m3 of 200mm riprap @ $125/m3 (including supply, transport and placement rates estimated from local rates and Rawlinsons 2012).	$37,500	$31,500
Seqwater Internal Costs – works supervision of $3000 plus project management costs of $6000 (15% of contract costs)	$9,000	$8,500
Total	**$52,000**	**$48,000**

SKM considered it is important that a suitable source of rock is known in order to complete this work, and to forecast the cost. Whilst using unit rates provided in Rawlinsons is typical for many types of construction works in the budgetary stage, the unit price for rock is highly variable. Factors such as quality (hardness, durability etc), size, and transportation cost all act to increase or decrease costs. Indeed, the cost to transport the rock from the quarry may be a significant portion of the unit rate. SKM suggested that the identification of a quarry that can supply the rock to the required quality has not been confirmed.

SKM estimated the cost to procure 200mm riprap from the quarry gate at $40-80 per cubic metre. Additional to this is the cost to transport the rock to the dam estimated at $15-30 per cubic metre depending on the distance carted, and an excavator to place the rock estimated at $20-25 per cubic metre. Assuming the mid value of these ranges the SKM estimate of the unit rate to supply and place rock is $105 per cubic metre ($31,500 for 300m3) Hence, Seqwater's unit price of $125 per cubic metre ($37,500 for 300m3) to supply and place rock was within SKM's estimated range.

SKM assessed the allowance for Design, Procurement, Works supervision and Project Management to be consistent with other Seqwater projects and standard industry practice.

SKM recommended that Seqwater undertakes an options analysis prior to the implementation of the project as proposed. As discussed previously, such an options analysis should include a net present value analysis weighing up the durability of the rock (and hence expected usable life) and the cost to supply and replace the rock.

Given that this work is expected to commence in 2013-14 financial year SKM expected that this options analysis would be complete, at least in a preliminary sense. Key to the accurate cost of the project is the confirmation of a quarry to supply rock of the required standards such that unit prices and transportation costs can be determined.

However, given that the cost of the rock would likely be higher than the current estimate if an options analysis determined that a higher grade rock than currently sourced should be

procured, and given that the current proposed costs are within +-30% of SKM's estimate, SKM has determined that the proposed costs are reasonable and hence efficient.

Authority's Analysis

The Authority accepts SKM's analysis that the proposed project is prudent and efficient.

Item 2: Clarendon Diversion Control Equipment

Seqwater

The main renewals item reviewed by SKM is scheduled for 2018-29 at a cost of $174,000.

Additional expenditures on control equipment in Clarendon Diversion of $137,000 in 2029 and $26,000 in 2034 were also identified.

Other Stakeholders

No stakeholders commented on this item.

Consultant's Review

Project Description

The Clarendon Diversion Control Equipment controls the Redbank Creek Pump Station. The equipment was originally installed in 1993. The pump station is used to harvest water from Redbank and Lockyer Creeks into Clarendon Dam. The operating rules require that the pump station must be capable of remote start up and shut down to maximise the benefit of infrequent water harvesting opportunities.

The control equipment to be replaced consists of a Control Panel, programmable logic controller (PLC), SCADA, Communications Equipment and Level Sensing and Flow Recorders (including water level indicators in the Clarendon Channel.

Project Status

The project is planned to be carried out in 2028-29. The project is currently at the Concept and Feasibility stage, and has yet to progress to preliminary design. Information available to SKM provides justification for the works based upon accepted criteria and provides a suitable time frame for implementation. SKM considered the current position in the Seqwater Asset Delivery Framework as appropriate given the value and timing of this renewal project.

Provided Documentation

The documents used for this review were:

(a) Water Monitoring Data Collection Standards, Version 2.1 Natural Resources and Water, March 2007;

(b) Irrigation Infrastructure Renewal Projections – 2013/14 to 2046/47 – Report on Methodology, Seqwater, April 2012;

(c) SM Project Outline: Clarendon Diversion Channel, Seqwater, undated; and

(d) Irrigation Request Response QCA Irrigation Price Review 2013-17: RFI005 Central Lockyer – Clarendon Diversion Control Equipment, Seqwater, 10 August 2012.

The documentation received was considered sufficient for the purposes of the prudency and efficiency assessment.

Prudency

Identified Need

While the operating rules do not in themselves require that the pump station must be capable of remote start up and shut down, this remote functionality is needed for Seqwater to maximise the benefit of infrequent water harvesting opportunities as allowed by the operating rules. The relevant section of the operating rules (as set out in the interim Resource Operating Licence) states:

> *Pumping of water from Lockyer Creek (at Jordan 1 Weir) and Redbank Creek (at Jordan 2 Weir) into Lake Clarendon may only occur when there is sufficient combined flow in Lockyer and Laidley Creeks (in excess of what is being diverted into Lake Dyer and Lake Clarendon) to overtop Kentville Weir. The maximum diversion rate to Lake Clarendon is 376 ML/day.*

The justification for remote control of the pump station hinges upon the responsibility of Seqwater to utilise the water harvesting opportunities to the fullest. The pump station can only operate when certain thresholds are reached in the Lockyer and Laidley Creeks. These stream flow events are infrequent. Failure to operate the Redbank Creek Pump Station when these opportunities arise would impact detrimentally upon water availability for irrigators in the water supply scheme. Access to the pump station during flow events can be difficult as flow events coincide with rain and floods, flow events can develop with limited warning, and they may be of very short duration.

Without a remote control capability, it is not feasible to generate a response to flood events quickly enough to take advantage of the water harvesting opportunities as they arise. On this basis the renewal of the equipment is considered necessary.

SKM estimated that, of the total of $174,000 budgeted for the project, approximately $25,000 (the cost of SCADA server and auto-dialler) represents the value of the remote control function

In summary, the project documentation supports the need for replacement of the control system at the Clarendon Diversion and as such is prudent in terms of need.

Timing

The age of the existing asset is not available. A useful life of 35 years has been adopted by Seqwater to determine the required renewal date of the equipment. On this basis the next programmed replacement is scheduled for 2028-29, which would indicate an original service date of 1993.

Seqwater's standard useful asset refurbishment frequency for electrical/control equipment is 18 years (refer to Appendix D of the SKM report, Irrigation Infrastructure Renewal Projections 2013-14 to 2046-47, Report on Methodology). SKM believes this 18 year refurbishment frequency is in keeping with industry standards for serviceable asset life for motor control equipment (20 years) and conflicts with the projected 35 year life adopted by Seqwater. A visual site inspection was carried out on 17/08/2012, which revealed some automated components were not functional. Ongoing condition assessment occurs through Seqwater's preventative maintenance program. A formal condition assessment is planned to occur with the expected end of the asset life.

In SKM's experience this type of control equipment can normally be expected to reach obsolescence after approximately 15 to 20 years service, beyond which it can be expected to suffer a reduction in reliability due to an increased component failure rate and a lack of service support. However, a useful life of 35 years has been adopted by Seqwater to forecast the required renewal of this equipment. This asset life has been taken from the Asset Data inherited from the SunWater Asset Systems. This asset life is considered by Seqwater to be an outer estimate for the life of the asset. SKM concurs with this view and considers that adoption of a 20 year asset life would be more appropriate.

On the basis of the foregoing discussion SKM believes the proposed timing of the asset replacement is likely to be brought forward by 15 years to 2013-14, particularly given the criticality of the installation.

Scope of works

The project provides for the replacement of control equipment, which will be at the end of its design life at the Clarendon Dam. The equipment allows pumping of water from Lockyer Creek and Redbank Creek into Lake Clarendon whenever there is sufficient combined flow in Lockyer and Laidley Creeks. The maximum daily diversion permissible into Lake Clarendon is 376 ML.

Replacement of the equipment involves a full control panel fitted with programmable logic controller, telemetry and SCADA equipment, and the necessary water level sensing devices. The equipment proposed will be a replica of that which currently exists, which is appropriate for the application.

Conclusion

SKM considers that Seqwater should review the planned timing of the project. However, on the basis of the above commentary and with consideration of the options available and the eventual equipment selection, the project has been assessed as prudent.

Efficiency

SKM indicated that the proposed works will be a relatively straightforward process involving like-for-like direct replacement of existing equipment with a system of similar capability. The works will need to comply with standard electrical installation techniques, in particular the Australian Wiring Rules AS/NZS 3000. SKM noted the system will use existing allocated radio frequencies for the SCADA and telemetry link and will not require additional licensing.

Seqwater has provided a breakdown of the cost estimate for the replacement works. The major supply components of the cost have been verified independently by SKM by means of market quotations, and other cost components (such as install costs and design costs) have been estimated by SKM from historic, benchmark costs from similar projects. The summary of the cost comparison is shown in Table 4.10.

Table 4.10: Clarendon Diversion Control Equipment – Cost Estimates

Item	*Seqwater Estimate*	*SKM Estimate*
Design	$14,000	$17,000
Procurement	$3,000	$3,000
Supply and Installation		
Control panel (SS, 2 m x 0.8 m x 0.4 m) with termination wiring	$27,500	$20,000
PLC - Siemens, SIMATIC S5-100U, 14 I/O cards	$27,500	$30,000
PLC wiring and termination	$15,000	$12,000
SCADA server	$15,000	$10,000
Auto-Dialer	$10,000	$10,000
Multitrode and level sensors	$10,000	$10,000
Flow recorders	$12,000	$12,000
Phone lines 1 km each 3 off	$8,000	$8,000
Seqwater Internal Costs	$32,000	$32,000
Total	**$174,000**	**$164,000**

Source: SKM (2012).

On the basis of this comparison, SKM considered that the Seqwater estimate is efficient.

Summary

The project is assessed as prudent as the primary driver of the replacement of the control equipment has been demonstrated and an appropriate decision making process has been documented.

The project is assessed efficient as the scope is appropriate, the standards of works are consistent with industry practice and the costs are consistent with prevailing market conditions.

Authority's Analysis

The Authority accepts SKM's analysis that the proposed project is prudent and efficient. However, the Authority notes that the expenditure may need to be brought forward.

Item 3: Gauging Stations

Seqwater

In Seqwater's NSP, this renewals item is scheduled for 2022-23 and 2032-33 at a cost of $60,000 in each year ($120,000 in total). Seqwater subsequently revised the cost estimate for each installation to $71,700.

Other Stakeholders

No stakeholders commented on this item.

Consultant's Review

Project Description

The project provides for the renewal of gauging and associated telemetry assets in the Central Lockyer Valley WSS.

The relevant gauging station locations are as follows:

(a) Bill Gunn Dam Head Works (HW);

(b) Clarendon Dam HW;

(c) Showgrounds Weir HW;

(d) Lockyer Creek Gauging station;

(e) Redbank Gauging Station; and

(f) Bob Bird Hut.

The gauging station locations are at the headwater and the tailwater levels at each site. Seqwater proposes to install new water level recorders and data loggers at stream gauging stations during the 2022-23 financial year in order to better meet the compliance requirements of the Central Lockyer Valley Resource Operations Licence. The works nominated in this project will be replacement of both the upstream and downstream gauging equipment on a 10 year recurrence interval.

The project is a recurring, due to the anticipated deterioration over time of the electronic and communications equipment which will be used. In SKM's experience this type of equipment can typically be expected to reach obsolescence in industry after approximately 10 years service, beyond which it can be expected to suffer a reduction in reliability resulting from an increased component failure rate and a lack of service support.

Project Status

The project is not to be carried out until 2022-23, and then repeated in 2032-33. In the Seqwater Asset Delivery Framework, as discussed in SKM's report Assessment of Capital and Operating Expenditure – Seqwater (June 2012), the project would be classified as pre-implementation, in the Concept and Feasibility stage, meaning prior to preliminary design. SKM considers the current position of the project in the Seqwater Asset Delivery Framework as appropriate given the value and timing of this renewal project. The project is ready to proceed to the preliminary design phase.

Provided Documentation

The documents used for this review are:

(a) Water Monitoring Data Collection Standards, Version 2.1 Natural Resources and Water, March 2007;

(b) Interim Resource Operations Plan for Central Lockyer Valley Water Supply Scheme, Natural Resources and Water, July 2008;

(c) SM Project Outline: Central Lockyer Valley Gauging Stations, Seqwater, undated;

(d) Irrigation Infrastructure Renewal Projections – 2013/14 to 2046/47 – Report on Methodology, Seqwater, April 2012; and

(e) Irrigation Request Response – QCA Irrigation Price Review 2013-17: RFI006 Central Lockyer Valley WSS – Gauging Stations, Seqwater, 8 August 2012.

The documentation received was considered sufficient for the purposes of this prudency and efficiency assessment.

Prudency

The need for this project has been determined for different reasons depending on the location, and summarised as follows:

(a) Bill Gunn Dam HW: to fulfil regulatory obligations specified in the interim Resource Operations Licence, and dam safety compliance;

(b) Clarendon Dam HW: to fulfil regulatory obligations specified in the interim Resource Operations Licence, and dam safety compliance;

(c) Showgrounds Weir HW: to fulfil regulatory obligations specified in the interim Resource Operations Licence;

(d) Lockyer Creek Gauging Station: required operationally for warning of flow events that trigger operation of the Clarendon Diversion Pump Station;

(e) Redbank Gauging Station: required operationally for control of Clarendon Diversion Pump Station; and

(f) Bob Bird Hut: required operationally to measure releases from Clarendon Dam to the Lockyer Creek.

The Interim Resource Operations Licence requires continuous time series data for the water level (headwater) and the stream flow (tail water) at Bill Gunn Dam, Clarendon Dam and Showgrounds Weir. In addition releases from Clarendon Dam are required to be recorded by the gauge at Bob Bird Hut. The proposed gauging and telemetry equipment will fulfil these requirements.

The telemetry system is used to provide continuous, real time, water level measurements to DNRM. The telemetry function is of limited value to the irrigators as it is not used for controlling water flow to irrigators, but remains useful for identifying water harvesting opportunities. As the telemetry function is arguably an interim Resource Operating Licence condition, it can reasonably be argued that it was the irrigators that triggered the need and hence they should pay for the necessary infrastructure to meet the licence condition. This is a position supported by SKM.

Lockyer Creek and Redbank Gauges are critical for Seqwater to maximise the diversions to Clarendon Dam (an outcome that is of particular interest to the irrigators) while ensuring there is no breach of the diversion restrictions. Without these gauges Seqwater cannot determine that there is a flow in the Lockyer creek upstream of Kentville Weir.

Furthermore, data from the gauges is critical for Seqwater to comply with reporting on flow event management as required by the interim Resource Operating Licence.

In summary, the project documentation provided supports the need for replacement of the gauging stations at all Central Lockyer Valley locations (Bill Gunn Dam, Clarendon Dam, Showgrounds Weir, Bob Bird Hut, Lockyer Creek and Redbank).

Timing of asset replacement or refurbishment

The age of the existing manually-read gauging system is not clear. However, ongoing condition assessment occurs through Seqwater's preventative maintenance program and via operator reports. A formal condition assessment will occur with the expected end of the asset life. The condition assessment by Seqwater has dictated replacement in 2022-23. As the expected life of the asset is 10 years, Seqwater has programmed the next replacement to occur in 2032-33.

Seqwater's standard useful asset life for telemetry components and level measurement equipment is 10 years (refer Appendix C of the SKM report, Report on Methodology). Seqwater's standard asset refurbishment period for telemetry has yet to be determined (refer Appendix D of the SKM report, Report on Methodology). In the absence of any determination for this SKM believes the standard asset life, which is in keeping with industry standards and hence appropriate, should be used.

As discussed earlier, this type of equipment can normally be expected to reach obsolescence in industry after approximately 10 years service, beyond which it can be expected to suffer a reduction in reliability due to an increased component failure rate and a lack of service support. In some cases the equipment life may be extended. However in SKM's experience 10 years can be considered typical. On this basis the timing of the asset replacement is considered appropriate.

Conclusion

On the basis of the above commentary, with consideration of the options available and the eventual equipment selection, the project documentation supports the need for replacement of the gauging stations at all six Central Lockyer Valley locations (Bill Gunn Dam, Clarendon Dam, Showgrounds Weir, Bob Bird Hut, Lockyer Creek, and Redbank) and as such is prudent both in terms of need and timing.

Efficiency

There are a number of methods of level gauging available in industry but the method adopted by Seqwater involves use of a bubbler tube through which low pressure air is supplied. The outlet of the tube is near the bottom of the stream channel, and the air pressure required to achieve a minimum air flow can be used to infer the water level. This is a very simple method of fluid level measurement, appropriate for the level of accuracy required in this application. It is also robust, with no electronic field sensors, has minimal moving parts and, provided the electronic components are appropriately housed should offer very reliable service.

Other methods available include use of ultrasonic, float sensors and electrical capacitance devices, all of which involve more complex field-mounted sensors which are susceptible to damage through deterioration, storm or vandalism.

Although Seqwater has yet to undertake an options study for this project, SKM indicated that a bubbler system is favoured to maintain commonality with similar equipment used elsewhere in the system. SKM considered this method of stream gauging selected by Seqwater to be appropriate for the application.

Telemetry equipment is required for the transmission of the water levels to Seqwater central locations and for this information to be made continuously available to stakeholders via the internet. Seqwater has chosen a simple radio link (with battery back-up) to achieve this. Alternatives would include connection to a telephone landline but this would be susceptible to washout during floods. Alternatively a microwave link could be used but this would require expensive towers to achieve the "line-of-sight" links needed for repeater stations.

SKM considered this method of telemetry selected by Seqwater is appropriate for the application.

The proposed works will be a relatively straightforward process involving like-for-like direct replacement of existing equipment with a system of similar capability. The works will need to comply, where applicable, with standard electrical installation practices, in particular the Australian Wiring Rules AS/NZS 3000. The system will use existing allocated radio frequencies for the telemetry link and will not require additional licensing.

Seqwater has provided a breakdown of the cost estimate for the replacement works. The major supply components of the cost have been verified independently by SKM by means of market quotations, and other cost components (such as install costs and design costs) have been estimated by SKM from historic, benchmark costs from similar projects. The summary of the cost comparison is shown in Table 4.11.

Table 4.11: Central Lockyer Valley WSS – Gauging Stations Cost Estimates

Item	*Seqwater Estimate*	*SKM Estimate*
Design	$5,500	$5,500
Procurement	$2,500	$2,500
Supply and Installation		
6 x Campbell Scientific CR1000 Data Logger	$25,800	$22,800
5 x water log Compressor Bubblers	$22,000	$38,800
1 x HS Shaft Encoder	$1,900	$1,900
Ancillaries (including telemetry equipment)	$6,000	$6,000
Seqwater Internal Costs	$8,000	$8,500
Total	**$71,700**	**$86,000**

Source: SKM (2012) (Note that Seqwater has used their experience from Bromelton Weir upgrade to further increase the cost estimate from the original of $60k allowed for in the Terms of Reference)

The Seqwater estimate is lower and accepted as valid and hence efficient.

Conclusion

The project is assessed as prudent, as the primary driver of the replacement of the stream gauging and telemetry has been demonstrated and an appropriate decision making process has been documented.

The project is assessed as efficient as the scope is appropriate, the standards of works are consistent with industry practice and the costs are consistent with prevailing market conditions

Authority's Analysis

The Authority accepts SKM's analysis that the proposed project is prudent and efficient. The Authority notes that Seqwater's revised cost estimate remains lower than SKM's estimate.

Item 4: Clarendon Diversion Access Road

Seqwater

This renewals item is scheduled for 2022-23 includes three line items for access roads ($39,000, $35,000 and $48,000). Seqwater has advised that this project also includes two other line items for access roads in 2022-23 at a combined total of $70,000. Each line item is understood by SKM to be for a section of the Clarendon Division Access Road. Therefore, Seqwater has submitted a total cost of $192,000 for this project (revised to $193,850).

Other Stakeholders

No stakeholders commented on this item.

Consultant's Review

Project Description

This project is for the renewal of the access road and the road along both sides of the Clarendon Diversion Channel. The project is to regrade and reconstruct 12.2km of 3m-wide access road. The project scope has allowed for the placement of an average of 50mm new lift of road base material. The project is a single project, occurring in the 2022-23 financial year.

Project Status

The project is not to be completed until 2022-23. In the Seqwater Asset Delivery Framework, the project is to be classified as pre-implementation, in the Concept and Feasibility phase, meaning prior to preliminary design. SKM considers the current position of the project in the Seqwater Asset Delivery Framework as appropriate given the value and timing of this renewal project

The available information on this project is consistent with the current status of the project. At this stage, no detailed options analysis has been undertaken. This is scheduled to be completed in the Validation and Planning phase of Seqwater's Asset Delivery Framework at a later date, prior and closer to the Implementation phase when the project is due to be delivered and commissioned. SKM considered this approach to be in line with good industry practice as it is appropriate to undertake a more detailed assessment closer to the planned date of delivery, some ten years hence, when the condition of the existing infrastructure can be reassessed.

Documentation Provided

The documents used for this review were:

(a) 2013-14 Irrigation pricing – Submission to the Queensland Competition Authority, Seqwater, April 2012;

(b) Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47 – Report on Methodology, Seqwater, April 2012;

(c) Central Lockyer Valley Water Supply Scheme – Network Service Plan, Seqwater, undated;

(d) Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47: Report – Central Lockyer Valley Tariff Group, Seqwater, April 2012;

(e) Information Request Response – QCA Irrigation Price Review 2013-17: RFI007 Central Lockyer, Clarendon Diversion Channel – Access Road response from Seqwater, 13 August 2012;

(f) SM Project Outline: Clarendon Diversion Channel – Access Road, Seqwater, undated

(g) Information Request Response – QCA Irrigation Price Review 2013-17: RFI036 Central Lockyer Valley, Clarendon Diversion Channel – Access Road response from Seqwater, 29 August 2012; and

(h) SM Project Outline: Clarendon Diversion Channel – Access Road, Seqwater, undated, updated.

Prudency

This project has been identified as being necessary to access and operate the Clarendon Diversion Channel. The channel supplies water between Lake Clarendon and the Redbank Creek Pump Station. The channel allows water to be supplied in either direction.

The project has been identified as part of the Irrigation Infrastructure Renewal Projections 2013-14 to 2046-47 for the Lockyer Valley Tariff Group. As identified above, the project is not due to be implemented until 2022-23 and it is currently only at the concept phase. Subsequently whilst the level of documentation available for this project is minimal, it is in line with the current status of the project. Seqwater has indicated that a formal condition assessment and detailed options analysis is scheduled to be completed more contemporaneously with the expected end of the asset life in the Validation and Planning phase of Seqwater's Asset Delivery Framework. SKM considered that the replacement of an asset based on the results of an adequate condition assessment and options analysis represent good industry practice.

The Clarendon Diversion Channel access road was constructed in approximately 1986, and hence is currently 26 years old. Based on this asset life, the road will be renewed when it is 36 years old.

Seqwater's standard useful asset life for roads and drainage is 30 years. The project renewal timing is slightly higher than Seqwater's standard useful asset life. Seqwater's standard asset refurbishment for roads for accessing bores is 5 to 12 years. No data is given for roads associated with other assets. SKM understands that patch maintenance has occurred; however, this has been minor, e.g. drainage clearing, or has been event based.

SKM considered that the useful asset life applied by Seqwater for this asset is reasonable and is in keeping with industry practice. SKM noted that the proposed project is not a complete renewal (i.e. replacement) of the road but rather a refurbishment of the existing road. A refurbishment of the existing road will require significantly less effort than a total renewal (i.e. replacement) of the road. For example, any ground works undertaken in the

initial formation of the road are unlikely to be required to be undertaken again during a renewal.

SKM believes that whilst the age of an asset is a useful indicator for renewal timing, the actual timing of replacement should be based on the condition of the asset.

No documented condition assessments have been provided to SKM. A site visit was undertaken on the 17 August 2012. From inspection, the road was considered by SKM to be in a good condition and is currently suitable for operating and maintaining the channel. As such SKM considered that the timing for renewal of this asset is appropriate and adequate for the intended purpose in the absence of better and more informed asset condition information.

On the basis that renewal of the access road is required to operate the Central Lockyer Valley Water Supply Scheme, that the timing of the works is considered accurate and that the scope of works is reasonable, the project has been assessed as prudent.

Efficiency

This project is for the renewal of the access road and along both sides of the Clarendon Diversion Channel.

SKM questioned the need to renew the access road and along both sides of the channel. Based on SKM's recent site visit and from satellite imagery based terrain information, the main access seems to be along the northern edge of the channel. In addition, there are frequent crossing points of the channel, for example near siphons under the roads.

Whilst Seqwater agrees that one side of the channel is being used more frequently than the other, Seqwater is of the view that vehicular access to both sides of the channel is essential. This requirement is understood to enable channel embankment condition monitoring, maintenance and operational activities.

Seqwater has identified that during the Validation and Planning phase of the project, the scope of the project will be further developed. The following expectations were identified:

(a) parts of the road that are used most frequently will attract more renewal effort;

(b) only sections that require renewal will be renewed but the effort required at these locations will be more extensive than is outlined in the initial cost estimate; and

(c) timing will be adjusted so that the works are undertaken when needed. Depending on the performance of the asset it may be deferred, brought forward or staged over a number of years.

SKM agrees with the above expectations, in particular, the further assessment of asset condition and the subsequent timing of the works.

No formal standards have been used in the concept design of the access road. The minimum practical requirements include the capacity to allow access in all conditions and weather, and workplace health and safety compliance requires access to be reasonably safe for workers and contractors.

Seqwater's initial cost estimate is provided in Table 4.12.

Table 4.12: Clarendon Diversion Access Road – Seqwater's Initial Estimate

Items	*Sub-Items*	*Costs ($)*
Contract Costs		
Design	Civil	12,000
Procurement	Preparation of scope of work and RFQ	8,000
Supply and Install	Total road surface 37000m2: Rate for prelim grading, importing and placement of 50mm gravel and reforming - $2/m2	74,000
Sub-Total		**94,000**
Seqwater Internal Costs		
Work Supervision		14,000
PM Costs (15% of Contract Costs)		14,000
Sub-Total		28,000
	Total	**122,000**

Source: SM Project Outline: Clarendon Diversion Access Road, Seqwater, undated

Following confirmation of the overall budget, Seqwater provided an updated budget for the refurbishment of the access road. This budget breakdown is outlined below in Table 4.13.

Table 4.13: Clarendon Diversion Access Road – Seqwater's Revised Cost Estimate

Items	*Sub-Items*	*Costs ($)*
Contract Costs		
Design	Civil	10,000
Procurement	Preparation of scope of work and RFQ	9,000
Supply and Install	Total road surface 37000m2: Rate for prelim grading, importing and placement of 50mm gravel and reforming - $4/m2	140,000
Sub-Total		**159,000**
Seqwater Internal Costs		
Work Supervision		11,000
PM Costs (15% of Contract Costs)		23,850
Sub-Total		34,850
	Total	**193,850**

Source: SM Project Outline: Clarendon Diversion Access Road, Seqwater, undated, updated

SKM undertook its own assessment of costs for the access road, as shown in Table 4.14.

Table 4.14: Clarendon Diversion Access Road – SKM Cost Estimate

Item	*Unit*	*Qty*	*Rate*	*Amount*
Establishment, disestablishment and traffic control		1	$10,000.00	$10,000
Grade and trim existing roadway surface and clean out table drains with motor grader	m	12,200	$5.00	$61,000
Supply, place and compact gravel surface to roadway using DTMR Class 2.2 material	m^3	1,830	$85.00	$155,550
Final Trim	m^2	36,600	$2.00	$73,200
Total				**$299,750**

Source: SKM (2012).

The cost estimate for this project is $299,750 based on a 50mm gravel pavement. SKM considers the rate used by Seqwater for the preliminary grading, importing and placement of 50mm gravel and reforming to be low. A comparison of Seqwater's and SKM's total cost estimates is provided in Table 4.15.

Table 4.15: Clarendon Diversion Access Road – Cost Comparisons

Component	*Seqwater estimate ($)*	*SKM estimate ($)*	*Difference (%)*
Design	10,000	15,000	50%
Procurement	9,000	15,000	67%
Supply and Install	140,000	299,750	114%
Seqwater Internal Costs	34,850	45,000	29%
Total	**193,850**	**374,750**	**93%**

Source: SKM (2012).

The SKM cost estimate for this project is $375,000, including Seqwater internal costs. This cost estimate is significantly higher than the Seqwater cost estimate. Whilst SKM found the project to be efficient, it is recommended that the costs are reviewed as part of the ongoing development of this project, including the use of condition assessment and options analysis to confirm the scope of works.

Conclusion

The project is assessed as prudent as the access road is required to operate the Central Lockyer Valley Water Supply Scheme, the timing of the works is considered adequate and the scope of works is reasonable.

The project is assessed efficient as the scope of works is currently appropriate, although should be refined as part of the ongoing design process, the standards of works are consistent with industry practice and the revised project costs are low compared to prevailing market conditions.

Authority's Analysis

The Authority accepts SKM's analysis that the proposed project is prudent and efficient. The Authority notes that Seqwater's revised cost estimate is substantially lower than SKM's estimate.

Item 5: Clarendon Diversion Trash Screens

Seqwater

This renewals item is scheduled for 2014-15 and thence every 5 years thereafter. The cost is estimated at $10,000 for each refurbishment, a total of $50,000 over the planning period.

Other Stakeholders

No stakeholders commented on this item.

Consultant's Review

Project Description

The Clarendon Diversion Trash Screens expenditure item involves the periodic refurbishment of the corrosion protection on the trash screens to ensure ongoing serviceability. The purpose of the trash screens is to protect the pumps within the Redbank Pump Station from damage arising from debris entering the pumps and to prevent the pump well from becoming fouled with debris. The Redbank Pump Station transfers water between the Redbank Creek and Lake Clarendon.

The refurbishment involves the removal of the screens from the pump well, preparation of the surface and application of a 2-pac epoxy paint. The project is a recurring project, occurring initially the 2014-15 financial year and then every five years, depending on condition assessments as assessed from time to time between planned refurbishments.

Project Status

Seqwater states that as the project is not to be carried until 2014-15 in the first instance, and every five years thereafter, that the project is in the Concept and Feasibility phase of the Seqwater Asset Delivery Framework. SKM considered the current position of the project in the Seqwater Asset Delivery Framework as appropriate given the relatively low value and non-complex nature of the project.

For a project of this size ($10,000), SKM anticipated that validation and planning documentation would be produced in 2013-14 (that is, one year before implementation).

Documentation Provided

The documents used for this review are:

(a) 2013-14 Irrigation pricing – Submission to the Queensland Competition Authority, Seqwater, April 2012;

(b) Irrigation Infrastructure Renewal Projections – 2013/14 to 2046/47 – Report on Methodology, Seqwater, April 2012;

(c) Central Lockyer Valley Water Supply Scheme – Network Service Plan, Seqwater, undated;

(d) Irrigation Infrastructure Renewal Projections – 2013/14 to 2046/47: Report – Central Lockyer Valley Tariff Group, Seqwater, April 2012;

(e) Information Request Response – QCA Irrigation Price Review 2013-17: RIF011 Central Lockyer Valley, Clarendon Diversion Trash Screens, Seqwater, 12 August 2012;

(f) SM Project Outline: Clarendon Diversion Channel Inlet trash screens, Seqwater, undated;

(g) Asset Assessment Form: Clarendon Diversion Baulks and Trash Screens, Seqwater, 13 February 2012; and

(h) Information Request Response – QCA Irrigation Price Review 2013-17: RFI029 Clarendon Diversion Trash Screens, Seqwater, 27 August 2012.

Limited information has been provided on the Clarendon Diversion Trash Screens expenditure item, however as the project is in the Concept and Feasibility stage this is not unexpected.

Prudency

This project has been identified as being necessary to operate the Central Lockyer Valley Water Supply Scheme. The trash screens protect the pumps from damage and prevent the pump well from becoming fouled with debris, which is good practice. Failure of the screens during pump operation may damage the pumps which could result in an inability to harvest water.

The Redbank Pump Station transfers water between the Redbank Creek and Lake Clarendon. Water is transported from Redbank Creek to Lake Clarendon in high rainfall events which result in the overtopping of the weirs along Lockyer Creek. Water is transported back to Redbank Creek from Lake Clarendon when the level in the Lockyer and Redbank Creeks has dropped. The trash screens are necessary for reliable operation of the Central Lockyer Valley Water Supply Scheme.

The nature of the set up of the trash screen, being submerged under water in a high flow river, is such that the periodic refurbishment and renewal of the trash screen is required and therefore necessary for the continued operation of the Central Lockyer Valley Water Supply Scheme.

The project has been identified as part of the Irrigation Infrastructure Renewal Projections 2013-14 to 2046-47 for the Central Lockyer Valley Tariff Group. As identified above, the project is not due to be implemented, in the first instance, until 2014-15 and it is currently only at the concept phase.

Consequently, whilst the level of documentation available for this project is minimal, it is in line with the current status of the project. Seqwater has indicated that a formal condition assessment and detailed options analysis is scheduled to be completed more contemporaneously with the expected date of planned refurbishment in the Validation and Planning phase of Seqwater's Asset Delivery Framework. SKM considered that the refurbishment of an asset based on the results of an adequate condition assessment and options analysis represent good industry practice.

The Clarendon Diversion Trash Screens were installed in 1993, and hence are currently 19 years old. Seqwater's standard useful asset life for trash screens in water pump stations has

not yet been determined however the standard useful asset life for trash racks in dams is 70 years. Seqwater's standard asset refurbishment for trash screens in water pump stations is 5 years, compared to 10 years for trash screens in dams.

Seqwater advised that refurbishment of the screens has not been undertaken since they were handed over from SunWater and that information regarding the prior maintenance history, by SunWater, was not available. Based on industry experience SKM considered that a useful life of 30 years is appropriate for trash screens in water pump stations or channels, due to potentially high flow conditions and debris, and that a refurbishment period of 5 years is also appropriate and in keeping with industry practice.

Seqwater advises that the timing for the inspection and refurbishment, as required, of the trash screens is based on a frequency that allows for intervention before significant corrosion of the screens can develop. SKM considered that the useful asset life applied by Seqwater for this asset is reasonable and in keeping with industry practice. As such SKM considers that the timing for refurbishment of this asset is appropriate and adequate for the intended purpose.

The timing of the inspection and refurbishment, as required, of the trash screens is consistent with Seqwater's methodology. SKM has reviewed Seqwater's asset management methodology and considers that the approach adopted is appropriate for the type of asset and that the refurbishment period timing is reasonable.

On the basis that refurbishment of the trash screens is required to operate the Central Lockyer Valley Water Supply Scheme, that the timing of the works is considered accurate and that the scope of works is reasonable, the project has been assessed as prudent.

Efficiency

The scope of works, for each occurrence of the expenditure, is to remove the three trash screens, inspect and clean the screens, patch and paint the screens as required and reinstall the screens. Seqwater states that the project scope of 'patch painting' has been determined based on experience in managing a fleet of approximately 70 sets of trash screens at dams, water treatment plants and pump stations and that it is considered the most likely scope based on the age, material and service environment of the screens and also draws on the operational staff's most recent knowledge of the screens condition.

As Seqwater has not specifically defined what 'patch painting' entails, SKM have assumed the approach is consistent with AS/NZS 2312:2002 for refurbishment of painted steel infrastructure. This includes stripping the screens down to bare metal only in those areas that exhibit rust then applying primer and undercoat to those areas, then finally a top coat to the entire screen. Seqwater has confirmed that this is in line with the intent of the project except that the 'final top coat will usually only be applied to the area that is patched with an overlap to an intact section of paintwork'.

Seqwater advises that no options analysis has been completed as yet as the project is in the Concept and Feasibility phase and will be completed in the Validation and Planning phase. Without an options analysis having been completed it is not possible to determine definitively that the refurbishment of the trash screens is the best means of achieving the desired outcome, however based on the current information the scope of works is considered to be adequate for the project.

From work previously undertaken, SKM considered that AS/NZS 2312:2002 is an appropriate basis for assessing the severity of corrosion on coated steel surfaces. This standard recommends refurbishment when greater than 2% of the surface coating has been

damaged, exposing the steel surface. This amount of damage generally occurs within the 5 to 6 years after installation. SKM considered this approach to be appropriate and based on good engineering practice as defined in the standard.

Seqwater's cost estimate is detailed in Table 4.16.

Table 4.16: Clarendon Diversion Trash Screens – Seqwater Cost Estimate

Items	*Sub-Items*	*Costs ($)*
Contract Costs		
Design	Mechanical	500
Procurement	Preparation of scope of work and RFQ	500
Supply and Install	Removal, clean, patch paint as required and reinstallation of 3 x trash screens	6,500
	Crane hire, removal and replacement	1,000
Sub-Total		**8,500**
Seqwater Internal Costs		
Work Supervision		500
PM Costs (15% of Contract Costs)		1,000
Sub-Total		1,500
	Total	**10,000**

Source: SM Project Outline: Clarendon Diversion Channel Inlet trash screens, Seqwater, undated

Seqwater indicates that the budget is accurate to ± 30%. This level of accuracy is appropriate for a project in the Concept and Feasibility phase. Seqwater advises that the cost estimate was developed with regard to the experience of undertaking similar projects previously.

SKM has undertaken a cost estimate for the supply and install costs for the refurbishment of the trash screens, based on industry experience. SKM expected the total overhead costs associated with the project to be up to 30% of the contract costs for a project with a value less than $100,000. SKM's estimate is provided and contrasted with Seqwater's cost estimate in Table 4.17.

Table 4.17: Clarendon Diversion Trash Screens – Cost Comparisons

Component	*Seqwater estimate ($)*	*SKM estimate ($)*	*Difference*
Design	500	531	6%
Procurement	500	531	6%
Supply and Install			
Removal, clean, patch paint as required and reinstallation of 3 x trash screens	6,500	7,350	13%
Crane hire, removal and replacement	1,000	1,500	50%
Seqwater Internal Costs	1,500	1,593	6%
Total	**10,000**	**11,505**	**15%**

Source: SKM (2012).

SKM assessed the allowance for design, procurement and Seqwater internal costs. Whilst these were considered to be high compared to other Seqwater projects and standard industry practice, the overall costs were within 30% of the SKM's estimates and were therefore considered efficient.

Conclusion

The project is assessed as prudent as the refurbishment of the trash screens are required to operate the Central Lockyer Valley Water Supply Scheme, the timing of the works is considered appropriate and the scope of works is reasonable.

The project is assessed efficient as the scope of works is appropriate, the standards of works are consistent with industry practice and the revised project costs are consistent with SKM's estimate for such works.

Authority's Analysis

The Authority accepts SKM's analysis that the proposed project is prudent and efficient. The Authority notes that Seqwater's revised cost estimate is lower than SKM's estimate.

Item 6: Central Lockyer Valley Meter Replacements

Seqwater

Seqwater's business case in this regard outlines costs for replacing existing meters; moving meter locations to comply with Workplace Health and Safety (WHS) requirements; and modifying existing meter works to comply with the meter manufactures' specifications (to ensure accuracy.

This renewals item is scheduled in 3 phases:

(a) Phase 1 - for 2013-14 to 2014-15, compliance with WHS requirements ($264,000);

(b) Phase 2 - for 2015-16 to 2021-23, modifying existing meter works to comply with manufacturers' specifications to improve metering accuracy ($1,176,000); and

(c) Phase 3 - from 2022-23 onwards, replacement of meters from Phases 1 and 2 at the end of asset life (10 years) ($490,000).

Total cost is $1.93 million. These estimates represent a revision on the initial submission from Seqwater which proposed a total cost of $1.007 million.

Other Stakeholders

L Brimblecombe (2012) submitted that when considering new meters, the appropriate standard needs to be considered. A $9,000 meter seems excessive compared to a $1,300 meter which although less accurate would only be so by a small amount.

Consultant's Review

Project Description

This review concerns the replacement of water meters within the Central Lockyer Valley WSS. This metering is required for management of water supplies, reporting and billing purposes. Seqwater has advised that they have two types of meters: river meters and groundwater meters in the Central Lockyer Valley WSS.

Project Status

The project is to be commenced in 2012-13 as a rolling program of renewals. In the Seqwater Asset Delivery Framework, the project is classified as pre-implementation, in the Validation and Planning stage. SKM considers the current position in the Seqwater Asset Delivery Framework as appropriate given the value and timing of this renewal project.

Documentation Provided

The documents used for this review are:

(a) 2013-14 Irrigation pricing – Submission to the Queensland Competition Authority, Seqwater, April 2012;

(b) Central Lockyer Valley Water Supply Scheme – Network Service Plan, Seqwater, undated;

(c) Irrigation Infrastructure Renewal Projections – 2013/14 to 2046/47: Report – Central Lockyer Valley Tariff Group, Seqwater, April 2012;

(d) Information Request Response – QCA Irrigation Price Review 2013-17: RIF032 Additional Projects, Seqwater, 29 August 2012;

(e) Business Case(Medium Projects) Irrigation Customer Meter Renewal, Seqwater, Version 1.0 8/06/12;

(f) Business Case(Medium Projects) Irrigation Customer Meter Renewal, Seqwater, Version 2.0 12/07/12;

(g) Information Request Response – QCA Irrigation Price Review 2013-17: RFI035 River Meters and Groundwater Meters, Seqwater, 29 August 2012;

(h) RFI035 Central Lockyer Valley metered off-takes inspected (excel spreadsheet), Seqwater, undated;

(i) RFI035 Lower Lockyer metered off-takes inspected (excel spreadsheet), Seqwater, undated;

(j) RFI035 Warrill Valley meter off-takes inspected (excel spreadsheet), Seqwater, undated;

(k) RFI035 Meters Purchase Order, Seqwater, February 2012; and

(l) RFI035 Meters Contractor Invoice, Hayes Welding and Fabrication, May 2012.

The provided documentation has been adequate to conduct an assessment of this project.

Prudency

The Central Lockyer Valley Water Supply Scheme is managed by an Interim Resource Operations Licence. The IROL specifies the requirement to measure water taken by water users, for example, the Licensee must:

> *(a) Implement and maintain a water quantity monitoring program, in accordance with the DNRW [*now DNRM*] water monitoring procedures and protocols specified by the Chief Executive from time to time, which measures and records:*
>
> *(i) diversions of water by each customer of the Licensee; diversions to channel distribution systems; diversions to watercourses used for water distribution and drainage; aggregate use by water users from each channel distribution system; water use for each grouping of interim water allocation in SCHEDULE 2.1; and releases from distribution systems to supplement watercourses or for other purposes; on a quarterly basis.*

Therefore in order to comply with these monitoring requirements Seqwater must install a working water meter for each active water user (customer). Seqwater must record actual water used through each meter.

In addition, Seqwater has identified health and safety as a driver of cost. Seqwater has identified the health and safety risks associated with the location of the meters on steep and uneven slopes. Many of the meters are installed low on stream banks. There is a high risk of slips, trips and falls as the ground is uneven, steep and often concealed by tall grass.

Meters required to be replaced due to high or extreme health and safety risks are prioritised. The business case identifies 20 meters to be replaced per year for the first 3 years of the programme in the Central Lockyer Valley Water Supply Scheme. Meters required to be replaced requiring a modification of the installation infrastructure to meet with manufacturer's recommendations are given a lower priority.

No information has been provided on the current age of the assets to be replaced. Seqwater's standard useful asset life for water meters is 15 years (refer to Seqwater's Report on Methodology, Appendix C of SKM report). Seqwater's standard asset refurbishment for water meters is unspecified (refer to Seqwater's Report on Methodology, Appendix D of SKM report). In the provided business case, a 20 year useful asset life is assumed. SKM believed the standard asset life of 15 to 20 years to be reasonable and in keeping with industry practice.

SKM has reviewed the outcomes of the condition assessment provided. The reviewed sites have been allocated a condition score as follows:

(a) Condition 1 – as new;

(b) Condition 2 – requires maintenance to restore design service capability;

(c) Condition 3 – required refurbishment to restore design service capability;

(d) Condition 4 – beyond economic repair; and

(e) Condition 5 – asset has failed.

SKM noted that in the metering audit for the Central Lockyer Valley Water Supply Scheme, 468 meters were recorded. Of these, 56% were listed as being in use.

A summary of condition assessments of meters in the Central Lockyer Valley WSS is shown in Table 4.18.

Table 4.18: Central Lockyer Valley – Meter Condition

Condition Rating	*Number of meters*	*Number of meters listed as being in use*
Condition 1 – As new	0	0
Condition 2 – Requires maintenance to restore design service capability	1	1
Condition 3 – Required refurbishment to restore design service capability	76	52
Condition 4 – Beyond economic repair	339	199
Condition 5 – Asset has failed	52	16
Total	**468**	**268**

Source: SKM (2012).

It is noted that the vast majority of meters (over 80%) are rated as condition 4 or 5, and therefore require replacement, as opposed to refurbishment. This percentage is similar for river and groundwater meters. Of the 33 channel meters, 31 are listed as condition 3, although as noted above, channel meters form the smallest percentage of all meters.

SKM visited a number of metering sites as part of this investigation. The site visits supported the need to replace the existing meters, including the need to reposition meters at locations that represent a health and safety risk to new locations that do not place operators at risk. The evidence also supports the need to provide an adequate pipework configuration to achieve the most accurate reading.

On the basis that the majority of meters are recorded as either not working or beyond economic repair, SKM supported the need to replace rather than refurbish the existing meters.

Timing and Number of Meters to be Replaced

SKM investigated the timing and number of meters to be replaced across all schemes. According to Seqwater's business case, a fleet of 700 active meters, or half of the total of 1,400 meters, are required to be replaced. SKM noted that Seqwater proposed to replace 775 meters across all schemes, but did not provide a justification for the additional 75 meters.

This may be due to an allowance for the fleet to increase over time as part of a re-uptake of water licences; however, this is not specifically stated by Seqwater and no justification has been provided for this assumption.

In summary, SKM found that:

(a) for the first 3 years, 2012-13 to 2014-15, the proposed replacements at 95 meters per year (20 per year in Central Lockyer Valley) to meet workplace health and safety standards is prudent;

(b) for the 7 years, 2015-16 to 2021-22, meter replacements at 70 per year (15 per year in Central Lockyer Valley) were considered prudent for the first 6 years, but not the final year; and

(c) for 2022-23 onwards, ongoing renewal at 70 per year (15 per year in Central Lockyer Valley) was considered only partially prudent, that is, meter replacement was not required for all years. On the basis that the fleet of at least 700 active water meters will have been replaced during the first 10 years of the program, and the useful asset life of the meters is 15 to 20 years, there should be no planned replacements until after these assets have passed their useful lives. SKM considered the renewal of meters from 2022-23 to 2027-28 not to be prudent.

Overall, SKM considered the meter replacement program to be partially prudent.

Scope of Works

Seqwater has considered two main options for type of meter - the replacement of the existing meters with a similar mechanical meter and the replacement of the meters with magflow meters. Both meters require minimum pipework configuration standards, for example, a number of pipe lengths both upstream and downstream of the meter to reduce the effects of turbulent flow within the pipeline.

Seqwater calculated the NPV costs over 20 years for the two meter types as follows: magflow $8,380; and Mechanical Meter $5,650. These costs include initial installation and ongoing maintenance costs for the life of the meter.

SKM investigated whether a magflow meter would be more appropriate for high usage customers, on the basis that a more reliable meter may increase revenue.

Seqwater provided the following simplified analysis of the annual usage in 2010-11 in the Central Lockyer Valley WSS. It is noted that a recorded usage of 0ML may indicate the meter does not work rather than no water is provided. Table 4.19 refers.

Table 4.19: Central Lockyer Valley WSS- Estimated 2010-11 Water Use Revenues

Usage	*0ML*	*0-10ML*	*10-50ML*	*50-100ML*	*>100ML*
Number of Customers	277	78	93	17	3
Part B revenue per customer	$0	$160 (5ML)	$960 (10ML)	$2,400 (75ML)	$6,400 (200ML)

Source: SKM (2012).

Customers in the Central Lockyer Valley WSS were [up to 30 June 2013] required to pay minimum charges regardless of water usage. This is equal to approximately 8 ML usage ($258). SKM found that customers owning approximately 350 of the 468 meters in the scheme paid a bill based on minimum charges rather than water usage.

In addition, Seqwater has stated that reliable information regarding high use meters is not available. Usage varies over time depending on water availability and individual operational decisions by the irrigators. Usage is not necessarily linked to licence volumes as the irrigator can trade water with other licence holders. A meter that has high usage now may not be a high-use meter in the future.

SKM has concluded that installation of magflow meters on these grounds is not justified as there are very few high use irrigators and the usage changes frequently. SKM therefore recommended the lower cost mechanical meters.

Efficiency

SKM estimated the costs of a single meter installation based on Seqwater's proposed standard installation and compared this with Seqwater's estimate of a single meter.

The comparison is shown in Table 4.20.

Table 4.20: Comparison of Meter Installation Costs

Item	*Seqwater ($)*	*SKM ($)*	*Difference*
Parts – new flow meter	600	875	46%
Contractors - installation	4,000	5,700	43%
Subtotal	**4,600**	**6,575**	**43%**
Planning	250		
Community and landholder consultation	450		
Site inspections	450		
Evaluations and contractor selection	150		
Flow meter procurement	200		
Contractor management (WH&S, consultations and site visits)	150		
Commissioning	150		
Management costs – Sub total	2,000	1,600	(20%)
Total	**6,600**	**8,175**	**24%**

Source: SKM (2012).

SKM considered that the lower cost proposed by Seqwater could be explained by the bulk purchasing of meters and the cost savings from appointing a single contractor on the overall project. SKM considered Seqwater's proposed cost to be efficient.

SKM's Conclusion

SKM concluded that the project is partially prudent. Given that the type of meter and installation costs are considered reasonable, SKM considered the project costs per meter to be efficient.

A comparison of Seqwater's proposed costs and SKM's revised costs for Central Lockyer Valley WSS are outlined below in Table 4.21.

Table 4.21: SKM's Estimated Partially Prudent and Efficient Metering Costs Compared (Real $'000)

	2013-14 to 2014-15	*2015-16 to 2021-22*	*2022-23 to 2035-36*	*Total*
Seqwater proposed costs	264	1,176	490	1,930
SKM revised costs	264	997	317	1,578

Source: SKM (2012).

Authority's Analysis

The Authority notes the outcome of the SKM review that expenditure associated with Item 6: Metering is efficient in terms of the costs per meter and expenditure incurred in 2013-14 and 2014-15. However, SKM noted issues associated with the proposed timing of replacement and the number of meters to be replaced in later years. The expenditure is therefore partially prudent in these later years.

The Authority, based on the SKM analysis, concludes that the expenditure associated with metering for the Central Lockyer WSS be adopted as outlined, above, in Table 4.21.

Item 7: Clarendon Dam Earthworks

Seqwater

This renewals item is scheduled for 2020 at a cost of $50,000.

Other Stakeholders

No stakeholders commented on this item.

Consultant's Review

As noted above (Item 1), SKM has reviewed a similar project relating to replacement of riprap in the Clarendon Dam. This involved a $312,000 expenditure over a 6-year period.

SKM considered whether the conclusions could be applied to the similar project involving a $50,000 expenditure on earthworks formation at Clarendon Dam in 2020.

SKM considered however that the conclusions could not be applied to this project as it was unclear whether the works included or excluded renewal of riprap.

SKM therefore considered that there was insufficient information to conclude on this project.

Authority's Analysis

The Authority accepts SKM's conclusion, noting that there is a significant difference between the scales of the projects.

Accordingly, the Authority proposes to treat this item as unsampled for the purposes of the review.

Item 8: Clarendon Diversion Control Equipment

Seqwater

This renewals item involves expenditure of $137,000 in 2029 and $26,000 in 2014 on Clarendon Diversion control equipment.

Other Stakeholders

No stakeholders commented on this item.

Consultant's Review

SKM reviewed a similar item for Clarendon Diversion (Item 2 above), involving expenditure of $174,000 in 2029. This was found to be prudent and efficient. SKM recommended that the conclusions could be applied to other planned expenditure on control equipment in the Clarendon diversion - $137,000 in 2029 and $26,000 in 2034.

Authority's Analysis

The Authority accepts SKM's conclusion that the project is deemed to be prudent and efficient.

Item 9: Clarendon Dam and Diversion – Access Roads and Turnouts

Seqwater

This renewals item involves expenditure of $129,000 for various road access projects over a number of years, detailed as shown in Table 4.17 below.

Other Stakeholders

No stakeholders commented on this item.

Consultant's Review

SKM reviewed one Clarendon Diversion access road project (Item 3 above) and found the expenditure to be prudent and efficient.

SKM indicated that these conclusions could be applied to other road-related projects in the Central Lockyer Valley WSS, totalling $129,000. These are listed in Table 4.22.

Table 4.22: Central Lockyer Valley Road Projects

Location	*Item*	*Year(s)*	*Total Cost ($)*	*Conclusion*
Clarendon Diversion	Access road - refurbishment	2016, 2021, 2026, 2031 & 2036	50,000	Prudent and efficient
Clarendon Diversion	Access road to weir - replacement	2024	24,000	Prudent and efficient
Clarendon Dam	Access roads refurbishment	2024	20,000	Prudent and efficient
Clarendon Dam	Turnouts - refurbishment	2016, 2026, 2036	15,000	Prudent and efficient
Clarendon Diversion	Access Road to weir - refurbishment	2020, 2035	10,000	Prudent and efficient
Total			**119,000**	

Source: SKM (2012).

Authority's Analysis

The Authority accepts SKM's conclusion that the road projects are deemed to be prudent and efficient.

Item 10: Clarendon Dam Telemetry

Seqwater

This renewals item is scheduled for 2022 and again in 2032 at a total cost of $70,000.

Other Stakeholders

No stakeholders commented on this item.

Consultant's Review

SKM reviewed similar proposed expenditure in the Logan River WSS for the Bromelton Weir. This project also involved a total expenditure of $70,000 in 2022 and in 2032.

The need for this project at Bromelton Weir was determined as required to fulfil the regulatory obligations as specified in the Interim Resource Operations Licence.

Seqwater's standard useful asset life for telemetry components and level measurement equipment is 10 years. In the absence of any determination for this SKM believed the standard asset life, which is in keeping with industry standards and hence appropriate, should be used.

SKM indicated that this type of equipment can normally be expected to reach obsolescence after approximately 10 years service, beyond which it can be expected to suffer a reduction in reliability due to an increased component failure rate and a lack of service support. In some cases the equipment life may be extended. However, in SKM's experience, 10 years can be considered typical. On this basis the timing of the asset replacement is considered appropriate.

Telemetry equipment is required for the transmission of the water levels to SEQ Water central locations and for this information to be made continuously available to stakeholders via the internet. Seqwater has chosen a simple radio link (with battery back-up) to achieve this. Alternatives would include connection to a telephone landline (not yet available at Bromelton Weir) but this would be susceptible to washout during floods. Alternatively a microwave link could be used but this would require expensive towers to achieve the "line-of-sight" links needed for repeater stations.

SKM considered this method of telemetry selected by SEQ Water to be appropriate for the application.

The proposed works will be a relatively straightforward process involving like-for-like direct replacement of existing equipment with a system of similar capability.

SKM estimated a cost of $39,700 compared to Seqwater's estimate of $35,000, for each installation at Bromelton Weir. Overall, SKM considered the expenditure prudent and efficient.

In considering the application of the Bromelton Weir results to Clarendon Dam, SKM recommended that if Seqwater had followed the same process for other like projects, the findings may be applied.

Authority's Analysis

The Authority notes that the telemetry project for Clarendon Dam has the same cost and timing as for Bromelton Weir. The Authority accepts that the expenditure is prudent and efficient.

Item 11: Central Lockyer Valley Observation Bores

Seqwater

This renewals item is scheduled for 2019, 2024, 2029 and 2034 for a total cost of $200,000.

Other Stakeholders

No stakeholders commented on this item.

Consultant's Review

SKM reviewed similar proposed expenditure in the Lower Lockyer WSS. This project entailed expenditure of a total of $344,000 over the same time period as in Central Lockyer Valley.

The bores are used to monitor water levels in the aquifers and model the ground water within the relevant WSS areas. There is significant interaction between ground water and surface water in the area and forward planning regarding ground water entitlements is required to consider the impact on established surface water entitlements. The Ground Water Model owned and managed by the Queensland Department of Natural Resources and Mines (DNRM), is the means by which these impacts are assessed. The bores are read and the resulting data managed by the DNRM.

In the Lower Lockyer, the expenditure involved renewal of 43 observation bores, 11 bores every 5 years commencing in 2018-19. The observation bores in the Lower Lockyer Valley Water Supply Scheme were installed over a period of time. The renewal of the bores is

based on a standard useful asset life of 50 years and does not take into account condition of the bores.

In response to SKM's request for information, regarding the ownership of the bores and use of data, Seqwater stated that they agree that DNRM may be the appropriate owner of the bores, ground water extractions do impact surface water availability in the water supply scheme and that the information is not used operationally by Seqwater in the Lower Lockyer Valley Water Supply Scheme.

In summary, the renewal of the observation bores is not necessary to operate the Lower Lockyer Valley Water Supply Scheme and the project to replace the bores has been assessed as not prudent. SKM nonetheless reviewed the efficiency of the proposed expenditure. SKM's estimated cost per bore of $6,759 was lower but within a +/-30% range of Seqwater's estimate of $8,000 per bore.

In applying the results to Central Lockyer Valley WSS, SKM noted that Observation Boreholes are required under the Interim Resource Operations Licence. Given this, and on the basis of the available information, SKM considered that the proposed expenditure for the Central Lockyer Valley projects is prudent. Assuming that the same method was used to estimate costs, SKM considered that expenditure on observation bores in the Central Lockyer Valley WSS is both prudent and efficient.

Authority's Analysis

The Authority accepts that the expenditure is prudent and efficient.

Item 12: Air Valves - Lake Dyer

Seqwater

The renewals item is for the refurbishment of air valves at Lake Dyer in 2014 and 2034 at a total cost of $12,000.

Other Stakeholders

No other stakeholders provided comment regarding this item.

Consultant's Review

SKM reviewed proposed replacement costs for air valves in the Calico Creek channel and Pie Creek main channel in the Mary Valley WSS. This involved replacement of 26 air valves along an asbestos cement pipe to assist in protecting the pipe against collapse and to facilitate efficient operation, at a total cost of $269,000 in 2022-23. As this replacement project was of a different nature to the refurbishment of air valves at Lake Dyer, SKM considered that the findings could not be applied.

Authority's Analysis

The Authority accepts SKM's conclusion that there is insufficient information to assess the expenditure on Lake Dyer air valves and is treated as an unsampled project.

Item 13: Morton Vale Meter Replacements

Seqwater

Seqwater submitted that expenditure of $0 in 2013-14 to 2014-15, $119,000 in the 2015-16 to 2021-22 period and $42,000 in later years is required to replace water meters in the Morton Vale system.

Other Stakeholders

No other stakeholders made comment regarding this item.

Consultant's Review

SKM reviewed the metering requirements in the Central Lockyer Valley and Mary Valley WSSs. The results of this review were considered for application to Morton Vale. As noted above, SKM found replacement costs to be prudent but not efficient.

Based on the analysis as outlined above in Item 6, SKM recommended that meter replacement costs of $101,000 in the 2015-16 to 2021-22 period and $29,000 for later years should be included.

Authority's Analysis

The Authority accepts SKM's conclusions.

Item 14: Morton Vale Trash Screens

Seqwater

This renewals item is scheduled for 2015 at a cost of $18,000.

Other Stakeholders

No stakeholders commented on this item.

Consultant's Review

SKM considered whether it is appropriate to apply the conclusions in regard to Clarendon Diversion trash screens to the Morton Vale reticulation trash screens.

As both projects were refurbishment projects, and on the basis that Seqwater has followed a similar process in estimating costs, SKM considered it likely that the additional project could be deemed to be prudent and efficient.

Authority's Analysis

The Authority accepts SKM's recommendation that the Morton Vale reticulation trash screens expenditure is prudent and efficient.

Conclusion

Sampled Items

In summary, six items for the Central Lockyer were sampled for detailed review. Of these 5 were found to be prudent and efficient. Sampled items are listed in Table 4.24.

For another item (Item 6: Central Lockyer Valley Meter Replacement), although the findings of SKM's review were that the expenditure is only partially prudent, costs were considered efficient on a per meter basis. Accordingly, SKM's revised cost estimates have been adopted.

For Central Lockyer Valley, reviews of similar items in other schemes were considered to be applicable to a further 6 items (Item 7 to Item 12). Of these, 4 items were considered to be prudent and efficient on the basis of reviews of similar items in other schemes.

However, for two of these items (Clarendon Dam Earthworks Formation and Lake Dyer Air Valves) it was considered that the results could not be applied. These two items, therefore, are categorised as non-sampled items and subject to the appropriate implied cost saving (see below).

The findings for Item 6: Central Lockyer Valley Meter Replacement were considered applicable to Item 13: Morton Vale Meter Replacement. Accordingly, this item was considered partially prudent with SKM's revised cost estimates being adopted.

The findings for Item 14: Morton Vale Trash Screens was considered prudent and efficient on the basis of the results found for a similar item – that is, the prudent and efficient expenditure associated with the Clarendon Diversion trash screens.

Non-Sampled Forecast Renewals Expenditure

As discussed in Volume 1, the Authority did not review all past or forecast renewals expenditure for prudency and efficiency as Seqwater forecast total renewals expenditure of $56 million (about 500 forecast renewals projects), over the Authority's recommended 20-year planning period. It was therefore not practicable, nor desirable given the potential costs involved, to assess the prudency and efficiency of each planned expenditure item.

The direct (non-metering) forecast renewals cost savings identified by SKM are summarised in Table 4.23.

Table 4.23: Summary of SKM Findings on Forecast (Non-Metering) Renewals

Items Sampled	*Value (Real $'000)*	*Variance with SKM Estimate ($,000)*	*Portion of Costs Reviewed (%)*	*Average Saving Identified*
11	5,079	(652)	54	12.84

Source: SKM (2012). Notes: Number of items sampled excludes sampled items for which insufficient information was available to reach a conclusion.

The 11 forecast renewals items reviewed account for an average across the schemes of some 21% of the total forecast irrigation renewals expenditure being directly reviewed with SKM's findings also applying to similar asset, taking the sample size to in excess of 50%.

The reviews identified systematic errors in Seqwater's renewals expenditure forecasting approach. Hence, the Authority considers it likely that the non-sampled renewals expenditure proposed by Seqwater will be similarly overstated.

In summary, the net variance between Seqwater's initially submitted (non-metering) forecast renewals costs and the efficient SKM cost estimate of $0.65 million is the appropriate basis for the Authority's cost savings to be applied to non-sampled items.

The net variance of $0.65 million, expressed as a portion of Seqwater's initially submitted sampled forecast irrigation renewal expenditure of $5.08 million, results in a 12.8% (or 13%) implied cost saving that the Authority will apply to non-sampled items.

In total, the Authority recommends the direct renewals expenditure be adjusted as shown in Table 4.24**.**

Table 4.24: Review of Forecast (Direct) Renewals Expenditure 2013-17 (Real $)

	Item	*Year*	*Seqwater*	*Authority's Findings*	*Recommended*
Sampled Items – Central Lockyer Valley					
1.	Clarendon Dam Embankment - Riprap	2013-14 to 2018-19	312,000	Prudent and efficient	312,000
2.	Clarendon Diversion Control Equipment	2028-29	174,000	Prudent and efficient	174,000
3.	Gauging Stations	2022-23 &2032-33	120,000[1] (143,400)	Prudent and efficient	143,400
4.	Clarendon Diversion Access Road	2022-23	192,000[2] (193,850)	Prudent and efficient	193,850
5.	Clarendon Diversion Trash Screens	2014-15, thereafter 5-yearly	50,000	Prudent and efficient	50,000
6.	Meter Replacement	2013-14 to 2014-15	264,000	Prudent and efficient	264,000
		2015-16 to 2021-22	1,176,000	Partially Prudent	997,000
		2022-23 to 2035-36	490,000	Partially prudent	317,000
Results Applied from Other Reviews – Central Lockyer Valley					
7.	Clarendon Dam Earthworks Formation	2020	50,000	Results could not be applied to assess prudency or efficiency	43,500
8.	Clarendon Diversion Control Equipment	2029	137,000	Prudent and efficient	137,000
		2034	26,000	Prudent and efficient	26,000
9.	Clarendon (Dam and Diversion) – access roads and turnouts	various	129,000	Prudent and efficient	129,000
10.	Clarendon Dam Telemetry	2022 & 2032	70,000	Prudent and efficient	70,000
11.	Observation bores	2019, 2024, 2029 & 2034	200,000	Prudent and efficient	200,000

Item	Year	Seqwater	Authority's Findings	Recommended
12. Lake Dyer air valves	2014 & 2034	12,000	Results could not be applied to assess prudency or efficiency	10,440
Results Applied from Other Reviews – Morton Vale				
13. Meter Replacement	2015-16 to 2021-22	119,000	Partially prudent	101,000
	2022-23 to 2035-36	42,000	Partially prudent	29,000
14. Trash Screens	2015	18,000	Prudent and efficient	18,000
Non-Sampled Items				13% reduction applied

Source: QCA (2012). Notes: 1 . Seqwater initially submitted an amount of $120,000 but revised its estimate to $143,400. 2. Seqwater initially submitted an amount of $192,000 but later revised its estimate to $193,850.

4.4 Seqwater's Consultation with Customers and Reporting

Submissions

Seqwater

Seqwater made no submission in regard to stakeholder consultation.

Other Stakeholders

QFF (2012a) noted that although Seqwater has evaluated potential projects against criticality and other criteria, conducted workshops with local staff and site, and inspected sites, they [Seqwater] have yet to consult with irrigators about forecast renewals expenditures.

QFF (2012a) submitted that irrigators are concerned about the lack of consultation that has occurred since schemes were transferred to Seqwater in 2008-09 and considered that structured consultation will achieve scheme efficiencies. Irrigators are keen to consider costs associated with consultation options, such as comparing:

(a) Seqwater's current consultation agenda;

(b) the annual reporting of costs to irrigators only when there are significant variations in operating and renewals forecasts; and

(c) formal advisory committees being established (similar to SunWater's approach) with quarterly meetings.

Authority's Analysis

In Volume 1, the Authority noted customers' concerns about the lack of involvement in the planning of future renewals expenditure and that this has been raised by irrigators and their representatives. These concerns were generally expressed throughout Seqwater's WSSs.

The Authority recommended that there be a legislative requirement for SunWater to consult with its customers about any changes to its service standards and proposed renewals expenditure program. The Authority considers that this approach should also be adopted by Seqwater.

In addition, Seqwater should also be required to submit renewals expenditure programs to irrigators for comment whenever they are amended and that irrigators' comments be documented and published on Seqwater's website and provided to the Authority.

4.5 Allocation of Headworks Renewals Costs

Previous Review

For the 2006-11 price path, the renewals costs for the Central Lockyer Valley bulk water infrastructure were apportioned between priority groups using converted nominal water allocations. The conversion to medium priority WAE for the Central Lockyer Valley WSS was determined by a WPCF of 2.5:1; that is, one ML of high priority WAE was considered equivalent to 2.5 ML of medium priority WAE.

Stakeholder Submissions

Seqwater

Seqwater submitted that in the Central Lockyer Valley, there are four entitlement types (High, High A, High B and medium). It holds 184ML of high priority WAE in the form of distribution losses, while irrigators hold the vast majority of the remaining WAE. The 2006 pricing review treated all irrigation WAE types the same for pricing purposes – for example, the irrigation customer WAE totalled 16,372ML in the Tier 1 report for Central Lockyer Valley and Morton Vale Pipeline tariff groups. This is comparable to the 16,331ML set out in above.

In addition they noted that the 2006 review assigned 99.8% of costs to the irrigation sector, which effectively meant High A, High B and medium were treated the same. Seqwater has not proposed to move from the previous arrangement, particularly given the underlying resource management arrangements are yet to be set by DNRM codified in a final ROP. For example, water sharing rules are yet to be determined for the majority of WAE in the scheme, making any assessment of relative difference problematic.[1]

Seqwater submitted that the 184ML of High Priority WAE it holds is immaterial (1.1%) to the total WAE in the scheme, and Seqwater does not believe a Headworks Utilisation Factor (HUF) for the scheme is justified nor would add to the accuracy of the pricing outcomes. Instead, Seqwater proposed that nominal WAE % are applied in this scheme until such time as WAE are formalised, which means that non-Seqwater WAE holders account for 98.9% of lower bound costs.

Other Stakeholders

No other stakeholders have provided comment regarding this topic.

Authority's Analysis

The Authority notes that the Central Lockyer Valley WAE includes very little high priority WAE, the small volume of high priority WAE is for distribution losses in the Morton Vale

[1] Refer to the IROL, S2.5. http://www.derm.qld.gov.au/water/management/pdf/central_lockyer.pdf

Pipeline and that the ROP is yet to be finalised. The Morton Vale pipeline system is 100% irrigation.

On this basis, the application of a HUF methodology rather than a simple allocation according to WAE results in an immaterial difference. The Authority therefore proposes to allocate renewals costs on the basis of nominal WAE. The issue can be revisited once the ROP is completed and WAE finalised.

Under the proposed approach of allocating costs by WAE, medium priority irrigators will now pay 98.9% of the cost of renewals whereas previously medium priority irrigators paid 96.5%.

4.6 Calculating the Renewals Annuity

In Volume 1, the Authority recommends an indexed rolling annuity, calculated for each year of the 2013-17 regulatory period.

For the Central Lockyer Valley WSS the recommended renewals annuity for the 2013-17 regulatory period is shown in Table 4.25. The renewals annuity for 2006-13 and Seqwater's proposed annuity for 2013-17 is also presented for comparison.

It is noted that the renewals annuity for Morton Vale Pipeline is a negative value. This means that the interest earnings from the ARR are sufficient to offset renewals requirements, and the offset is applied to overall costs for the scheme.

Table 4.25: Central Lockyer Valley WSS Renewals Annuity (Nominal $)

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Central Lockyer Valley											
Seqwater (April NSP)	399,401	352,644	577,377	480,067	481,011	477,762	489,188	136,623	142,813	146,639	149,847
Seqwater (November NSP)	**71,097**	**66,003**	**85,741**	**83,396**	**85,644**	**81,202**	**83,239**	**300,481**	**304,505**	**306,616**	**308,303**
Authority											
High Priority	-	-	-	-	-	-	-	0	0	0	0
Medium Priority	-	-	-	-	-	-	-	208,981	211,687	211,941	211,644
Distribution Losses	-	-	-	-	-	-	-	1,345	1,372	1,371	1,363
Total Authority	-	-	-	-	-	-	-	**210,327**	**213,059**	**213,312**	**213,007**
Irrigation	-	-	-	-	-	-	-	**209,470**	**211,165**	**211,420**	**211,126**
Morton Vale Pipeline											
Seqwater, (April NSP)	292,553	261,005	393,856	338,632	268,869	323,302	358,467	(27,223)	(26,764)	(26,286)	(25,788)
Seqwater (November NSP)	**61,178**	**53,942**	**63,852**	**63,241**	**51,770**	**69,183**	**73,236**	**(84,557)**	**(84,528)**	**(84,497)**	**(84,464)**
Authority	-	-	-	-	-	-	-	**(20,085)**	**(19,714)**	**(19,344)**	**(18,975)**
Irrigation	-	-	-	-	-	-	-	**(20,085)**	**(19,714)**	**(19,344)**	**(18,975)**

Source: Actuals (Indec 2012) and Recommended (QCA 2012).

5. OPERATING COSTS

5.1 Background

Ministerial Direction

The Ministerial Direction requires the Authority to recommend a revenue stream that allows Seqwater to recover efficient operational, maintenance and administrative (that is, indirect and overhead) costs to ensure the continuing delivery of water services.

Issues

To determine Seqwater's allowable operating costs for 2013-17, the Authority considered the following:

(a) Seqwater's direct operating expenditure forecasting methodology;

(b) the prudency and efficiency of Seqwater's proposed direct and non-direct operating expenditures;

(c) appropriate allocation of non-direct operating costs to irrigation tariff groups;

(d) the appropriate method/s of allocating total (direct and non-direct) operating costs (for a tariff group) between different priority WAEs (where they exist);

(e) the most suitable cost escalation rates; and

(f) opportunities to improve Seqwater's budgeting and consultation with irrigators in relation to operating expenditure.

5.2 Historical Operating Costs

Previous Review 2006-11

The 2006-11 price paths were recommended by SunWater after consultation with irrigators during 2005-06. The Queensland Government subsequently approved those prices.

For the 2006-11 price paths, Indec identified annual cost savings of between $3.8 million and $5.5 million across all SunWater schemes (2010-11 dollars), or 7.5% to 9.9% of total annual costs, which were to be achieved during the 2006-11 price paths (SunWater, 2006a).

Submissions

Seqwater

Seqwater (2012a) submitted that, as it has not previously assigned components of operating expenditure (in particular non-direct costs) to irrigation schemes, it has not been possible to make a comparison between total forecast and historical operating expenditures.

Similarly, Seqwater considers that the lower bound cost benchmarks developed for the 2006 price review by SunWater are not directly comparable to Seqwater's historic costs or forecasts for the 2013-17 regulatory period. In particular, the published SunWater cost information:

(a) does not disaggregate operating costs for each tariff group within schemes where relevant - that is, Morton Vale Pipeline costs were incorporated into other scheme cost estimates and not separately identified;

(b) provides aggregate operations, maintenance and administration data, with no break down between direct and non-direct costs; and

(c) applies a productivity adjustment to proposed lower bound costs, but does not identify the adjustment applicable to operating expenditure.

Moreover, these lower bound costs were developed more than six years ago under very different conditions. Seqwater argues that, while comparisons with the 2006 benchmarks may be of interest where data is disaggregated, there is little value in attempting to explain departures from the 2006 data since Seqwater provided no input to these forecasts and did not have the financial systems to gather and report this data due to the circumstances surrounding its formation.

Other Stakeholders

There were no other stakeholder comments in respect of Seqwater's past cost efficiency from stakeholders in the Central Lockyer Valley WSS.

Authority's Analysis

The Authority acknowledges Seqwater's view that the lower bound cost benchmarks developed for the 2006 price review by SunWater are not directly comparable to Seqwater's forecasts for the current 2013-17 regulated price review. The Authority, nevertheless, considers that the relationship between the operating costs incurred by Seqwater in its irrigation schemes in more recent years and the derivation of its 2012-13 budgets should be explicitly analysed. In particular, the Authority noted the efficiency targets imposed by the Minister for Energy and Water Supply for the 2012-13 Grid Service Charges.

The lower bound cost benchmarks developed for the 2006 price review by SunWater are not directly comparable to either Seqwater's historic costs, or its 2012-13 budget and forecasts for the current 2013-17 regulated price review.

For information, historical forecast costs are provided in Table 5.1.

Table 5.1: Actual and Forecast Total Operating Expenditure Central Lockyer Valley WSS, 2006-11 ($ Nominal)

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*
Central Lockyer Valley					
Forecast	899,310	860,307	1,141,825	1,073,037	910,104
Actual	877,939	540,714	n.a.	n.a.	n.a.
Variance	(21,371)	(319,593)	n.a.	n.a.	n.a.
Morton Vale					
Forecast	48,415	46,315	61,471	57,768	48,996
Actual	48,678	31,202	n.a.	n.a.	n.a.
Variance	263	(15,113)	n.a.	n.a.	n.a.

Source: SunWater (2006b), Seqwater (2012s) and Seqwater (2012ba).

5.3 Forecast Total Operating Costs

Operating Cost Characteristics

Operating activities

Seqwater (2012a) advised that its operating activities include:

(a) scheduling and releasing bulk water from storages, surveillance of water levels and flow rates in water courses and quarterly meter reading;

(b) customer service and account management;

(c) operating and maintaining recreational facilities; and

(d) complying with:

  (i) requirements set out in the relevant IROLs, ROLs and ROPs;

  (ii) dam safety obligations including under the *Water Act 2000*;

  (iii) the *Environmental Protection Act 1994*; and

  (iv) land management, workplace health and safety and other reporting obligations.

Operating cost classifications

Seqwater defines its operating costs as either direct or non-direct. Direct costs are those directly attributed to particular irrigation schemes. Non-direct costs are those common to all schemes, and therefore need to be allocated to tariff groups using an appropriate cost allocator.

Direct Costs

Direct costs are those costs that have been budgeted at the individual asset level in the scheme and include:

(a) operations relating to the day-to-day costs of delivering water and meeting compliance obligations. Operations activities include:

  (i) dam operations, which relate to managing dams and weirs. It is the largest direct cost category and activities include providing information and services to customers, monitoring water flows, meeting regulatory requirements for compliance, safety, and flood management, and developing system operating plans for infrastructure; and

  (ii) group support and catchment management, which include delivering catchment maintenance services (including recreation areas) for operational assets. Activities include implementation of asset management plans and meeting compliance obligations (recreation services, public safety, catchment conservation);

(b) repairs and maintenance, which relate to maintaining assets that support irrigation water supply including:

  (i) scheduled maintenance generated by the corporate information system (CIS);

  (ii) planned maintenance, which comprises scheduled inspections and strategic maintenance; and

  (iii) reactive maintenance, which results from unplanned breakdowns.

  Seqwater has set a target ratio of 71:29 planned to unplanned maintenance in 2012-13, and this ratio has been applied for the forecast period. In this context, 'planned' includes scheduled and planned maintenance activities.

  Contractors deliver most maintenance activities. Contractors are generally selected from Seqwater's panel of providers and supervised by Seqwater staff. Seqwater currently employs 49 full-time contractors plus ad-hoc contractors depending on workload; and

(c) other (direct) costs including:

  (i) local government rates payable on Seqwater's land including storages. No rates are identified for Central Lockyer Valley WSS; and

  (ii) detailed dam safety inspections conducted every five years, in addition to the costs of routine (annual) dam safety inspections (included in operations expenditure).

Seqwater also disaggregates direct operations costs into the following cost types: labour, contractors and materials, and other.

(a) labour costs are the direct labour costs arising from budgeted operations activities for 2012-13 (base year). Total irrigation direct labour (for Seqwater employees) has been

submitted under the category 'direct operations costs'; however, in practice a small proportion of this 'operations' labour will be used for maintenance activities[2];

(b) contractors and materials costs are based on the quantities required in the work instructions for 2012-13; and

(c) other direct operations costs include plant and fleet hire, water quality monitoring and fixed energy costs.

Non-Direct Costs

Non-direct costs are classified by type of expenditure and comprise:

(a) water delivery costs of dam operations, infrastructure maintenance, environmental management and recreation and catchment maintenance services;

(b) asset delivery costs of project planning and managing the delivery of projects;

(c) corporate costs of business services, organisational development and the office of the CEO; including the costs of IT services, finance, procurement, legal and risk, governance and compliance activities; and

(d) other costs mainly associated with the North Quay facilities and flood control centres.

Seqwater categorises its other non-direct operating costs as follows:

(a) non-infrastructure costs of assets such as buildings, plant and equipment. Seqwater uses aggregate depreciation costs as a proxy for the costs associated with the use of these assets;

(b) insurance premium costs including industrial special risks, machinery breakdown, public liability, professional indemnity, contract works and directors and officers insurance; and

(c) a working capital allowance to provide for the economic cost arising from the timing difference between accounts receivable and accounts payable.

Forecast Operating Costs

Submissions

Seqwater

Seqwater submitted forecast total operating costs by activity in Central Lockyer Valley (all sectors) and Morton Vale Pipeline.

Seqwater submitted that it has adopted an approach to forecasting whereby operating expenditure is derived for a representative base year (2012-13) and escalated forward over each year of the regulatory period on the basis of predetermined escalation factors.

[2] Repairs and maintenance are budgeted as a separate line item, and exclude labour. Seqwater has minimised the manipulation of data from its financial system when presenting forecast costs. While there are shortcomings to this approach, Seqwater does not believe there is a material impact on prices, given the overall proportion of labour costs that relate to repairs and maintenance is small (on average, 3% across all schemes).

The 2012-13 year was adopted as the base year as it provides the best and most current representation of the costs required to deliver Seqwater's service standards and obligations during the regulatory period. Aggregate operating costs for 2012-13 (including costs associated with both grid and irrigation services but excluding costs associated with unregulated activities) were derived as part of Seqwater's 2012-13 grid service charges submission to the QCA. Seqwater has developed its 2012-13 budget on the basis of a zero base build-up, taking into account costs which could be reasonably anticipated at the time of budget development. In addition, the 2012-13 operating expenditure forecasts provided in the grid service charges submission have been previously reviewed by the QCA for prudency and efficiency.

Seqwater applied the following escalators to 2012-13 operating costs to derive forecasts for the regulatory period:

(a) direct labour, materials and contractors' costs and repairs and maintenance were escalated at 4% per annum over the regulatory period; and

(b) 'other' direct costs and all non-direct costs were escalated at forecast CPI (2.5% per annum).

Seqwater provided two versions of its Central Lockyer Valley WSS NSP that described both direct and non-direct budgeted operating costs for 2012-13. Specifically, Seqwater provided:

(a) an original version in April 2012; and

(b) a version in November 2012 with revised operating costs compiled in response to the Authority's review of Grid Service Charges, the Minister's subsequent decision regarding these charges and further analysis by Seqwater of bulk water costs.

Total operating costs outlined in the two NSPs have been compared (Table 5.1 and Table 5.2 refer).

These data show that Central Lockyer Valley WSS operating costs were significantly reduced in the November revision, while Morton Vale Pipeline costs were increased. This reflects a re-allocation of costs such as direct labour, materials and repairs and maintenance to the relevant scheme components. A major source of the discrepancy in the April NSP was the erroneous inclusion of Mt Crosby repairs and maintenance costs in the Central Lockyer Valley WSS. Details are provided in the Authority's review of sampled items (Item 1) below.

Table 5.2: Seqwater's Forecast Operating Costs for the 2012-13 Base Year – Central Lockyer Valley ($ Nominal)

	April NSP	*November NSP*	*Variance*
Direct Operating Costs			
Operations			
Labour	165,826	127,838	(37,988)
Contractors	0	0	0
Materials	42,270	12,126	(30,144)
Electricity	103,000	103,000	0
Other	1,000	1,000	0
Sub-total	312,096	243,964	(68,132)
Repairs and Maintenance			
Planned	308,549	108,829	(199,720)
Unplanned	126,027	44,451	(81,576)
Sub-total	434,576	153,280	(281,296)
Dam Safety	0	0	0
Rates	0	0	0
Total Direct Operating Costs	**746,672**	**397,244**	**(349,428)**
Non-Direct Operating Costs			
Operations			
Water Delivery	79,977	40,878	(39,100)
Asset Delivery	35,706	20,136	(15,570)
Corporate	285,744	126,225	(159,518)
Other	24,356	3,478	(20,877)
Sub-total	425,782	190,717	(235,065)
Non-Infrastructure	35,578	19,572	(16,006)
Insurance	161,263	142,721	(18,542)
Working Capital	11,617	11,617	0
Total Non-Direct Operating Costs	**634,240**	**364,627**	**(269,613)**
Total Operating Costs	**1,380,912**	**761,871**	**(619,041)**

Source: Seqwater (2012d) and Seqwater (2012am).

Table 5.3: Seqwater's Forecast Operating Costs for the 2012-13 Base Year – Morton Vale Pipeline ($ Nominal)

	April NSP	*November NSP*	*Variance*
Direct Operating Costs			
Operations			
Labour	23,996	42,917	18,921
Contractors	0	0	0
Materials	0	0	0
Electricity	0	0	0
Other	0	0	0
Sub-total	**23,996**	**42,917**	**18,921**
Repairs and Maintenance			
Planned	355	7,455	7,100
Unplanned	145	3,045	2,900
Sub-total	**500**	**10,500**	**10,000**
Dam Safety	0	0	0
Rates	0	0	0
Total Direct Operating Costs	**24,496**	**53,417**	**28,921**
Non-Direct Operating Costs			
Operations			
Water Delivery	2,624	5,497	2,873
Asset Delivery	1,171	2,708	1,536
Corporate	9,374	16,973	7,599
Other	799	468	(311)
Sub-total	**13,968**	**25,645**	**11,677**
Non-Infrastructure	1,167	2,632	1,465
Insurance	2,754	2,437	(317)
Working Capital	123	123	0
Total Non-Direct Operating Costs	**18,013**	**30,387**	**12,824**
Total Operating Costs	**42,508**	**84,254**	**41,746**

Source: Seqwater (2012d) and Seqwater(2012am).

Details submitted by Seqwater of the direct and non-direct operating expenditure forecasts for the Central Lockyer Valley and Morton Vale Pipeline by activity are provided in Tables 5.4 and 5.5 respectively, based on the November NSPs.

Table 5.4: Seqwater's Operating Expenditure by Activity – Central Lockyer Valley (Nominal $)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Direct					
Operations	243,964	252,163	260,650	269,437	278,535
Repairs and Maintenance	153,280	159,411	165,788	172,419	179,316
Dam Safety	0	0	26,266	0	27,595
Rates	0	0	0	0	0
Non-Direct					
Operations	190,717	195,485	200,372	205,381	210,516
Non-infrastructure	19,572	20,061	20,563	21,077	21,604
Insurance	142,721	146,289	149,946	153,695	157,537
Working Capital	11,617	11,907	12,205	12,510	12,823
Total	**761,871**	**785,316**	**835,790**	**834,520**	**887,926**

Source: Seqwater (2012am).

Table 5.5: Seqwater's Operating Expenditure by Activity – Morton Vale Pipeline (Nominal $)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Direct					
Operations	42,917	44,634	46,419	48,276	50,207
Repairs and Maintenance	10,500	10,920	11,357	11,811	12,284
Dam Safety	0	0	0	0	0
Rates	0	0	0	0	0
Non-Direct					
Operations	25,645	26,286	26,943	27,617	28,307
Non-infrastructure	2,632	2,698	2,765	2,834	2,905
Insurance	2,437	2,498	2,560	2,624	2,690
Working Capital	123	126	129	132	136
Total	**84,254**	**87,162**	**90,174**	**93,295**	**96,529**

Source: Seqwater (2012am).

The total operating costs by type are detailed in Table 5.6 for Central Lockyer Valley.

Table 5.6: Seqwater's Operating Costs by Type - Central Lockyer Valley (Nominal $)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Labour	127,838	132,952	138,270	143,800	149,552
Contractors and Materials	12,126	12,611	13,115	13,640	14,186
Electricity	103,000	105,575	108,214	110,920	113,693
Others	1,000	1,025	1,051	1,077	1,104
Planned Repairs and Maintenance	108,829	113,182	117,709	122,418	127,315
Unplanned Repairs and Maintenance	44,451	46,229	48,078	50,001	52,001
Dam Safety	0	0	26,266	0	27,595
Rates	0	0	0	0	0
Non-direct	364,627	373,743	383,086	392,663	402,480
Total	**761,871**	**785,316**	**835,790**	**834,520**	**887,926**

Source: Seqwater (2012aj) and Seqwater (2012am).

Operating costs by type for Morton Vale Pipeline are shown in Table 5.7.

Table 5.7: Seqwater's Operating Costs by Type – Morton Vale Pipeline ($ Nominal)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Labour	42,917	44,634	46,419	48,276	50,207
Contractors and Maintenance	0	0	0	0	0
Electricity	0	0	0	0	0
Others	0	0	0	0	0
Planned repairs and maintenance	7,455	7,753	8,063	8,386	8,721
Unplanned repairs and maintenance	3,045	3,167	3,293	3,425	3,562
Dam Safety	0	0	0	0	0
Rates	0	0	0	0	0
Non-direct	30,837	31,608	32,398	33,208	34,038
Total	**84,254**	**87,162**	**90,174**	**93,295**	**96,529**

Source: Seqwater (2012aj) and Seqwater (2012am).

Authority's Analysis

In Volume 1, the Authority concluded that given the changes that have occurred in recent years, it is reasonable for Seqwater to adopt zero-based budgeting for 2012-13 as the base year for 2013-17 forecast costs.

The Authority recommends that Seqwater upgrade its policies, procedures, and information systems for the budgeting, incurrence and management of operating costs in its irrigation sector. In particular, the gathering, recording, documentation and analysis of operating cost information relevant to Seqwater's irrigation sector needs to be improved.

The Authority also recommended that Seqwater improve its consultation and communication processes with irrigation customers in relation to the forecasting and incurrence of operating costs.

For the purposes of the analysis of the prudency of operating costs, the Authority has reviewed Seqwater's November revised NSP data.

5.4 Prudency and Efficiency of Direct Operating Expenditure

Introduction

Seqwater forecast its direct operating costs for the 2013-17 regulatory period by extrapolating 2012-13 (base year) budgeted expenditure across the 2013-17 regulatory period.

Accordingly, the Authority focused its review on 2012-13 budgeted operating expenditure and the method of extrapolation.

Stakeholder Submissions

Seqwater

Seqwater's submission provided details of the key cost components in direct operating costs.

Operations relates to the day-to-day costs of delivering water and meeting compliance obligations. The primary activities relate to dam operations and group support.

Dam operations must meet the regulatory requirements under various Acts including those relating to Dam Safety, Flood Management, ROPs, and providing sufficient water to meet standards of service.

Dam operations are relatively labour intensive and expenditure is driven by:

(a) providing efficient service to irrigation customers in terms of information and management and delivery of service;

(b) developing robust and acceptable systems to monitor water flows to manage water sources, floods and regulations;

(c) developing an effective and technically capable and resilient flood operations centre utilising systems of quality standards;

(d) improving data management to ensure compliance on a wide variety of water management areas;

(e) ensuring security and safety at our water sources is meeting regulatory and community standards; and

(f) developing system operating plans to ensure the efficiency and operation of dams, weirs, bores and other water sources.

Group support has responsibility for the development and delivery of recreation and catchment maintenance services for all operational assets. Group support ensures that asset management plans, processes, systems and practices are implemented in accordance with relevant regulatory requirements.

Seqwater has responsibility for the ongoing management and maintenance of recreation sites transferred from SunWater. The use of Seqwater assets for recreational purposes is secondary to Seqwater's main function of water supply and treatment. However, recreation facilities must be managed in a sustainable and environmentally responsible manner to ensure that Seqwater's core responsibilities and accountabilities are not adversely impacted.

The costs associated with catchment management activities (for water quality outcomes) are excluded from the lower bound cost base for irrigation.

Seqwater presented direct operations costs for the above activities in terms of the type of cost (that is, labour, contractors and materials, and "other"). Specifically:

(a) labour costs are derived on the basis of budgeted work in the scheme for 2012-13 and the related salary costs for routine activities. The costs represent all costs budgeted as employee costs for the scheme. In practice, a small proportion of this labour will be used for maintenance activities. Consistent with the current Enterprise Bargaining Agreement for Seqwater and the recommendation of the QCA in its draft SunWater

report, Seqwater has escalated internal labour costs at 4% per annum for the regulatory period 2013-14 to 2016-17;

(b) contractor and materials costs for 2012-13 are based on the quantities required in the work instructions for the scheme. As per the QCA's draft SunWater report, contractor and material costs have been escalated at 4% per annum for the regulatory period; and

(c) "other" direct operating costs incorporate a range of expenses including plant and fleet hire, water quality monitoring expenses and fixed energy costs. These costs have been escalated at forecast CPI for the regulatory period.

Seqwater submitted that repairs and maintenance is performed at the scheme in accordance with Seqwater's maintenance system. This system identifies the maintenance requirements for each asset, and then sets out a schedule for maintenance over the year(s) for that asset. In addition, maintenance requirements are developed through Facilities Asset Management Plans (FAMPs) and as a result of scheduled inspections.

There is also unplanned maintenance which is required in response to asset breakdown or failure, or where new information emerges about asset condition (e.g. via regular inspections). Expenditure on unplanned maintenance for 2012-13 is derived based on past experience.

Seqwater set a target ratio of 71:29 for planned maintenance to unplanned maintenance in 2012-13. This ratio has been applied for the forecast period.

Repairs and maintenance for 2012-13 has been escalated at 4% per annum over the regulatory period.

Routine dam safety inspections are carried out to identify and plan maintenance requirements and to provide information for management planning of water delivery assets. These costs are included in forecast operations expenditure.

In addition, more thorough periodic dam safety inspections are carried out on a 5 yearly basis. Costs associated with these inspections have been added to forecast direct operating expenditure in the year in which the expenditure is expected to be incurred. In the Lower Lockyer Valley WSS, Seqwater has allowed for inspection of Clarendon Dam in 2014-15 and Bill Gunn Dam in 2016-17.

Forecast direct operations costs by activity, as submitted in Seqwater's November 2012 NPSs, are provided in Table 5.8.

Table 5.8: Seqwater Direct Operating Expenditure (by Activity) - (Nominal $)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Central Lockyer Valley					
Operations	243,964	252,163	260,650	269,437	278,535
Repairs and Maintenance	153,280	159,411	165,788	172,419	179,316
Dam Safety	0	0	26,266	0	27,595
Rates	0	0	0	0	0
Total	**397,244**	**411,574**	**452,704**	**441,856**	**485,446**
Morton Vale Pipeline					
Operations	42,917	44,634	46,419	48,276	50,207
Repairs and Maintenance	10,500	10,920	11,357	11,811	12,284
Dam Safety	0	0	0	0	0
Rates	0	0	0	0	0
Total	**53,417**	**55,554**	**57,776**	**60,087**	**62,490**

Source: Seqwater (2012aj) and Seqwater (2012am).

Forecast direct operations costs by type are provided in Table 5.9.

Table 5.9: Seqwater Direct Operating Expenditure (by Type) – (Nominal $)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Central Lockyer Valley					
Labour	127,838	132,952	138,270	143,800	149,552
Contractors and Materials	12,126	12,611	13,115	13,640	14,186
Electricity	103,000	105,575	108,214	110,920	113,693
Other	1,000	1,025	1,051	1,077	1,104
Planned Repairs & Maintenance	108,829	113,182	117,709	122,418	127,315
Unplanned Repairs & Maintenance	44,451	46,229	48,078	50,001	52,001
Dam Safety	0	0	26,266	0	27,595
Rates	0	0	0	0	0
Total	**397,244**	**411,574**	**452,704**	**441,856**	**485,446**
Morton Vale Pipeline					
Labour	42,917	44,634	46,419	48,276	50,207
Contractors and Materials	0	0	0	0	0
Electricity	0	0	0	0	0
Other	0	0	0	0	0
Planned Repairs & Maintenance	7,455	7,753	8,063	8,386	8,721
Unplanned Repairs & Maintenance	3,045	3,167	3,293	3,425	3,562
Dam Safety	0	0	0	0	0
Rates	0	0	0	0	0
Total	**53,417**	**55,554**	**57,776**	**60,087**	**62,490**

Source: Seqwater (2012aj and 2012am).

Other Stakeholders

Stakeholder's comments regarding individual direct operating costs are outlined below under specific item reviews.

Authority's Analysis

The Authority engaged consultants SKM to review the prudency and efficiency of Seqwater's proposed direct operating expenditure for this scheme.

SKM reviewed a sample of items taking account of comments received from stakeholders in regard to specific cost categories for this scheme. The Authority's conclusions and views on cost escalation are also outlined below.

SKM's review of specific cost items for the Central Lockyer Valley WSS and the Authority's conclusions are outlined below in Items 1 and 2. Item 3 relates to direct labour costs in the Morton Vale distribution system.

Although SKM did not specifically review Seqwater's proposed electricity costs for Central Lockyer Valley, the Authority considers these costs require specific consideration[3]. Accordingly, they are included as Item 4.

Item 1: Planned Repairs and Maintenance – Central Lockyer Valley

Stakeholder Submissions

Seqwater

Forecast planned repairs and maintenance costs for 2013-14 were determined by Seqwater by escalating the 2012-13 maintenance budget by a factor of 4%.

In its initial NSP, Seqwater estimated a 2012-13 cost of $309,000, which escalated to 2013-14 was $321,000. Seqwater subsequently identified that the opex budget for Mount Crosby had erroneously been included in the cost breakdown in place of Clarendon Dam opex budget.

Identification of this error resulted in Seqwater revising the opex budget for Central Lockyer Valley repairs and maintenance to $120,700 in 2012-13 and $125,000 in 2013-14. By comparison, actual costs were $98,000 in 2011-12 and $121,000 in 2010-11.

In its November 2012 revised NSPs, Seqwater revised the 2012-13 cost estimate further to $108,800. However, SKM's analysis was initially based on the previous forecasts.

Other Stakeholders

In Round 1 consultations, irrigators queried why maintenance costs were so high in Central Lockyer Valley, particularly why they are higher than operational costs. Irrigators sought a breakdown of maintenance costs, noting the 'low maintenance' nature of the scheme.

QFF submitted that Central Lockyer Valley maintenance costs seem high noting that a significant portion of supply is from natural flows with little due to releases from storages.

L Brimblecombe (2012) also noted that the maintenance costs seemed high at $436,000 (including unplanned maintenance) given that it is a modern facility with no formal delivery system (other than the Morton Vale Pipeline which has separately identified costs).

Consultant's Review

Item Description

Planned maintenance is referred to as scheduled or planned maintenance in Seqwater documentation. Scheduled maintenance refers to periodic maintenance scheduled in advance while planned maintenance is maintenance undertaken to improve the condition of an asset that is operational or work arising from safety audits, environmental; audits or process improvements.

[3] When reviewing proposed operating expenditure of Materials and Other for Central Brisbane River, Lower Lockyer Valley and Warrill Valley WSSs, consideration was also given to Seqwater's proposed electricity costs.

In response to SKM's request for information (RFI015) the following breakdown of costs was provided by Seqwater:

(a) Bill Gunn Dam, R&M Planned - $18,000;

(b) Clarendon Dam, R&M Planned - $11,000;

(c) Clarendon WPS, R&M Planned - $9,000;

(d) Clarendon Weir, R&M Planned - $1,000;

(e) Bill Gunn Dam, R&M Planned - $9,000

(f) Clarendon Dam, R&M Planned - $26,000;

(g) Central Lockyer Valley Irrigation Scheme, R&M Planned - $22,000;

(h) Bill Gunn Dam, R&M Planned - $15,000; and

(i) Clarendon Dam, R&M Planned - $18,000.

Documentation Provided

The documents used for this review were:

(a) Information Request Response, RFI015, Central Lockyer Valley WSS, Repairs & Maintenance – Planned, Seqwater, 14/08/2012;

(b) Operational Cost Report for 2012-13, Seqwater;

(c) Opex – Irrigation Updated YTD.xls, Seqwater; and

(d) MMW Panel User Manual.

Initial information provided by Seqwater outlined the location of planned maintenance, method for budget calculation and workforce.

Additional information requested from Seqwater for this review included:

(a) expenditure for dam maintenance in previous years; and

(b) rates for the old contractor panel and the MMW Panel User Guide.

The requested documents were provided by Seqwater and have been taken into account in this assessment.

Prudency

Operating the Central Lockyer Valley Water Supply Scheme, and achieving compliance in practice with legislation (such as dam safety obligations), requires Seqwater to properly repair and maintain the assets that it owns and operates.

The repairs and maintenance required to operate the Central Lockyer Valley Water Supply Scheme or tariff group predominantly relate to ensuring the ongoing operation and reliability of assets such as Bill Gunn and Clarendon Dams (including the catchments and the

recreation areas associated with these dams), the Clarendon Weir and the Clarendon Water Pump Station. As such SKM determined that this expenditure is prudent.

Efficiency

SKM noted that the planned portion of the maintenance budget was calculated through applying a ratio of 71:29 to split maintenance costs between planned and unplanned maintenance.

As demonstrated in Table 5.10 below, forecasting the average historical repairs and maintenance – planned expenditure for the Central Lockyer Valley WSS provides 2012-13 and 2013-14 costs of $113,880 and $118,435 respectively. These values are lower than budget forecasts listed in the revised operating expenditure budget by 6% and 5.5% for 2012-13 and 2013-14 respectively.

Table 5.10: Summary of Repairs and Maintenance – Unplanned Expenditure

Year	*Historical / Forecast*	*Unplanned Maintenance Cost*	*Source*
2010-11[a]	Historical	$120,748	Opex – Irrigation Updated YTD
2011-12[a]	Historical	$98,084	Opex – Irrigation Updated YTD
2012-13[b]	Forecast	$113,880	Opex – Irrigation Updated YTD
2013-14[b]	Forecast	$118,435	Opex – Irrigation Updated YTD
2012-13	Forecast	$120,700	Revised opex budget
2013-14	Forecast	$125,000	Revised opex budget

[a] *Average 2010-11 to 2011-12 historical spend is $109,500*

[b] *Calculated by escalating average historical spend*

Source: SKM (2012).

Seqwater's budget was developed utilising baseline data contained in the Operational Cost Report for 2012-13 that was submitted during the Authority's review of Seqwater's Grid Service Charges for 2012-13. The application of a 4% escalation factor to previous budgets was considered by SKM to be potentially on the high side, considering the Reserve Bank of Australia's inflation target of 2-3%.

In interviews Seqwater staff stated that planned and reactive budgets are based on historical spends. The supplied information supports this statement, albeit with minor variations as detailed above. As such, SKM concluded that the method of cost calculation utilised by Seqwater in determining the budget for planned maintenance for the Central Lockyer Valley Water Supply Service represents the most appropriate method for budget development, as it is based on historical expenditure. Costs were therefore assessed by SKM as being efficient.

Delivery of Service

Planned maintenance is delivered through a panel of providers. Each of Seqwater's operational regions has a panel of four contractors, who have been selected through an expression of interest process for each work classification including electrical, mechanical,

instrumentation, control system pipeline and civil. During interviews Seqwater personnel stated that contractors were appointed in accordance with the State Procurement Policy.

The previous panel agreement ran from 2009 until 2012, whilst the new panel runs from 2012 for a period of two years, with an option for extending the panel for a further one or two year period. The new panel contains efficiencies over the previous panels including removing the allowance for contractor to charge for travel time and providing short term and long term rates.

Panel rates from the W1 and W2 regions in Central Lockyer Valley were provided by Seqwater to SKM for comparison to market rates (see below).

It must be noted that during the merger of water entities, Seqwater inherited from Brisbane City Council a number of personnel and facilities required to complete maintenance for the Somerset and Wivenhoe dams. These personnel and facilities are utilised in completing maintenance, resulting in an approximately 80% of maintenance being completed in-house, with the remainder 20% being completed by contractors. Currently Seqwater is assessing the efficiency of this method for completion of maintenance.

The results of this assessment would be of interest in future assessments of the efficiency of the method for undertaking maintenance. Conversely, SKM has been advised during interviews held with Seqwater staff that in Lower Lockyer Valley, 80% of maintenance is contracted out and only 20% is undertaken in house. As such SKM has restricted its analysis to the major component of contracted labour as it is unlikely that any inefficiencies in costs for maintenance carried out in house is likely to significantly impact on overall costs.

Notwithstanding the above, the use of panel contractors to complete maintenance, in particular with consideration of the new panel agreement, is considered by SKM to be efficient.

Market Conditions

The expression of interest process used by Seqwater in engaging contractors resulted in 106 expressions of interest across all regions. The number of contractor responses, in addition to the procurement method consistent with the State Procurement Policy has ensured that current market conditions are accurately reflected in contractor rates.

The panel agreements include short term and long term rates. Seqwater personnel stated that the driver behind long term rates was to realise the benefits of offering continual work. SKM considered that the inclusion of long term and short term rates in the panel agreement will result in efficiency gains being realised.

Rawlinsons Australian Construction Handbook 2011 identifies contractor charge out rates for Brisbane including:

(a) electrician: $83 - $88

(a) mechanical services: $75 - $88

(b) instrumentation: $83 - $88

(c) plumber: $77 - $82

While the contractor charge out rates identified in Rawlinsons are not available for all Seqwater categories of contractor, enough information was available to provide a comparison. For long term rates, Seqwater contractor rates are within the rates listed in

Rawlinsons with the exception of W2 instrumentation and W2 pipeline, and a number are lower.

Seqwater's short term rates are generally higher than those listed in Rawlinsons which is not unreasonable given that Rawlinsons' rates are based on a 38 hour working week, and assumes the rate 'assumes a negotiated rate' which 'should not be confused with the usually much higher rate charged for non-contract works'. For the purposes of this exercise, SKM considers that comparison with rates for Brisbane is appropriate given that any locational influence on rates as contractors may apply for working in the Lockyer Valley is likely to increase rather than decrease these rates. SKM therefore considered Seqwater's maintenance panel contractor rates efficient.

SKM has not been provided with information on the times taken by contractors for individual activities or projects, and therefore is not able to comment on a sample basis of the appropriateness of time taken to complete work. However, SKM has reviewed the processes undertaken by Seqwater in engaging and reviewing the activities of contractors, and has also noted the trend in historic costs for contractor activities in planned maintenance. From this, SKM considers the time taken by contractors to be efficient in the main, and are therefore comfortable that the review processes adopted by Seqwater captures and removes unreasonable contractor charges.

SKM's estimators consider the panel rates appropriate when contrasted to SKM's database for such costs. In their assessment, SKM's estimators considered the geographical location of the assets being maintained, the method of procurement, and terms and conditions of the rates, including removal of allowance for contractors to charge travel time.

SKM's estimators additionally considered the utilisation of Brisbane contractor rates as a benchmark for rates of contractors in the Lower Lockyer region. It was found that although a minor premium may be expected due to the distance from Brisbane, Lower Lockyer Valley rates should be comparable to Brisbane's due to the proximity of major regional centres of Ipswich and Toowoomba, in addition to Brisbane. Further, SKM's estimator identified the competitive tender process in addition to removal of allowance to charge for travel time as being likely to negate any premium otherwise charged by the contractor for the work location.

In the absence of sufficient information to provide this benchmarking, it is necessary to examine unit rates and past expenditure. The unit rates applied to contractors who perform planned maintenance are efficient, as contractors have been selected through a competitive tender process.

Benchmarking forecast budget expenditure against historical expenditure demonstrates that Seqwater's current repairs and maintenance is similar, though slightly higher, than the historical expenditure for Central Lockyer Valley.

Conclusion

SKM concluded that the operating expenditure item is prudent as the need for the expenditure has been demonstrated.

The operating expenditure is assessed efficient as the scope is appropriate, the operating expenditure in support of regulated service delivery is consistent with industry practice and the costs are consistent with prevailing market conditions.

Authority's Analysis

In response to QFF and other stakeholder comments, the Authority notes that these submissions were made on the basis of erroneous initial estimates made in Seqwater's original NSPs. The revised estimates are in line with stakeholder expectations, that is, are much lower than comparable operations costs in the same scheme.

The Authority notes that SKM's conclusions that repairs and maintenance costs be included at $125,000 for 2013-14.

Since SKM's analysis, Seqwater revised the cost forecast for 2012-13 to $108,800. The Authority has therefore adopted the revised lower forecast for 2012-13. Escalation is discussed below.

Item 2: Unplanned Repairs and Maintenance – Central Lockyer Valley

Stakeholder Submissions

Seqwater

Forecast unplanned repairs and maintenance costs for 2013-14 were determined by Seqwater by escalating the 2012-13 maintenance budget by a factor of 4%.

In its initial NSP, Seqwater estimated a 2012-13 cost of $126,000, which escalated to 2013-14 was $131,000. Seqwater subsequently identified that the opex budget for Mount Crosby had erroneously been included in the cost breakdown in place of Clarendon Dam opex budget.

Identification of this error resulted in Seqwater revising the opex budget for Central Lockyer Valley repairs and maintenance to $49,300 in 2012-13 and $51,000 in 2013-14. By comparison, the cost was $49,000 in 2011-12 and $40,000 in 2010-11.

In its November revised NSP, Seqwater revised the 2012-13 forecast for unplanned repairs and maintenance to $44,400.

Other Stakeholders

In Round 1 consultations, irrigators queried why maintenance costs were so high in Central Lockyer Valley - particularly why they are higher than operational costs. Irrigators sought a breakdown of maintenance costs, noting the 'low maintenance' nature of the scheme.

QFF (2012) submitted that Central Lockyer Valley maintenance costs seem high noting that a significant portion of supply is from natural flows with little due to releases from storages.

L Brimblecombe (2012) also noted that the maintenance costs seemed high at $436,000 (including planned maintenance) given that it is a modern facility with no formal delivery system (other than Morton Vale Pipeline which has separately identified costs).

Consultant's Review

Item Description

Unplanned maintenance is referred to as reactive maintenance in Seqwater documentation, and refers to maintenance that is undertaken to reinstate the operation or performance of an asset that has ceased to operate or perform as designed.

In response to Information Request RFI016 the below breakdown of costs was provided to SKM:

(a) Bill Gunn Dam, R&M Un-Planned Only: $8,000;

(b) Clarendon Dam, R&M Un-Planned Only: $4,000;

(c) Clarendon WPS, R&M Un-Planned Only: $4,000;

(d) Clarendon Weir, R&M Un-Planned Only: <$1,000;

(e) Bill Gunn Dam, R&M Un-Planned Only: $4,000;

(f) Clarendon Dam, R&M Un-Planned Only: $11,000;

(g) Central Lockyer Valley Irrigation Scheme, R&M Un-Planned Only: $9,000;

(h) Bill Gunn Dam, R&M Un-Planned Only: $5,000; and

(i) Clarendon Dam, R&M Un-Planned Only: $8,000.

Documentation Provided

The documents used for this review were:

(a) Information Request Response, RFI016, Central Lockyer Valley WSS, Repairs & Maintenance – Unplanned, Seqwater, 14/08/2012;

(b) Operational Cost Report for 2012-13, Seqwater;

(c) opex – Irrigation Updated YTD.xls, Seqwater; and

(d) MMW Panel User Manual.

Initial information provided by Seqwater outlined the location of unplanned maintenance, method for budget calculation and workforce. Additional information requested from Seqwater for this review included:

(a) expenditure for dam maintenance in previous years; and

(b) rates for the old contractor panel and the MMW Panel User Guide.

Prudency

Operating the water supply schemes or tariff group, and achieving compliance in practice with legislation (such as dam safety obligations), requires Seqwater to properly repair and maintain the assets that it owns and operates.

The repairs and maintenance required to operate the Central Lockyer Valley WSS predominantly relate to ensuring the ongoing operation and reliability of assets such as Bill Gunn and Clarendon Dams including the catchments and the recreation areas associated with these dams, the Clarendon Weir and the Clarendon Water Pump Station.

Consequently the operating expenditure item has been assessed as prudent.

Efficiency

SKM noted that the planned portion of the maintenance budget was calculated through applying a ratio of 71:29 to split maintenance costs between planned and unplanned maintenance.

In the spreadsheet 'Opex – Irrigation Updated YTD', the total 2012-13 repairs and maintenance budget for Central Lockyer Valley is $153,279, while the actual spend for 2010-11 was $170,068 and for 2011-12 was $138,146. Using Seqwater's allocation of 29% of maintenance as unplanned maintenance, the actual unplanned maintenance spends can be calculated as $49,320 in 2010-11 and $40,063 in 2011-12.

As demonstrated in Table 5.11, forecasting the average historical repairs and maintenance – unplanned expenditure for the Central Lockyer Valley provides 2012-13 and 2013-14 cost of $46,479 and $48,338 respectively. These values are lower than the budget forecasts listed in the revised opex budget by 6% and 5.5 % for 2012-13 and 2013-14 respectively.

Table 5.11: Summary of Unplanned Repairs and Maintenance Costs

Year	*Historical / Forecast*	*Unplanned Maintenance cost*	*Notes*	*Source*
2010-11	Historical	$49,320	Average 2010-11 to 2011-12 historical spend is $44,492	Opex – Irrigation Updated YTD
2011-12	Historical	$40,063		Opex – Irrigation Updated YTD
2012-13	Forecast	$46,479	Calculated by escalating average historical spend	Opex – Irrigation Updated YTD
2013-14	Forecast	$48,338	Calculated by escalating average historical spend	Opex – Irrigation Updated YTD
2012-13	Forecast	$49,300		Revised opex budget
2013-14	Forecast	$51,000		Revised opex budget

Source: SKM (2012).

In determining the 2013-14 budget for planned maintenance, Seqwater applied a 4% escalation to the 2012-13 budget. The budget was developed utilising baseline data contained in the Operational Cost Report for 2012-13 that was submitted during the Authorities review of Seqwater's Grid Service Charges for 2012-13. The application of a 4% escalation factor to previous budgets was considered by SKM to be potentially on the high side, considering the Reserve Bank of Australia's inflation target of 2-3%.

In interviews, Seqwater staff stated that planned and reactive budgets are based on historical expenditure. The supplied information supports this statement, albeit with minor variations as detailed above. As such, SKM has concluded that the method of cost calculation utilised by Seqwater in determining the budget for planned maintenance for the Central Lockyer Valley represents the most appropriate method for budget development, as it is based on historical expenditure. Costs are therefore assessed by SKM as being efficient.

Delivery of Service

Unplanned maintenance is delivered through a panel of providers. Each of Seqwater's operational regions has a panel of four contractors, who have been selected through an

expression of interest process for each work classification including electrical, mechanical, instrumentation, control system pipeline and civil. Seqwater personnel stated that contractors were appointed in accordance with the State Procurement Policy. The previous panel agreement ran from 2009 until 2012, whilst the new panel runs from 2012 for a period of two years, with an option for extending the panel for a further one or two year period. The new panel contains efficiencies over the previous panels including removing the allowance for contractor to charge for travel time and providing short term and long term rates.

Specific to Central Lockyer Valley are the W1 and W2 regions, panel rates ($/hr). These rates were provided to SKM for market testing.

It must be noted that during the merger of water entities, Seqwater inherited from Brisbane City Council a number of personnel and facilities required to complete maintenance for the Somerset and Wivenhoe dams. These personnel and facilities are utilised in completing maintenance, resulting in an approximately 80% of maintenance being completed in-house, with the remainder 20% being completed by contractors. Currently Seqwater is assessing the efficiency of this method for completion of maintenance. The results of this assessment would be of interest in future assessments of the efficiency of method of completing maintenance.

Notwithstanding the above, the use of panel contractors to complete maintenance, in particular with consideration of the new panel agreement, is considered by SKM to be efficient.

Market conditions

The expression of interest process used by Seqwater in engaging contractors resulted in 106 expressions of interest across all regions. The number of contractor responses, in addition to the procurement method consistent with the State Procurement Policy has ensured that current market conditions are accurately reflected in contractor rates.

The panel agreements include short term and long term rates. During interviews, Seqwater personnel stated that the driver behind long term rates was to realise the benefits of offering continual work. As demonstrated in Table 128, panel contractors generally provided both short term and long term rates.

Through the inclusion of long term and short term rates in the panel agreement Seqwater has ensured that efficiencies are available for maintenance by providing continual employment to contractors. However, given the uncertainty associated with unplanned maintenance activities, it is unclear whether these efficiencies are being realised, or able to be realised in unplanned maintenance.

Benchmarking

Rawlinsons Australian Construction Handbook 2011 identifies hourly contractor charge out rates for Brisbane including:

(a) electrician: $83 - $88;

(b) mechanical services: $75 - $88;

(c) instrumentation: $83 - $88; and

(d) plumber: $77 - $82.

While the contractor charge out rates identified in Rawlinsons are not available for all Seqwater categories of contractor, enough information is available to provide a comparison. For long term rates, Seqwater contractor rates are within the rates listed in Rawlinsons with the exception of W2 instrumentation and W2 pipeline, and a number are lower.

Seqwater's short term rates are generally higher than those listed in Rawlinsons which is not unreasonable given that Rawlinsons' rates are based on a 38 hour working week, and assumes the rate 'assumes a negotiated rate' which 'should not be confused with the usually much higher rate charged for non-contract works'. SKM therefore considers Seqwater's maintenance panel contractor rates efficient.

SKM has not been provided with information on the times taken by contractors for individual activities or projects, and therefore is not able to comment on a sample basis of the appropriateness of time taken to complete work. However, SKM has reviewed the processes undertake by Seqwater in engaging and reviewing the activities of contractors, and has also noted the trend in historic costs for contractor activities in planned maintenance. From this, SKM considers the time taken by contractors to be efficient in the main, and SKM is assured that the review processes adopted by Seqwater captures and removes unreasonable contractor charges.

SKM's estimators consider the panel rates appropriate when contrasted to SKM's database for such costs. In their assessment, SKM's estimators considered the geographical location of the assets being maintained, the method of procurement, and terms and conditions of the rates, including removal of allowance for contractors to charge travel time.

SKM's estimators additionally considered the utilisation of Brisbane contractor rates as a Benchmark for rates of contractors in the Lower Lockyer region. It was found that although a minor premium may be expected due to the distance from Brisbane, Lower Lockyer Valley rates should be comparable to Brisbane's due to the proximity of major regional centres of Ipswich and Toowoomba, in addition to Brisbane. Further, SKM's estimator identified the competitive tender process in addition to removal of allowance to charge for travel time as being likely to negate any premium otherwise charged by the contractor for the work location.

Due to the nature of costs associated with unplanned maintenance budgets, in that they are unknown until they occur, it is not possible to benchmark the costs of unplanned maintenance against other unplanned maintenance costs. Additionally, as Seqwater applies the same split between planned and unplanned maintenance costs it is difficult to benchmark between Seqwater assets. In the absence of sufficient information to provide this benchmarking, it is necessary to examine unit rates and past expenditure. The unit rates applied to contractors who perform unplanned maintenance are considered to be efficient, as contractors have been selected through a competitive tender process.

Benchmarking forecast budget expenditure against historical expenditure demonstrates that Seqwater's current unplanned maintenance budget is similar, though slightly higher, than the historical expenditure for the Central Lockyer Valley Water Supply Scheme.

Conclusion

The operating expenditure item is assessed as prudent as the need for the expenditure has been demonstrated.

The operating expenditure is assessed efficient as the scope is appropriate, the operating expenditure in support of regulated service delivery is consistent with industry practice and the costs are consistent with prevailing market conditions

Authority's Analysis

In response to QFF and other stakeholder comments, the Authority notes that these submissions were made on the basis of erroneous initial estimates made in Seqwater's original NSPs. The revised estimates are in line with stakeholder expectations, that is, are much lower than comparable operations costs in the same scheme.

The Authority notes that SKM's conclusions that repairs and maintenance costs be included at $51,000 for 2013-14.

However, Seqwater in its November 2012 NSPs revised the 2012-13 forecast to $44,400. The Authority has therefore adopted the lower forecast.

Item 3: Direct Labour - Morton Vale Pipeline

Stakeholder Submissions

Seqwater

Seqwater submitted that the budgeted direct labour costs of $23,996 for 2012-13 are proposed to be escalated forwards by a factor of 4%, resulting in an estimate of $24,956 in 2013-14.

Seqwater subsequently revised this estimate to $43,000 for 2012-13. Details of the revision which followed queries by SKM are detailed below.

Other Stakeholders

QFF (2012) submitted that Morton Vale Pipeline direct labour costs appear high.

Consultant's Review

The labour resources required to operate the Morton Vale Distribution System mainly relate to the operation of Morton Vale Water Main (Pipeline) System.

Provided documentation

The documents used for this review are:

(a) Seqwater, 2013-14 Irrigation Pricing, Submission to the Queensland Competition Authority, July 2012;

(b) Seqwater, Central Lockyer Valley Water Supply Scheme, Network Service Plan;

(c) Seqwater, Information Request Response – QCA Irrigation Price Review 2013-17, RFI 021, Morton Vale WSS, Operations – Direct Labour, 14 Aug 2012;

(d) Seqwater, Budget 2012-13, Salaries and Wages, Dam Operations;

(e) Seqwater, Opex – Irrigation Updated YTD.xlsx; and

(f) Seqwater, Opex – Irrigation Salaries Queries.xlsx

Prudency

The Morton Vale Pipeline System is required to meet water ownership and water use legislation and water information reporting requirements. Consequently the operating expenditure item is seen as prudent.

Efficiency

Seqwater's operating cost projections of labour are not based on any water demand cost drivers but are rather based on the 2012-13 budget. In SKM's view, basing the labour forecast cost on a previous budget is not satisfactory as actual costs may vary significantly from budget. SKM recommends that forecast costs be based on actual incurred costs taking into account trends exhibited by recent actual expenditure, changes in working practices and changes in assets being operated and maintained. Accordingly, additional information relating to actual historical expenditure was sought by SKM.

In response to SKM's request for information, Seqwater provided historical and budgeted costs covering the period between 2009-10 and 2012-13. This is shown in Table 5.12.

Table 5.12: Morton Vale Historical Direct Labour Costs

	2008-09 Actual	*2009-10 Actual*	*2010-11 Actual*	*2011-12 Actual*	*2012-13 Budget*
Employee Costs	2,782	1,111	2,167	813	23,996

Source: SKM (2012).

Seqwater indicated to SKM that the budget is set on the basis of the time operators would normally be expected to spend on Morton Vale Pipeline. Whilst the actual expenditure will be different each year, the average over the price path is expected to be consistent. SKM suggested that this will only explain some of the differences seen in Seqwater's 2012-14 budget rather than the almost 30 fold increase between 2011-12 actual expenditure and the 2013-14 budget. SKM noted that over the last three years, the maximum actual expenditure is less than $2,800 (2008-09). Over the last four years, average actual expenditure does not approach anywhere close to the budget for 2012-13.

SKM also sought from Seqwater information regarding the estimated quantity of FTEs assigned to the assets.

Seqwater provided details of the two staff – a Scheme Supervisor and Operator, and the salary and on-costs allocated to Morton Vale Pipeline, to give the total of $23,996. However, there is no information of the time that has been allocated to this pipeline or the rates of the resources allocated.

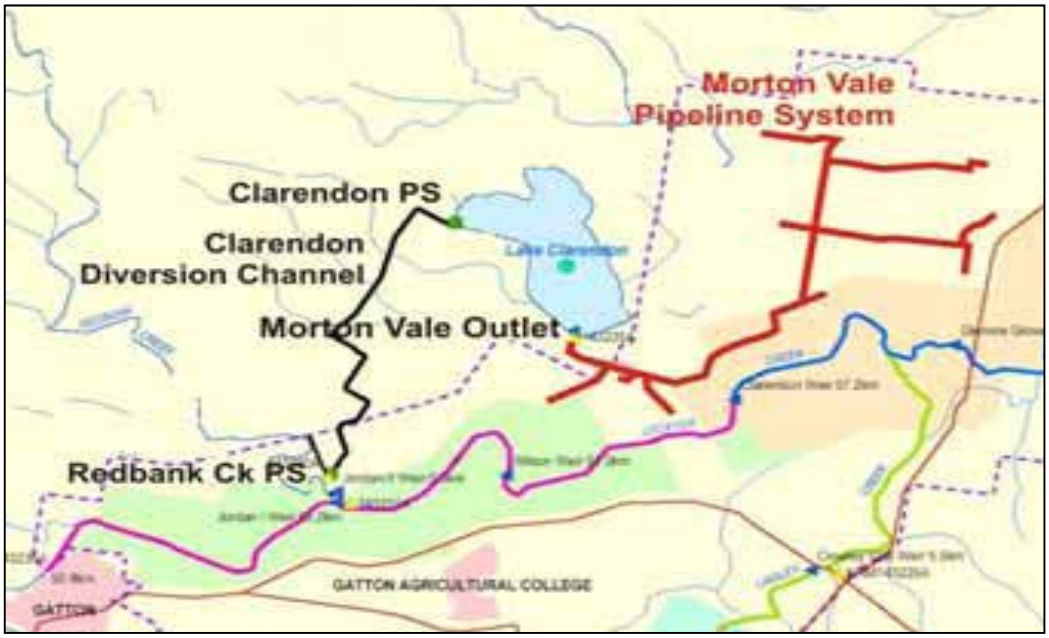
Seqwater indicated to SKM that the historical expenditure reported for the Morton Vale Distribution System is not accurate and does not include much of the actual expenditure incurred on the system. This is because the times spent by Seqwater's staff at this system had been allocated to other areas.

SKM found that while historical costs had been allocated to the Central Lockyer Valley system, extracting the Morton Vale Pipeline portion of these costs was not possible as the data did not separately identify Morton Vale Pipeline as the location of any of these costs. SKM then sought to assess the likely work required for the system.

The Morton Vale Pipeline Distribution System consists of 15.5 km of concrete and PVC pipes that diminish in diameter as the distance from the supply source increases. The design

of the system aims to provide a minimum residual head at the customer's offtake point of 1m and an equivalent flow rate of 0.75 L/s/ha. Figure 5.1 shows the configuration of the system.

Figure 5.1: Morton Vale Pipeline System



Source: Seqwater (2012am).

The main activities relating to the Morton Vale Pipeline system require operators to:

(a) manage enquiries from farmers;

(b) monitor the system to ensure that the environment is free from weed and to read the meters;

(c) conduct meter readings every quarter. There are approximately 50 active meters and work activities also includes checking the associated air valves and isolating valves;

(d) undertake surveillance of the pipeline which requires driving the length of the pipeline to monitor flows into the pipeline and leaks in the pipeline. This activity also entails checks on the various valves including -

  (i) 42 air values

  (ii) 13 scour valves; and

  (iii) 14 isolating valve.

(e) inspect air valves for leaks; and

(f) conduct monthly checks on the equipment and generator at the Clarendon Dam outlet. Every quarter, an electrical contractor is also engaged to conduct a safety check.

As part of this re-assessment of costs, Seqwater has increased its proposed allocation of labour cost to the Morton Vale Distribution System to $43,322 (from $24,996). This is based on an allocation of 0.4FTE to this system.

SKM held a number of discussions with various Seqwater staff in relation to the activities at the Morton Vale Distribution System. They established that the monthly activities of pipeline inspection and equipment checks at the Clarendon Dam outlet would require about 1 week of the operator's time. This would include the time required to spray weeds in the vicinity of the pipeline equipment. Occasionally the Scheme Supervisor will also be required in attendance as the work for occupation health and safety reasons would need at least two people to be present (eg when a test run on the generator is conducted or when other heavy equipment is tested).

The quarterly exercise of meter reading requires between 2.5 to 3 days including the time required for the submission of data. This may include engagement with farmers and the checking that the meter and associated equipment are in good functioning order.

Based on these discussions, SKM concurred with Seqwater that the time allocated to Morton Vale Distribution System is appropriate.

SKM also inquired about the need for overtime at the Morton Vale Distribution System. They established that there is little requirement for overtime at this scheme perhaps only 2 to 3 times a year of weekend work if a leak is identified during the week end that requires urgent correction. As a result, SKM considered that the overtime and allowances assigned to the Morton Vale System is over estimated.

Assuming three events requiring overtime occurs at the scheme, SKM estimated that an allocation of approximately $1,500 per year is sufficient. While SKM acknowledged that as the pipeline gets older, such overtime events are likely to increase. For the next two years, SKM did not see this increase occurring to an extent beyond the 3 events allowed for. Accordingly, SKM recommended the revised 2012-13 budget of $36,000 for the Morton Vale Distribution System labour cost shown.

Details of the revised forecasts and SKM's estimate are provided below in Table 5.13.

Table 5.13: Seqwater's Revised 2012-13 Labour Cost Budget and SKM's Estimate

Position Description	*Allocation*	*Seqwater's Estimate - Salaries & Wages ($)*	*SKM Estimate – Salaries & Wages($)*
Scheme Supervisor	10%	10,026	10,026
Operator	30%	24,493	24,493
Overtime and allowances		8,803	1,500
Total (2012-13)		**43,322**	**36,019**

Source: SKM (2012).

To justify this cost forecast, Seqwater will be required to collect and supply sufficient historical information that will provide a level of assurance that the forecasts are reasonable. Seqwater is unable to do this at this stage.

SKM Conclusion

The operating expenditure item is assessed as prudent as the need for the expenditure has been demonstrated.

SKM estimated a revised 2012-13 forecast of $36,000, which was 17% lower than Seqwater's revised forecast.

Authority's Analysis

The Authority accepts SKM's recommendation in regard to the 2012-13 estimate of $36,000.

Item 4: Electricity – Central Lockyer Valley

This item was not specifically reviewed by SKM

Stakeholder Submissions

Seqwater

Seqwater (2012a) refers to electricity costs in the context of risk – that is, the requirement (as prescribed by the ROP) of Seqwater to pump water into off-stream storages when certain thresholds are met. Seqwater submit that, for example, during recent flooding Seqwater was required to pump water which led to electricity pumping costs as high as $27,000 a month at the Lake Clarendon off stream storage compared to a monthly average cost of approximately $2,000 in the previous two years.

In Central Lockyer Valley WSS, Seqwater forecast pumping costs for Clarendon Dam are based on pumping 50% of the Dam's capacity each year. The total electricity cost to completely fill Clarendon Dam was $188,000 across 2010-11 and 2011-12. Allowing for electricity price increases (and assuming only 50% of the dam's volume is pumped) Seqwater forecast electricity costs of $103,000 in 2012-13.

Given the difficulties associated with forecasting electricity costs, Seqwater proposed that electricity costs be escalated by CPI (2.5%) for the regulatory period (from 2013-14) with adjustment required to account for actual costs at the end of the regulatory period. To manage this risk, Seqwater propose to maintain a running balance across the regulatory period and apply revenue neutral 'unders and overs' adjustments for the next regulatory period to account for the difference between forecast and actual costs.

Seqwater (2012g) proposed the following fixed electricity costs:

Table 5.14: Seqwater's Proposed Fixed Electricity Costs - 2012-13

Tarrif Group	*April NSP*	*November NSP*
Central Lockyer Valley	$103,000	$103,000
Moreton Vale Pipeline	0	0
Total	**$103,000**	**$103,000**

Source: Seqwater (2012d) and Seqwater (2012am)

Other Stakeholders

No other stakeholders have commented on this matter.

Authority's Analysis

As outlined in Volume 1, the Authority notes that electricity is a relatively small cost overall for Seqwater's irrigation activities.

SKM has not directly reviewed electricity costs in the Central Lockyer Valley WSS. However, SKM reviewed electricity costs as part of a review of 'materials and other' operating cost items in Central Brisbane River WSS (Wivenhoe Dam operations) and Lower Lockyer Valley WSS (Atkinson Dam operations).

In these scheme reviews, SKM noted that electricity is supplied externally. The budget for 2013-14 was determined by escalating the 2010-11 historical spend. During the 2012-13 Grid Service Charges review SKM assessed electricity costs as prudent and efficient. Providing that the method of obtaining electricity has not changed since the 2012-13 Grid Service Charges review, SKM considered electricity costs efficient. (SKM 2012)

SKM noted that the electricity prices may be underestimated in the 2013-14 budget, given the approximately 10% increase in energy costs arising from the implementation of the Carbon Tax. In the Authority's review of Grid Service Charges, the amount for the carbon tax was to be included as a cost pass-through or an end-of period adjustment.

Seqwater received advice from the Queensland Government to discontinue all existing state-based carbon reduction schemes to ensure agencies were not subject to overlapping of State and Federal obligations when the carbon tax was introduced on 1 July 2012. Seqwater removed the costs associated with the purchase of green energy from forecast operating expenditure.

Accordingly, the Authority concludes that Seqwater's proposed electricity expenditure to be prudent and efficient and will not apply a reduction to Seqwater's proposed costs. However, the Authority proposes to allocate the estimated total electricity cost between fixed and volumetric charges on an appropriate basis (Chapter 6).

In the event that electricity costs vary from those forecast, the Authority recommends that any material variations to forecasts will only be considered as part of an end of period adjustment .

Conclusion

Sampled Operating Expenditure

For sampled items, the Authority has adopted:

(a) a revised planned repairs and maintenance budget for Central Lockyer Valley for 2012-13 of $108,800, as submitted by Seqwater in its revised November 2012 NSP. This estimate is lower than the efficient cost recommended by SKM of $121,000;

(b) a revised unplanned repairs and maintenance budget for Central Lockyer Valley for 2012-13 of $44,400 as submitted by Seqwater in its revised November 2012 NSP. This estimate is lower than the efficient cost recommended by SKM of $49,000; and

(c) a revised direct labour budget for Morton Vale Pipeline of $36,000 for 2012-13 (representing a 16% reduction compared to Seqwater's subsequent November proposal).

The Authority also accepts Seqwater's proposed electricity costs of $103,000 for 2012-13.

Unsampled Operating Expenditure

For unsampled items, as outlined in Volume 1 the Authority reviewed in detail approximately 55% of proposed direct operating expenditure for prudency and efficiency. At issue is how to address scheme specific direct operating expenditure not reviewed in

detail. Accordingly, the Authority drew upon the results of the SKM review which identified an average saving across all sampled operating cost items.

As outlined in Volume 1, the Authority considered there was merit in applying an average, uniform saving to unsampled direct operating expenditure (excluding electricity and rates) of 4.9%[4] (or 5% rounded).

Based on this methodology, the Authority's recommended direct operating expenditure is outlined below (Table 5.15 refers).

Table 5.15: Review of Budgeted 2012-13 Direct Operating Expenditure (Nominal $'000)

	Seqwater (April NSP)	*Seqwater (November NSP)*	*Authority's Recommended*
Sampled Item			
Item 1: Planned Repairs & Maintenance - Central Lockyer Valley	309	109	109
Item 2: Unplanned Repairs & Maintenance – Central Lockyer Valley	126	44	44
Item 3: Direct Labour – Morton Vale Pipeline	24	43	36
Item 4: Electricity	0	103	103
Unsampled Items			
Other Direct Operating Costs – Central Lockyer Valley	-	-	5% saving to apply
Other Direct Operating Costs – Morton Vale Pipeline	-	-	5% saving to apply

Source: SKM (2012), Seqwater (2012d) and Seqwater (2012am) and QCA (2012).

In addition to the efficiency adjustments for the 2012-13 year, the Authority also considers it appropriate to reduce forecast direct operating costs by a further 1.5% per annum in real terms as a general productivity gain, applied cumulatively for each of the 4 years of the regulatory period (2013-14 to 2016-17). Details are provided in Volume 1.

Cost Information Issues

Seqwater (2012aj) submitted that the April NSPs did not properly allocate direct operating costs between related tariff groups due to overlaps in certain operational areas. That is, Central Lockyer WSS is linked to the Morton Vale Pipeline tariff group.

Seqwater did not initially accurately allocate costs to each tariff group. Seqwater budgets, in the absence of economic regulation and therefore the apparent need to allocate costs

[4] Although the average saving indentified from sampled items was 15.53%, the Authority chose not to include a large reduction in Repairs & Maintenance costs in the Central Lockyer WSS that were included in the original sample in error.

carefully for irrigation pricing purposes, had previously been developed more generally for an operational area.

The Authority's irrigation review has caused Seqwater to substantially revise its forecast operating costs in these tariff groups.

Seqwater's revised direct labour costs are presented in Table 5.16.

Table 5.16: Direct Labour Costs – Central Lockyer Valley Operational Area ($2012-13)

Tariff Group	*April Seqwater Forecast*	*Revised Seqwater Forecast*	*Change in Seqwater Forecast*	*SKM Final Estimate*	*QCA Recommendation*	*QCA Variation to April*
Central Lockyer Valley (Unsampled)	166,000	128,000	(38,000)	n.a.	121,600	(5%)
Morton Vale Pipeline (Sampled)	24,000	43,000	19,000	36,000	36,000	50%
Total	**190,000**	**171,000**	**(19,000)**	**n.a.**	**157,600**	**(17%)**

Source: QCA (2012).

Table 5.16 shows that Seqwater reduced the overall costs in the Central Lockyer WSS operational area by $19,000. Of these, the Authority will reduce the Central Lockyer Valley tariff group's 2012-13 revised labour cost forecast of $128,000 by 5% as it is unsampled. (The Authority has adopted SKM's final estimate for Morton Vale Pipeline.)

Seqwater (2012aj) submitted that similar cost allocation issues had arisen for repairs and maintenance costs submitted in April in for the Central Lockyer Valley WSS operational area. Table 5.17 refers.

Table 5.17: Repairs and Maintenance Costs – Central Lockyer Valley Operational Area ($2012-13)

Tariff Group	*April Seqwater Forecast*	*Revised Seqwater Forecast*	*Change in Seqwater Forecast*	*SKM Final Estimate*	*QCA Recommendation*	*QCA Variation to April*
Central Lockyer Valley (Sampled)	435,000	153,000	282,000	170,000	153,000	(65%)
Morton Vale Pipeline (Unsampled)	500	10,500	10,000	n.a.	9,975	1895%
Total	**435,500**	**163,500**	**272,000**	**n.a.**	**162,975**	**(63%)**

Source: QCA (2012).

Table 5.17 also shows that Seqwater's revisions (after April) reduced the overall costs in the Central Lockyer Valley WSS operational area by $272,000. Of these, the Authority will adopt a forecast cost of $153,000 for the Central Lockyer Valley bulk tariff group on the basis that this is Seqwater's revised estimate. This departs from SKM's final estimate of $170,000 but accords with Seqwater's most recent submission.

Seqwater (2012aj) submitted that the forecast repairs and maintenance budget for Morton Vale Pipeline had been inadvertently included in the related Central Lockyer Valley tariff group forecast (rather than specifically attributed to the Morton Vale Pipeline tariff group).

The Authority considers that it is reasonable for Seqwater to reallocate $10,000 of repairs and maintenance costs from the Central Lockyer Valley bulk tariff group to the Morton Vale Pipeline tariff group as submitted by Seqwater. As this item was not reviewed by SKM (due to its relative immateriality), the Authority has reduced the $10,500 now allocated to the Morton Vale Pipeline by the Authority's 5% generic cost reduction applied to unsampled operating costs.

Cost Escalation

Seqwater

Seqwater proposed that where its costs rise in line with inflation, it has adopted the mid-point of the Reserve Bank of Australia's (RBA's) target range for consumer price inflation at the time of its submission, being 2.5% per annum.

For direct labour costs, Seqwater proposed an annual increase of 4% over the 2013-17 period. This aligned with the Authority's SunWater recommendations and was in line with historic growth in labour cost indices over the past 5 to 10 years.

Similarly, Seqwater proposed a 4% escalation for materials and contractors costs, also consistent with the SunWater report and growth in relevant ABS construction cost indices over the last 10 years.

Seqwater submitted that electricity costs comprise only a small proportion of total operating costs of the irrigation water supply schemes and are difficult to forecast.

Seqwater proposed that electricity costs associated with the assumed pumping in the 2012-13 budget be escalated by inflation (2.5%) for the regulatory period (from 2013-14) with a proposed settlement at the end of the regulatory period to reflect the actual electricity costs incurred.

Seqwater has proposed that other direct operating cost categories (that is, other than direct labour and contractors & materials) and all non-direct costs, be escalated from the 2012-13 base year in line with inflation.

Authority's Analysis

The Authority's analysis of cost escalation is detailed in Volume 1.

The Authority recommends that for the regulatory period 2013-17:

(a) the costs of direct and non-direct labour and contractors should be escalated by 3.6% per annum (rather than 4% proposed by Seqwater);

(b) the costs of direct materials should be escalated by 4% per annum;

(c) other direct and non-direct costs should be escalated by 2.5% per annum; and

(d) electricity should be escalated by 2.5% per annum. However, should Seqwater sustain material electricity cost changes above the escalated level, consideration should be given to an application by Seqwater to the Authority for an end-of-period adjustment.

Summary of Direct Operating Costs

A comparison of Seqwater's and the Authority's direct operating costs for the Central Lockyer Valley and Morton Vale Pipeline are set out in Table 5.18.

The Authority's estimates of planned and unplanned repairs and maintenance costs are adjusted to conform with Seqwater's proposed 71:29 ratio between planned and unplanned components. Total costs are consistent with the efficient level of costs identified above.

In Table 5.18, electricity costs are incorporated into the operations category.

The Authority's proposed costs include all specific adjustments and the Authority's proposed cost escalations as noted above.

Table 5.18: Direct Operating Costs (Nominal $)

	Seqwater				*Authority*			
	2013-14	***2014-15***	***2015-16***	***2016-17***	***2013-14***	***2014-15***	***2015-16***	***2016-17***
Central Lockyer Valley								
Operations	252,163	260,650	269,437	278,535	242,948	248,414	253,970	259,616
Repairs and maintenance	159,411	165,788	172,419	179,316	157,020	160,814	164,660	168,557
Dam Safety	0	26,266	0	27,595	0	24,204	0	24,643
Rates	0	0	0	0	0	0	0	0
Total	**411,574**	**452,704**	**441,856**	**485,446**	**399,968**	**433,432**	**418,630**	**452,816**
Morton Vale Pipeline								
Operations	44,634	46,419	48,276	50,207	36,756	37,499	38,248	39,003
Repairs and maintenance	10,920	11,357	11,811	12,284	10,218	10,465	10,716	10,969
Dam Safety	0	0	0	0	0	0	0	0
Rates	0	0	0	0	0	0	0	0
Total	**55,554**	**57,776**	**60,087**	**62,490**	**46,974**	**47,964**	**48,964**	**49,972**

Source: Seqwater (2012am) and QCA (2012).

5.5 Prudency and Efficiency of Non-Direct Operating Costs

Introduction

Seqwater (2012a) advised that all non-direct costs were assigned to operating expenditure as it does not have sufficiently disaggregated data at the renewals project level for it to allocate non-direct costs to individual renewals projects.

The prudency and efficiency of Seqwater's overall non-direct costs were reviewed for the Authority by SKM previously as part of the 2012-13 grid services charges (GSC) review.

For this investigation, Seqwater made adjustments to the aggregate non-direct cost estimates submitted to the Authority's GSC investigation to exclude costs not relevant to the provision of irrigation services. The costs remaining after these adjustments were made were then allocated to irrigation tariff groups using the total direct costs as the cost allocator (Volume 1).

Previous Review

As noted above, in the previous review, Indec reviewed SunWater's non-direct costs for 2006-11. Non-direct costs were allocated to schemes on the basis of total direct costs.

Stakeholders

Seqwater

Seqwater submitted that non-direct costs for 2012-13 were derived at the aggregate level for all schemes and allocated to individual schemes based on the proportion of direct costs attributable to the individual scheme. These costs were then escalated forward to derive forecast non-direct costs for the regulatory period.

In brief, Seqwater forecast non-direct costs by deriving the costs for a representative base year (2012-13) and escalating forward over each year of the regulatory period by the CPI, estimated to be 2.5% per annum.

Seqwater proposed that the total direct costs (DCs) of each scheme be used to allocate non-direct costs, except for insurance premium costs which are allocated on the basis of asset replacement values.

Total non-direct costs and those allocated to Central Lockyer Valley and Morton Vale Pipeline are outlined below in Table 5.19**.**

Table 5.19: Seqwater's Actual and Proposed Total Non-Direct Costs (Nominal $'000)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Seqwater	9,479	9,716	9,959	10,208	10,463
Central Lockyer Valley	365	374	383	393	402
Morton Vale Pipeline	31	32	32	33	34

Source: Seqwater (2012aj) and Seqwater (2012am).

As noted in Volume 1, Seqwater initially submitted non-direct forecasts in April 2012. Seqwater subsequently revised these forecasts in November 2012 following the Authority's review of Grid Service Charges, the Minister's subsequent decision regarding this review and further analysis by Seqwater of bulk water costs.

As comparison of the alternative estimates for the Central Lockyer Valley WSS is provided below for non-direct operations costs (Table 5.20 and Table 5.21 refer).

Table 5.20: Non-Direct Operations Costs – Central Lockyer Valley, 2012-13 Forecasts ($ Nominal)

	April NSP	*November NSP*	*Variance ($)*	*Variance (%)*
Water Delivery	79,977	40,878	(39,100)	(49%)
Asset Delivery	35,706	20,136	(15,570)	(44%)
Business Services	197,388	81,702	(115,686)	(59%)
Organisational Development	80,436	38,465	(41,971)	(52%)
Executive	7,920	6,059	(1,861)	(24%)
Other	24,356	3,478	(20,877)	(86%)
Total Operations Non-Direct	**425,782**	**190,717**	**(235,065)**	**(55%)**

Source: Seqwater (2012d and Seqwater (20-12am)

Table 5.21: Non-Direct Operations Costs – Morton Vale Pipeline, 2012-13 Forecasts ($ Nominal)

	April NSP	*November NSP*	*Variance ($)*	*Variance (%)*
Water Delivery	2,624	5,497	2,873	109
Asset Delivery	1,171	2,708	1,536	131
Business Services	6,476	10,986	4,511	70
Organisational Development	2,639	5,172	2,533	96
Executive	260	815	555	214
Other	799	468	(331)	(41)
Total Operations Non-Direct	**13,968**	**25,645**	**11,677**	**84**

Source: Seqwater (2012a).

Corporate functions have been defined as comprising the office of the CEO and the Organisational Development and Business Services group. Corporate costs represent almost half the non-direct operating costs allocated to irrigation schemes in 2012-13.

The major component of corporate costs relates to Information, Communication and Technology (ICT). The major functions involved ICT relate to services support, database administration, monitoring and maintenance of various servers and network infrastructure, demand management, application management, strategy maintenance and development, business analysis and subject matter expert advice.

Seqwater's submitted non-direct operating costs for the Central Lockyer Valley WSS are detailed in Table 5.22 and Table 5.23 below (November 2012 NSP).

Table 5.22: Seqwater's Forecast Total Non-Direct Costs - Central Lockyer Valley ($ Nominal)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Operations					
Water Delivery	40,878	41,900	42,947	44,021	45,121
Asset Delivery	20,136	20,639	21,155	21,684	22,226
Business Services	81,702	83,744	85,838	87,984	90,184
Organisational Development	38,465	39,426	40,412	41,422	42,458
CEO	6,059	6,210	6,366	6,525	6,688
Other	3,478	3,565	3,654	3,746	3,839
Sub - Total Operations	**190,717**	**195,485**	**200,372**	**205,381**	**210,516**
Non-Infrastructure Assets	**19,572**	**20,061**	**20,563**	**21,077**	**21,604**
Insurance	**142,721**	**146,289**	**149,946**	**153,695**	**157,537**
Working Capital	**11,617**	**11,907**	**12,205**	**12,510**	**12,823**
Total	**364,627**	**373,743**	**383,086**	**392,663**	**402,480**

Source: Seqwater (2012aj and 2012am).

Table 5.23: Seqwater's Forecast Total Non-Direct Costs, Morton Vale Pipeline ($ Nominal)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Operations					
Water Delivery	5,497	5,634	5,775	5,919	6,067
Asset Delivery	2,708	2,775	2,845	2,916	2,989
Business Services	10,986	11,261	11,543	11,831	12,127
Organisational Development	5,172	5,302	5,434	5,570	5,709
CEO	815	835	856	877	899
Other	468	479	491	504	516
Sub - Total Operations	**25,645**	**26,287**	**26,944**	**27,617**	**28,308**
Non-Infrastructure Assets	**2,632**	**2,698**	**2,765**	**2,834**	**2,905**
Insurance	**2,437**	**2,498**	**2,560**	**2,624**	**2,690**
Working Capital	**123**	**126**	**129**	**132**	**136**
Total	**30,837**	**31,608**	**32,399**	**33,209**	**34,039**

Source: Seqwater (2012aj) and Seqwater (2012am).

In addition to operations related non-direct costs, Seqwater identified costs associated with the use of non-infrastructure assets, insurance and working capital.

Central Lockyer Valley and Morton Vale Pipeline utilise a range of non-infrastructure assets (buildings and plant and equipment). Although these assets are not included in the renewals expenditure forecasts, it is necessary for costs associated with the use of these assets to be attributed to the WSS. Seqwater has used depreciation costs as a proxy for the cost associated with use of these assets. However, these depreciation costs are not captured for the WSS. Accordingly, aggregate non-infrastructure depreciation for 2012-13 has been allocated to facilities on the basis of direct costs and escalated forward over the forecast period.

Seqwater's annual insurance premium cost for 2012-13 is forecast at $6.2 million. The major components to the premium include industrial special risks, machinery breakdown, public liability, professional indemnity, contract works and directors and officers insurance.

Seqwater is in the process of replacing insurances, and propose to update this forecast once new premiums are set.

Seqwater has allocated its 2012-13 premium to Central Lockyer Valley and Morton Vale Pipeline using the replacement value of scheme assets. These values have been escalated by CPI to determine a premium for each year of the forecast period.

In regard to working capital, Seqwater indicated that the QCA has already adopted a methodology for calculating Seqwater's working capital in Grid Service Charges. Seqwater

has calculated the working capital allowance using this methodology and the values submitted to the QCA for 2012-13, at $5.538 million.

Seqwater has allocated a portion of this working capital allowance to Central Lockyer Valley and Morton Vale Pipeline on the basis of revenue attributable to the WSS. The 2012-13 working capital allowance has then been escalated by CPI to provide a forecast for each year of the regulatory period.

Seqwater proposed that all non-direct costs be escalated from the 2012-13 base year in line with its estimate of inflation, based on the mid-point of the Reserve Bank of Australia's (RBA's) target range for consumer price inflation at the time of its submission, being 2.5% per annum.

Other Stakeholders

During Round 1 consultation, irrigators commented that non-direct costs appear high. QFF (2012) and Brimblecombe (2012) queried why non-direct costs were so high particularly as they exceed non-direct operations costs.

Authority's Analysis

The Authority (QCA 2012b) assessed Seqwater's non-direct operating costs as part of its 2012-13 GSC Review. That review concluded that Seqwater's operating costs (including non-direct costs) should be reduced by 2.5% to reflect a general efficiency gain.

The Government subsequently increased the general efficiency gain to 3.0% and removed Seqwater's proposed recruitment of 62.5 Full Time Equivalents (FTEs) for vacant and new positions, both to apply to the 2012-13 year.

Seqwater (2012aj) has taken these adjustments into account in its revised submission to the Authority. As these costs have been approved by Government, the Authority does not propose a further reduction for 2012-13. However, as the implications of the merger are currently being considered by Government, further adjustments to the Authority's estimates of non-direct costs may be necessary for the Final Report.

The Authority notes that Seqwater adjusted its aggregate non-direct costs to exclude those costs not relevant to the provision of irrigation services, including costs associated with technical warranty and development, water treatment operations including catchment and water quality management, and costs associated with planning and policy for major non-irrigation capital projects. The Authority accepts these adjustments, noting that specific cost attribution may remain problematic in some cases.

In addition to the above adjustments for the 2012-13 year, the Authority also considers it appropriate to apply a productivity adjustment to the established efficient cost base for 2012-13 for anticipated future efficiency gains brought about by technological, organisational, and operational improvements in service delivery. The Authority recommends a reduction in forecast non-direct operating costs by a further 1.5% per annum in real terms as a general productivity gain, applied cumulatively for each of the 4 years of the regulatory period (2013-14 to 2016-17).

In regard to working capital, the largest portion of irrigators' payments to Seqwater arises from fixed Part A and C charges paid in advance, whereas GSC charges are paid in arrears. This means that, for irrigation activities, Seqwater would not suffer an economic cost resulting from the timing difference between receivables and payables. Seqwater was requested to provide further substantiation of its proposal. However, as further evidence was

not forthcoming, the Authority has not incorporated a working capital allowance is justified in this instance.

The Authority accepts Seqwater's proposed escalation of 2.5% per year for 2013-17 for non-direct costs.

In response stakeholder comment that non-direct costs appear excessive (particularly as they appear to exceed direct costs), the Authority notes that in fact, non-direct costs are lower than direct costs. Further, the Authority proposes to apply efficiency gains over the 4-year regulatory period.

The Authority's recommended level of non-direct costs to be recovered from the Central Lockyer and Morton Vale Pipeline (from all customers) is set out in Table 5.24. The allocation of these costs between high and medium priority customers is discussed below.

Table 5.24: Recommended Non-Direct Costs (Nominal $)

	Seqwater				*Authority*			
	2013-14	***2014-15***	***2015-16***	***2016-17***	***2013-14***	***2014-15***	***2015-16***	***2016-17***
Central Lockyer Valley								
Non-Direct Operations	195,485	200,372	205,381	210,516	191,607	194,444	197,276	200,100
Non-Infrastructure	20,061	20,563	21,077	21,604	19,528	19,711	19,891	20,068
Insurance	146,289	149,946	153,695	157,537	144,095	145,448	146,779	148,085
Working Capital	11,907	12,205	12,510	12,823	0	0	0	0
Total	**373,743**	**383,086**	**392,663**	**402,480**	**355,229**	**359,603**	**363,946**	**368,253**
Morton Vale Pipeline								
Non-Direct Operations	26,286	26,943	27,617	28,307	22,547	22,881	23,215	23,547
Non-Infrastructure	2,698	2,765	2,834	2,905	2,298	2,320	2,341	2,362
Insurance	2,498	2,560	2,624	2,690	2,461	2,484	2,507	2,529
Working Capital	126	129	132	136	0	0	0	0
Total	**31,608**	**32,398**	**33,208**	**34,038**	**27,306**	**27,685**	**28,062**	**28,437**

Source: Seqwater (2012am).

5.6 Allocation of Non-Direct Costs

It is necessary to determine the method to allocate non-direct costs across Seqwater's business, including irrigation tariff groups. By definition, non-direct costs do not directly apply to specific activities within schemes, and thereby cannot be allocated according to their relevance to individual service contract activities.

Seqwater's submissions describe a two stage process for cost assignment:

(a) Stage 1 – Seqwater attributes its directs costs to the tariff groups in which they are incurred, and allocates its non-direct costs to tariff groups using the preferred cost allocation methodology for this stage; and

(b) Stage 2 – Seqwater allocates all of the fixed costs assigned to tariff groups in Stage 1 above (which at this point include direct and non-direct costs), between medium and high priority WAE within each tariff groups using the preferred cost allocation methodology for this stage.

Stage 1 - Allocation of Costs to Tariff Groups

Stakeholder Submissions

Seqwater

Seqwater (2012a) proposed to allocate non-direct costs to tariff groups using total direct costs (TDC) (with the exception of insurance premium costs and working capital) because:

(a) TDC represents a reasonable driver of the non-direct operating costs of Seqwater's irrigation activities;

(b) it is relatively simple to administer, identify and extract from the reporting system;

(c) it allows regular comparison between forecast and actual outcomes, and to update allocations where appropriate; and

(d) it results in cost allocations consistent with expectations about non-direct cost incurrence.

Seqwater noted that the Authority used direct labour costs (DLC) as the cost allocator in the recent SunWater review. Seqwater's comparisons of cost allocations using both DLC and TDC showed use of DLC resulted in significantly more costs being allocated to schemes than considered reasonable.

For those components of its non-direct costs which are not allocated using TDC, Seqwater proposes to allocate:

(a) insurance premium costs to tariff groups on the basis of the replacement value of insured assets; and

(b) working capital allowance to tariff groups according to forecast revenue.

Authority's Analysis

In the Authority's SunWater review, analysis by Deloitte was largely ambivalent on which of these two measures DLC or TDC (out of the several considered and rejected) would be most suitable to allocate non-direct costs. Both were relatively highly ranked.

Although the DLC approach was adopted for SunWater, the Authority concluded that this did not necessarily apply for other entities. The Authority considered the approach proposed by Seqwater was fair and reasonable, having regard to Seqwater's particular cost accounting systems and procedures.

Stage 2 - Allocation of Costs Between Priority Groups

Previous Review

For the 2006-11 price paths, all costs were apportioned between medium and high priority customers according to WPCFs in both bulk and distribution systems.

Stakeholder Submissions

Seqwater

Seqwater submitted that in the Central Lockyer Valley, there are four entitlement types (High, High A, High B and medium). Seqwater holds 184ML of high priority, while irrigators hold the vast majority of the remaining WAE. The 2006 pricing review also treated all these irrigation WAE types the same for pricing purposes – for example, the irrigation customer WAE totalled 16,372ML in the Tier 1 report for Central Lockyer Valley and Morton Vale Pipeline tariff groups. This is comparable to the 16,331ML set out in above.

Also, the 2006 review assigned 99.8% of costs to the irrigation sector, which effectively meant High A, High B and medium were treated the same. Seqwater proposed not to move from this pre-existing arrangement, particularly given the underlying resource management arrangements are yet to be set by DERM and codified in a final ROP. For example, water sharing rules are yet to be determined for the majority of WAE in the scheme, making any assessment of relative difference problematic.

Secondly, Seqwater's 184ML of High Priority WAE is immaterial (1.1%) of the total WAE in the scheme, and Seqwater does not believe a Headworks Utilisation Factor for the scheme is justified nor would add to the accuracy of the pricing outcomes. Instead, Seqwater propose that nominal WAE % are applied in this scheme until such time as WAE are formalised, which means that non-high priority WAE account for 98.9% of lower bound costs

Authority's Analysis

The Authority accepts Seqwater's proposed approach of allocating costs on the basis of nominal WAE given the low materiality of high priority allocations (1.1%) and WAE have not yet been formalised for the scheme.

The effect for the Central Lockyer Valley WSS is detailed in the following section (as it takes into account other factors relevant to establishing total costs).

5.7 Summary of Operating Costs

Seqwater's proposed operating costs by activity and type for the Central Lockyer Valley WSS are set out in Table 5.25. The Authority's recommended operating costs are set out in Table 5.26. (The non-direct costs allocated to renewals are not included in these tables.)

Table 5.25: Seqwater's Proposed Operating Costs – Central Lockyer Valley WSS (Nominal $)

	2013-14	*2014-15*	*2015-16*	*2016-17*
Direct Operations				
Labour	132,952	138,270	143,800	149,552
Contractors and Materials	12,611	13,115	13,640	14,186
Electricity	105,575	108,214	110,920	113,693
Other	1,025	1,051	1,077	1,104
Repairs and Maintenance				
Planned	113,182	117,709	122,418	127,315
Unplanned	46,229	48,078	50,001	52,001
Dam Safety	0	26,266	0	27,595
Rates	0	0	0	0
Non-Direct Costs				
Non-Direct Operations	195,485	200,372	205,381	210,516
Non-Infrastructure	20,061	20,563	21,077	21,604
Insurance	146,289	149,946	153,695	157,537
Working Capital	11,907	12,205	12,510	12,823
Total	**785,316**	**835,790**	**834,520**	**887,926**

Source: Seqwater (2012am).

Table 5.26: Authority's Recommended Operating Costs – Central Lockyer Valley WSS (Nominal $)

	2013-14	*2014-15*	*2015-16*	*2016-17*
Direct Operations				
Labour	123,931	126,438	128,964	131,508
Contractors and Materials	13,136	13,453	13,775	14,101
Electricity	105,575	108,214	110,920	113,693
Other	306	309	312	315
Repairs and Maintenance				
Planned	124,046	127,043	130,082	133,160
Unplanned	32,974	33,771	34,579	35,397
Dam Safety	0	24,204	0	24,643
Rates	0	0	0	0
Non-Direct Costs				
Non-Direct Operations	191,607	194,444	197,276	200,100
Non-Infrastructure	19,528	19,711	19,891	20,068
Insurance	144,095	145,448	146,779	148,085
Working Capital	0	0	0	0
Total	**755,197**	**793,035**	**782,576**	**821,069**

Source: QCA (2012).

The Authority's recommended operating costs for 2012-13 for Central Lockyer Valley WSS are 4% lower than Seqwater's proposed amount, as defined in its November NSP.

Seqwater's proposed operating costs by activity and type for the Morton Vale Pipeline are set out in Table 5.27. The Authority's recommended operating costs are set out in Table 5.28.

Table 5.27: Seqwater's Proposed Operating Costs – Morton Vale Pipeline (Nominal $)

	2013-14	*2014-15*	*2015-16*	*2016-17*
Direct Operations				
Labour	44,634	46,419	48,276	50,207
Contractors and Materials	0	0	0	0
Electricity	0	0	0	0
Other	0	0	0	0
Repairs and Maintenance				
Planned	7,753	8,063	8,386	8,721
Unplanned	3,167	3,293	3,425	3,562
Dam Safety	0	0	0	0
Rates	0	0	0	0
Non-Direct Costs				
Non-Direct Operations	26,286	26,943	27,617	28,307
Non-Infrastructure	2,698	2,765	2,834	2,905
Insurance	2,498	2,560	2,624	2,690
Working Capital	126	129	132	136
Total	**87,162**	**90,174**	**93,295**	**96,529**

Source: Seqwater (2012am).

Table 5.28: Authority's Recommended Operating Costs – Morton Vale Pipeline (Nominal $)

	2013-14	*2014-15*	*2015-16*	*2016-17*
Direct Operations				
Labour	36,756	37,499	38,248	39,003
Contractors and Materials	0	0	0	0
Electricity	0	0	0	0
Other	0	0	0	0
Repairs and Maintenance				
Planned	8,073	8,268	8,465	8,666
Unplanned	2,146	2,198	2,250	2,304
Dam Safety	0	0	0	0
Rates	0	0	0	0
Non-Direct Costs				
Non-Direct Operations	22,547	22,881	23,215	23,547
Non-Infrastructure	2,298	2,320	2,341	2,362
Insurance	2,461	2,484	2,507	2,529
Working Capital	0	0	0	0
Total	**74,280**	**75,649**	**77,026**	**78,409**

Source: QCA (2012).

The Authority's recommended operating costs for 2012-13 for Morton Vale Pipeline are 16% lower than Seqwater's proposed amount, as defined in its November NSP.

6. DRAFT PRICES

6.1 Background

Ministerial Direction

The Ministerial Direction requires the Authority to recommend irrigation prices to apply to Seqwater water supply schemes and termination fess to apply to relevant tariff groups.

Prices are to apply for the four year regulatory period from 1 July 2013 to 30 June 2017.

Recommended prices and tariff structures are to provide a revenue stream that allows Seqwater to recover:

(a) prudent and efficient expenditure on renewing and rehabilitating existing assets through a renewals annuity; and

(b) efficient operational, maintenance and administrative costs to ensure the continuing delivery of water services.

In considering tariff structures, the Authority is to have regard to the fixed and variable nature of underlying costs. The Authority is to adopt tariff groups as proposed in Seqwater's network service plans and not to investigate additional nodal pricing arrangements.

The Ministerial Direction also requires that:

(a) where current prices are above the level required to recover prudent and efficient costs, current prices are to be maintained in real terms;

(b) where cost-reflective prices are above current prices, the Authority must consider recommending price paths to moderate price impacts on irrigators, whilst having regard to Seqwater's commercial interests; and

(c) for certain schemes, or segments of schemes [hardship schemes], prices should increase in real terms at a pace consistent with 2006-11 price paths, until such time as the scheme reaches the level required to recover prudent and efficient costs.

Price paths may extend beyond 2013-17, provided the Authority gives its reasons. The Authority must also give its reasons if it does not recommend a price path, where real price increases are recommended by the Authority.

Previous Review

In the 2006-11 price paths, real price increases over the five years were capped at $10/ML for relevant schemes. This real price increase applied to both tariff groups of the Central Lockyer Valley WSS – that is, the Central Lockyer tariff group and the Morton Vale Pipeline tariff group. The cap applied to the sum of Part A and Part B real prices. In each year of the price path, the prices were also indexed by CPI.

For both the Central Lockyer Valley and the Morton Vale Pipeline tariff groups, prices over 2006-11 increased by an average of $2/ML per annum in real terms (plus CPI)[5]. Despite these increases both tariff groups did not reach lower bound costs by the conclusion of the 2006-11 price path.

[5] The average annual increase of $2/ML in real terms was comprised of a $0.25 increase in the first year, a $2.50 increase in each of the next three years, and a $2.25 increase in the last year.

6.2 Approach to Calculating Prices

In order to calculate Seqwater's irrigation prices in accordance with the Ministerial Direction, the Authority has:

(a) identified the total prudent and efficient costs associated with each tariff group ;

(b) identified the fixed and variable components of total costs;

(c) allocated the fixed and variable costs to each priority group (where appropriate);

(d) calculated cost-reflective irrigation prices;

(e) compared the cost-reflective irrigation prices with current irrigation prices; and

(f) implemented the Government's pricing policies in recommended irrigation prices.

6.3 Total Costs

Based on the methodology outlined in previous chapters, the Authority has determined total efficient costs for all sectors for each tariff group. This is comprised of prudent and efficient renewals costs used as a basis for estimating the renewals annuity, and efficient direct and non-direct operating costs. In many schemes, external revenue sources can offset some of these costs.

Revenue Offsets

Seqwater receives revenue from property leases, recreation fees and the provision of town water supplies. To ensure that Seqwater is not overcompensated for the provision of services, this revenue needs to reduce the estimate of efficient costs.

Submissions

Seqwater

In the Central Lockyer Valley WSS, Seqwater included a revenue offset of $700, which mainly relates to leasing of land. Seqwater's estimate was based on the historical average. This estimate was provided in the November NSPs – the initial submission made no provision for revenue offsets in the Central Lockyer Valley.

Authority's Analysis

As Seqwater's revised revenue offsets are consistent with the historical averages (in real terms), the Authority proposes to accept the amount of $700 as a revenue offset for Central Lockyer Valley WSS.

Summary of Total Costs

The Authority's estimate of prudent and efficient total costs for the Central Lockyer Valley WSS for the 2013-17 regulatory period are outlined in **Table 6.1**. Total costs for 2012-13 are also provided. Total costs reflect the costs for the specific tariff group (all sectors) and do not include any adjustments for Queensland Government's pricing policies.

Table 6.1: Comparison of Total Costs - Central Lockyer Valley (Nominal $'000)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Seqwater (April NSP)					
Renewals Annuity	133,291	136,623	142,813	146,639	149,847
Direct Operating	746,672	774,979	830,645	834,915	894,227
Non-Direct Operating	622,623	638,189	654,144	670,497	687,260
Less Revenue Offsets	0	0	0	0	0
Return on Working Capital	11,617	11,907	12,205	12,510	12,823
Total	**1,514,203**	**1,561,698**	**1,639,807**	**1,664,562**	**1,744,156**
Seqwater (November NSP)					
Renewals Annuity	293,153	300,481	304,505	306,616	308,303
Direct Operating	397,244	411,574	452,704	441,856	485,446
Non-Direct Operating	353,010	361,835	370,881	380,153	389,657
Less Revenue Offsets	(700)	(718)	(735)	(754)	(773)
Return on Working Capital	11,617	11,907	12,205	12,510	12,823
Total	**1,054,324**	**1,085,080**	**1,139,559**	**1,140,382**	**1,195,456**
Authority					
Renewals Annuity	-	210,327	213,059	213,312	213,007
Direct Operating	-	399,968	433,432	418,630	452,816
Non-Direct Operating	-	355,229	359,603	363,946	368,253
Less Revenue Offsets	-	(718)	(735)	(754)	(773)
Return on Working Capital	-	0	0	0	0
Total	**-**	**964,806**	**1,005,358**	**995,135**	**1,033,303**

Source: Seqwater (2012d), Seqwater (2012am) and QCA (2012).

Table 6.2 provides base year costs for 2012-13, and forecasts for the 2013-17 regulatory period for the Morton Vale Pipeline.

Table 6.2: Comparison of Total Costs - Morton Vale Pipeline (Nominal $'000)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Seqwater (April NSP)					
Renewals Annuity	(26,559)	(27,223)	(26,764)	(26,286)	(25,788)
Direct Operating	24,496	25,476	26,495	27,554	28,657
Non-Direct Operating	17,890	18,337	18,795	19,265	19,747
Less Revenue Offsets	0	0	0	0	0
Return on Working Capital	123	126	129	132	136
Total	**15,949**	**16,716**	**18,655**	**20,666**	**22,751**
Seqwater (November NSP)					
Renewals Annuity	(82,494)	(84,557)	(84,528)	(84,497)	(84,464)
Direct Operating	53,417	55,554	57,776	60,087	62,490
Non-Direct Operating	30,714	31,482	32,269	33,076	33,903
Less Revenue Offsets	0	0	0	0	0
Return on Working Capital	123	126	129	132	136
Total	**1,760**	**2,605**	**5,646**	**8,798**	**12,065**
Authority					
Renewals Annuity	-	(20,085)	(19,714)	(19,344)	(18,975)
Direct Operating	-	46,974	47,964	48,964	49,972
Non-Direct Operating	-	27,306	27,685	28,062	28,437
Less Revenue Offsets	-	0	0	0	0
Return on Working Capital	-	0	0	0	0
Total	**-**	**54,195**	**55,935**	**57,682**	**59,435**

Source: QCA (2012).

6.4 Fixed and Variable Costs

The Ministerial Direction requires the Authority to have regard to the fixed and variable nature of Seqwater's costs in recommending tariff structures for each WSS.

Previous Review 2006-11

As outlined in Chapter 3, the tariff structure that applied during the 2006-11 price paths for the Central Lockyer Valley tariff group differed from the tariff structures generally adopted in other SunWater/Seqwater WSSs (Tabled 6.3 refers).

Table 6.3: Seqwater's Central Lockyer Valley Tariff Group Tariff Structures - 2006-11

	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*
Part A - Fixed	0	14%	23%	31%	37%
Part B - Variable	100%	86%	77%	69%	63%

Source: SunWater (2006a).

For the Morton Vale Pipeline tariff group:

(a) a 70% fixed (Part A) and 30% variable (Part B) tariff structure was considered appropriate as it reflected the existing (past) tariff structures[6]; and

(b) consistent with the provisions of the Morton Vale Pipeline Contract, in addition to the Part A/Part B tariff structure, an additional capital access charge was also applied.

Stakeholder Submissions

Seqwater

Seqwater (2012s) submitted that all operations (including electricity), maintenance and renewal costs for both the Central Lockyer Valley and Morton Vale Pipeline tariff groups do not vary with water use (that is, they are 100% fixed costs).

Seqwater subsequently submitted that Morton Vale Pipeline is gravity fed and, therefore, no variable electricity costs are incurred. However, in the event that the Authority were to consider applying the average SunWater distribution system finding for variable costs of 33%, then Seqwater consider it more appropriate that the Authority recommend the average finding for distribution systems without electricity. In this instance, the average SunWater distribution system finding for variable costs is 11.6%.

Seqwater (2012am) also submitted that, as no WAE has as yet been issued by DNRM to individual irrigators of the Central Lockyer Valley tariff group, it is impractical to levy a fixed Part A charge. Seqwater consider this arrangement is unsustainable as it has led Seqwater to historically under-recovering costs. Accordingly, given this institutional uncertainty (that is, in the absence of the issuing of WAE for the foreseeable future), Seqwater have proposed the introduction of an interim volumetric charge which would be set to recover both fixed and variable costs.

Other Stakeholders

QFF (2012) and stakeholders during Round 1 consultation (IA Central Lockyer Valley, 2012) suggested there are pumping costs associated with the off-stream storages and that these are likely to be considered a variable cost.

Authority's Analysis

The Authority's review of SunWater irrigation pricing considered the issue of tariff structures, with a detailed review by Indec Consulting of the proportion of costs that could reduce when water demand is low. Details are in Volume 1.

[6] Under these arrangements, the volumetric Part B tariff was not directly linked to variable costs as it reflected variable costs *plus* the balance of fixed costs not recovered by the fixed Part A tariff.

The Authority noted that SunWater and Seqwater schemes share similar characteristics. Most of the costs associated with operating a bulk WSS are fixed and do not vary with water use. The Authority therefore sought to, where appropriate, apply the Indec findings to Seqwater schemes.

In summary, the Authority considers that some costs in both bulk schemes and distribution systems will vary with water use. Accordingly, the Authority will apply the specific average findings determined for the SunWater Review to Seqwater schemes (Table 6.4 refers).

Table 6.4: Recommended Variable Costs

Activity	*Variable in Bulk*	*Variable in Distribution System (Unbundled)**
Labour	20%	25%
Contractors	20%	25%
Repairs and Maintenance	20%	25%
Materials and Other	20%	25%
Dam Safety	0%	na
Rates	0%	na
Electricity (pumping)	50%	na
Non-Directs	0%	0%
Renewal Annuity	0%	0%

Source: Indec (2011). Note: For labour, contractors, repair and maintenance and materials and other distribution costs, the Authority has adopted 25% variable based on Indec's findings for SunWater which ranged from 24-28%.

In the Central Lockyer Valley WSS, the Authority considers that some electricity pumping costs are fixed (relating to a ROP requirement to fill the offstream storage Lake Clarendon Dam) and some are variable (relating to water deliveries to meet customer demand). The Authority proposes to allocate the $103,000 electricity costs on the basis of 50% being fixed and 50% being variable.

The Authority accepts that Morton Vale Pipeline is gravity fed and therefore incurs no direct electricity costs in delivery of water. However, Morton Vale Pipeline customers should share in the cost of electricity incurred from time to time in pumping to Lake Clarendon). A share of the cost is effectively passed through the bulk water charge in the Part A bundled tariff to Morton Vale Pipeline customers. There is no specific additional electricity component in the unbundled Morton Vale Pipeline charge.

Compared to Seqwater's proposed 11.6% variable costs for Morton Vale, the Authority's approach results in variable costs comprising about 18% of total costs on an unbundled basis.

As noted in Chapter 2, for Central Lockyer Valley tariff group there are no WAE and, as a consequence, a fixed charge can not apply). The Authority recommends:

(a) that a fixed charge be calculated on the basis of the number of ML allocated to the scheme. This would represent the charge per ML that would apply only in the event

tradable water allocations (which the Authority recommend be put in place by 30 June 2015) were put in place; and

(b) in the absence of WAE being allocated to individual irrigators, Seqwater would forego this revenue until tradable WAE are put in place.

The Authority considers this arrangement will provide certainty to irrigators and an incentive for institutional deficiencies to be addressed.

6.5 Allocation of Costs According to WAE Priority

To establish the irrigation share of fixed costs, total fixed costs must be allocated between medium and high priority WAE in each relevant tariff group. Variable costs are allocated according to usage of water.

The Authority has identified in earlier chapters its preferred approach to allocating costs between medium and high priority WAE. This approach is summarised in Table 6.5.

Table 6.5: Authority's Recommended Fixed Cost Allocation Between High and Medium Priority WAE

Cost Component	*Fixed Cost Allocation Methodology*	
	Bulk WSSs	*Distribution Systems*
Renewals Annuity	HUF	WAE
Operations	50% by HUF, and 50% by WAE	WAE
Repairs and Maintenance	HUF	WAE

Source: QCA (2012). Note: Where the HUF does not apply the Authority has developed an alternative approach. Refer Vol 1 - Chapter 5: Renewals Annuity. Variable costs are allocated between medium and high priority WAE according to water use by way of the Authority's recommended volumetric tariffs.

The resulting total fixed revenue requirements for high and medium priority WAE are as shown in Table 6.6. The irrigation share of the total fixed revenue requirement is also shown in Table 6.6.

Table 6.6: Authority's Recommended Allocation of Fixed Revenue Requirement between High and Medium Priority WAE 2013-14 Nominal ($'000)

Tariff Group	*High Priority Fixed Revenue Requirement*	*Medium Priority Fixed Revenue Requirement*	*High Priority Irrigation Share of Fixed Revenue Requirement*	*Medium Priority Irrigation Share of Fixed Revenue Requirement*
Central Lockyer Valley	9	956	9	952
Morton Vale Pipeline	0	54	0	54
Total	**9**	**1,010**	**9**	**1,006**

Source: QCA (2012).

6.6 Variable Charges

On the basis of its analysis of the share of total costs, the Authority has estimated total variable costs for each tariff group. To convert this estimate of total variable costs to a volumetric tariff requires the Authority to consider how such costs vary with each ML of usage.

The Authority notes that Seqwater's forecast total costs were developed using a zero-based budgeting approach that assumed a typical year but also assumed that all costs (except some electricity) were fixed.

Moreover, the Authority notes that usage in the Central Lockyer WSS and Morton Vale Pipeline is highly variable between each year with no discernible year to year consistency (other than when there is no supply in which case variable costs and volumetric charges would be zero). It is more variable than for SunWater where the Authority adopted the highest five of the eight years of usage as a basis for establishing the per ML volumetric charge. A simple ten year average would also be misleading given the large number of recent low use years due to drought and floods.

As the notion of typical costs relates to management practices which seek to ensure services are made available when required, the Authority has adopted a water use estimate based on the average of those years that exceed the ten year average for each tariff group. A longer term estimate (say the past 15 years) would fail to recognise structural changes occurring in water use, while a shorter period (say the most recent five years) would reflect the most recent years of flood and drought.

Table 6.7 shows total variable costs (all sectors), the typical all sectors' average water use and the resulting volumetric charge for the Central Lockyer Valley WSS.

Table 6.7: Derivation of Cost Reflective Volumetric Tariffs (2013-14 Nominal)

Tariff Group	*Total Variable Costs ($'000)*	*Authority Estimate of Typical Water Use (ML)*	*Volumetric Tariff ($/ML)*
Central Lockyer Valley	112	6,272	18.48
Morton Vale Pipeline	12	489	24.84

Source: QCA (2012). Note: The volumetric charge is derived by taking the NPV of total variable costs divided by the estimate of typical water use.

6.7 Cost Reflective Fixed and Volumetric Tariffs

The Authority derived cost-reflective fixed and volumetric tariffs for each tariff group on the basis of assessed efficient costs identified above, and the recommended tariff structures.

These prices are cost reflective only and do not take account of the Government's pricing policies. This is discussed in the next section.

Table 6.8 presents current tariffs, the Tier 1 reference (lower bound) tariff, Seqwater's (April and November) proposed tariffs and the Authority's cost reflective tariffs. The table provides separate cost reflective tariffs for the bulk charge to Morton Vale Pipeline customers.

Table 6.8: Cost-Reflective Tariffs by Tariff Group (Nominal $/ML)

Tariff Group	*Actual*	*Seqwater (April)*	*Seqwater (November)*	*Cost Reflective*
	2012-13	*2013-14*	*2013-14*	*2013-14*
Central Lockyer Valley				
Fixed (Part A) bulk	12.37	96.15	66.53	51.71
Volumetric (Part B) bulk	32.91	0	0	18.48
Fixed (Part A) (Morton Vale)	n.a	96.15	66.53	51.71
Volumetric Part B (Morton Vale)	n.a	0	0	9.35
Morton Vale Pipeline (unbundled)				
Fixed (Part C)	9.61	10.51	5.45	14.85
Volumetric (Part D)	4.77	0	0	24.84
Morton Vale Pipeline (bundled)				
Fixed (Part A + C)	21.98	106.66	71.98	66.57
Volumetric (Part B + D)	37.68	0	0	34.19

Source: Seqwater 2012a and 2012aj

6.8 Queensland Government Pricing Policies and Draft Prices

Under the Ministerial Direction, where current prices are already above the level required to recover efficient allowable costs, water prices are to be maintained in real terms using an appropriate measure of inflation (as recommended by the Authority).

Where prices are below efficient cost recovery, (such as in the Central Lockyer Valley WSS), prices are to be set to increase in real terms at a pace consistent with the 2006-11 prices until such time as the WSS reaches efficient costs, whereupon prices are maintained in real terms.

Where price increases in real terms are necessary, the Authority must consider phasing in the price increase in order to moderate price impacts on irrigators but at the same time have regard for Seqwater's legitimate commercial interests.

Authority's Analysis

The Authority has estimated a current revenue level in each scheme to be used as a benchmark for establishing revenue targets over the 2013-17 period. Current revenue is calculated as:

$$(current\ fixed\ charges \times WAE) + (current\ variable\ charges \times average\ water\ use\ over\ the\ 2006/12\ period)$$

Table 6.9 below compares the current revenue with the revenue that would be required to achieve efficient cost recovery in each tariff group.

Table 6.9: 2013-14 Irrigation Revenues (Nominal $'000)

Tariff Group	*Current Revenue*	*Revenue Based on QCA Cost Reflective Prices*	*Revenue Difference*	*Current Cost Recovery %*
Central Lockyer Valley	249.9	709.3	459.3	35%
Morton Vale Pipeline	91.3	242.6	151.3	38%

Source: QCA (2012).

Table 6.10 below summarises the total current revenue maintenance consistent with the Government's requirements. The split between variable revenues, based on a 10 year average irrigation water use, and the balance to be recouped through fixed charges is also shown.

Table 6.10: Total Revenue Maintenance Requirement (Nominal $'000)

Tariff Group	*Revenue Maintenance Requirement*	*Fixed Revenue*	*Variable Revenue*
Central Lockyer Valley	282.4	211.4	71.1
Morton Vale Pipeline	98.3	90.5	7.8

Note: Given both tariff groups are currently below recovery of the revenue requirement, the total revenue requirement takes into account additional revenues from usage charges based on the 10 year average. This means that the required revenue from the variable charge is higher than indicated based on the 5 year average water use.

Given current revenues for both Central Lockyer Valley and Morton Vale Pipeline are below the assessed level of the cost-reflective revenue requirement, the Authority is required to recommend a price path for the four-year regulatory period (from 1 July 2013 to 30 June 2017).

The Authority proposes a price path set at an average pace similar to that applied over 2006-11, that is, an average of $2/ML per year. This level of increase was previously considered as being reasonable.

It is also proposed to escalate all such charges at CPI (2.5% per annum from July 2013) in accordance with past practice.

The $2/ML increase will be applied to the fixed charges (Part A).

However, the Authority has not recommended price paths beyond the 2013-17 period on the grounds that such price paths should be subject to a subsequent regulatory review.

Water Prices

On the basis of the previously described analysis and principles, and the Minister's Direction to at least maintain real (2006-11) revenues, the Authority recommends prices as outlined below (Table 6.11 refers).

The Authority's recommended prices are presented in nominal terms for 2012-17. However, it is anticipated that actual prices will be established each year (March quarter) by Seqwater on the basis of changes in the Brisbane All Groups CPI.

Table 6.11: Past and Recommended Water Prices 2006-17 (Nominal $/ML)

Tariff Group	*Past Prices*							*Recommended Prices*			
	2006-07	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Central Lockyer Valley											
Fixed (Part A)*	0.0	2.92	5.84	8.87	11.79	12.21	12.37	0.0	0.0	17.87	20.47
Volumetric (Part B)	27.36	28.16	29.51	30.44	31.35	32.48	32.91	18.48	18.94	19.42	19.90
Central Lockyer (Morton Vale bulk charges)											
Fixed (Part A)								13.01	15.39	17.87	20.47
Volumetric (Part B)								9.35	9.59	9.83	10.07
Morton Vale Pipeline (Unbundled)											
Fixed (Part C)	-	-	-	-	-	-	-	13.06	13.38	13.72	14.06
Volumetric (Part D)	-	-	-	-	-	-	-	24.84	25.46	26.10	26.75
Morton Vale Pipeline (Bundled)											
Fixed (Part A + C)	14.60	15.96	17.76	19.38	20.94	21.69	21.98	26.07	28.77	31.59	34.53
Volumetric (Part B + D)	24.99	27.39	30.47	33.23	35.90	37.19	37.68	34.19	35.05	35.93	36.82

*Source: QCA (2012). * Note the Part A charges do not apply from 2006-07 to 2014-15 as individual irrigator nominal WAE has not been issued.*

The Central Lockyer Valley WSS and Morton Vale Pipeline tariff groups do not reach the cost reflective revenue requirement during the 2013-17 period.

Termination Fees

As noted in Chapter 4: Pricing Framework, termination fees should reflect the relevant fixed (distribution system) costs. During the 2006-11 price paths (and during the 2011-13 interim period), a termination fee applied in the Morton Vale Pipeline. The Authority acknowledges that current contractual arrangements continue to have effect, but has presented the outcome of the Authority's method to establish an indicative termination fee. The Authority's approach is recommended should current contractual arrangements be renegotiated.

The Authority's recommended termination fees for 2013-17 are based on the cost-reflective fixed tariff and not the recommended fixed tariff.

The indicative termination fees for the 2013-17 regulatory period are shown in Table 6.12.

Table 6.12: Termination Fees (Nominal $)

Tariff Group	*Termination Fee $/ML*			
	2013-14	**2014-15**	**2015-16**	**2016-17**
Morton Vale Pipeline	163.35	167.42	171.71	176.00

Source: QCA (2012)

6.9 Impact of Recommended Prices

The impact of any change in prices on the total cost of water to a particular irrigator, can only be accurately assessed by taking into account the individual irrigator's water usage and nominal WAE (see Volume 1).

Stakeholder Submissions

In Round 1 consultation stakeholders:

(a) indicated that a 100% Part B water use charge in the order of $300/ML was too high. [Seqwater's April submission proposed a volumetric charge of $304/ML, revised to $210/ML in the November NSP] However, one irrigator indicated that for some irrigators with "commercial" operations $200/ML may not be too high if there was no Part A (fixed) charge and only if the water was 100% reliable (high priority) and delivered under pressure at the farm gate; and

(b) expressed concern that some farmers may not be able to afford the lower bound charges submitted by Seqwater, particularly those growing relatively low value crops. This is particularly the case given current other pressures such as rising farm costs and increasing competitive pressures.

QFF (2012) asserts that although Seqwater has waived the capital charge to date, the Authority should examine the capacity of irrigators to pay for the capital charge, and Part A, B, C and D tariffs, should Seqwater enforce its contractual rights to do so.

Authority's Analysis

In response to stakeholders concerns regarding the impact of recommended prices, the Authority notes that the Ministerial Direction requires prices to increase in real terms at a pace consistent with 2006-11 prices until such time as the Central Lockyer Valley WSS reaches efficient costs.

Seqwater proposed a bundled price of $71.98/ML for Morton Vale Pipeline tariff group in 2013-14. The Authority's bundled fixed charge is $26.07/ML and the volumetric charge is $34.19/ML, a total of $60.26 for a delivered ML of water.

As outlined above, Seqwater's November NSP proposed an interim volumetric charge of $210.50 to apply to the Central Lockyer Valley tariff group in 2013-14 Given the Authority recommends that this interim charge not apply and that a fixed charge only apply when WAE are issued to individual irrigators, the Authority's recommended approach represents a reduction on Seqwater's proposed 2013-14 charges.

The Authority also notes that the capacity of irrigators to pay cost-reflective charges is beyond the scope of the Ministerial Direction. In the Authority's SunWater review, the original Ministerial Direction was amended to exclude consideration of capacity to pay from

the Authority's brief. The same approach is considered to apply to the Seqwater irrigation review.

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APPENDIX A: FUTURE RENEWALS LIST

Below are listed Seqwater's forecast renewal expenditure items submitted by Seqwater in June 2012 and formed the basis of the April NSPs, for the years 2013-14 to 2035-36 in 2012-13 dollar terms.

Central Lockyer Valley WSS

Asset	*Year*	*Description*	*Total*
Bill Gunn Dam	2028/29	Refurbish Access Road & Guard Rail	16
	2017/18	Refurbish Bulkhead Gate	20
	2014/15	Refurbish Electric Chain Hoist & Monoral	20
	2015/16	Refurbish Pump House	30
	2022/23	Replace Cables & Cableways	48
	2032/33	Replace Pump, 32Mm Subm Flygt	22
	2033/34	Replace Rear Perimeter Track	8
	2015/16	Replace Rising Main&Valves-Drainage	30
	2027/28	Replace Surface Water Meters	5
	2022/23	Replace Switchboard	25
	2017/18	Replace Water Level Recorder (In Main Embankment)	7
	2014/15	Replenish/replace the rip-rap Main Wall Embankment	25
	2015/16	Replenish/replace the rip-rap Main Wall Embankment	25
	2016/17	Replenish/replace the rip-rap Main Wall Embankment	25
Boreholes	2018/19	Refurbish Observation Bores	50
	2023/24	Refurbish Observation Bores	50
	2028/29	Refurbish Observation Bores	50
	2033/36	Refurbish Observation Bores	50
Clarendon Dam	2018/19	Refurbish Earthworks	10
	2028/29	Refurbish Earthworks	10
	2019/20	Refurbish Earthworks/Formation	50
	2013/14	Refurbish Embankment (Main Dam)	52
	2014/15	Refurbish Embankment (Main Dam)	52
	2015/16	Refurbish Embankment (Main Dam)	52
	2016/17	Refurbish Embankment (Main Dam)	52
	2017/18	Refurbish Embankment (Main Dam)	52
	2018/19	Refurbish Embankment (Main Dam)	52
	2023/24	Replace Access Roads	20
	2023/24	Replace Fencing (Boundary, Internal, Security)	165
	2023/24	Replace Grids And Gates	16
	2018/19	Replace Piezometers	26
	2021/22	Replace Surface Measurement	4
	2031/32	Replace Surface Measurement	4
	2021/22	Replace Telemetry	35
	2031/32	Replace Telemetry	35
Clarendon Diversion	2014/15	Investigate and repair Valve, 750Mm Butf Keystone	10
	2015/16	Refurbish Access Road	10
	2020/21	Refurbish Access Road	10

Asset	Year	Description	Total
	2025/26	Refurbish Access Road	10
	2030/31	Refurbish Access Road	10
	2035/36	Refurbish Access Road	10
	2019/20	Refurbish Access Road To Weir R/Bk	5
	2034/35	Refurbish Access Road To Weir R/Bk	5
	2015/16	Refurbish and repair Control Gate	15
	2014/15	Refurbish Clarendon Diverson / Supply Channel	21
	2019/20	Refurbish Clarendon Diverson / Supply Channel	21
	2024/25	Refurbish Clarendon Diverson / Supply Channel	21
	2029/30	Refurbish Clarendon Diverson / Supply Channel	21
	2034/35	Refurbish Clarendon Diverson / Supply Channel	21
	2013/14	Refurbish Control Equipment	26
	2018/19	Refurbish Diversion Bank Protection Works	42
	2032/33	Refurbish Pump Well	21
	2017/18	Refurbish Redbank Ck Pump Station	21
	2032-33	Refurbish Redbank Ck Pump Station	21
	2014/15	Refurbish Switch Board	16
	2022/23		5
	2014/15	Refurbish Trash Screen (3 Off)	10
	2019/20	Refurbish Trash Screen (3 Off)	10
	2024/25	Refurbish Trash Screen (3 Off)	10
	2029/30	Refurbish Trash Screen (3 Off)	10
	2034/35	Refurbish Trash Screen (3 Off)	10
	2015/16	Refurbish Turn Outs	5
	2025/26	Refurbish Turn Outs	5
	2035/36	Refurbish Turn Outs	5
	2015/16	Refurbish Winch	10
	2022/23	Replace Access Road	192
	2023/24	Replace Access Road To Weir R/Bk	24
	2023/24	Replace Actuator, Mech	2
	2029/30	Replace Cable	10
	2028/29	Replace Control Equipment	311
	2024/25	Replace Electrical Control Building	11
	2033/34	Replace Gate Actuating Mechanism	26
	2025/26	Replace Outlet Valve	13
	2020/21	Replace Submersible Pump	50
	2019/20	Replace Switch Board	15
	2028/29		161
	2031/32	Replace Temporary Pump Platform	76
	2022/23	Replace Turn Outs	32
	2023/24	Replace Valve, 750Mm Butf Keystone	14
	2025/26	Replace Work And Access Platform	24
Clarendon Weir	2025/26	Replace -	7
	2025/26	Replace Outlet Valve	19
Gauging Stations	2022/23	Replace Gauging Stations-Central Lockyer	60

Asset	*Year*	*Description*	*Total*
	2032/33	Replace Gauging Stations-Central Lockyer	60
Kentville Weir	2025/26	Refurbish Kentville Weir - 46.4Km	3
Laidley Creek	2035/36	Replace Outlet Pipe	4
Lake Dyer Diversion	2013/14	Refurbish Butterfly Valve At 3725.3M	15
	2033/34	Refurbish Butterfly Valve At 3725.3M	15
	2013/14	Refurbish Lake Dyer Diversion	6
	2033/34	Refurbish Lake Dyer Diversion	6
	2013/14	Refurbish Pipeline - Mscl	5
	2033/34	Refurbish Pipeline - Mscl	5
	2017/18	Replace Air Vent - 430M	10
Water Flow Meters	2025/26	Replace Water Meters	53
	2026/27	Replace Water Meters	53
	2027/28	Replace Water Meters	53
	2028/29	Replace Water Meters	53
	2029/30	Replace Water Meters	53
	2030/31	Replace Water Meters	53
	2031/32	Replace Water Meters	53
	2032/33	Replace Water Meters	53
	2033/34	Replace Water Meters	53
	2034/35	Replace Water Meters	53
	2035/36	Replace Water Meters	53
Wilson Weir	2025/26	Refurbish Wilson Weir - 61.3Km	3
	2021/22	Replace Outlet Valve	21
	2021/22	Replace Protection Works	64
Total			**3,457**

Morton Vale Pipeline

Asset	*Year*	*Description*	*Total*
Morton Vale Reticulation	2014/15	Refurbish Inlet Baulk	13
		Refurbish Trash Screen	18
	2022/23	Replace Ladders, Handrails & Platform	3
Water Flow Meters	2025/26	Replace Water Meters	14
	2026/27	Replace Water Meters	14
	2027/28	Replace Water Meters	14
	2028/29	Replace Water Meters	14
	2029/30	Replace Water Meters	14
	2030/31	Replace Water Meters	14
	2031/32	Replace Water Meters	14
	2032/33	Replace Water Meters	14
	2033/34	Replace Water Meters	14
	2034/35	Replace Water Meters	14
	2035/36	Replace Water Meters	14
Total			**188**