



Final Report

Seqwater Irrigation Price Review
2013-17

Volume 2

Mary Valley Water Supply Scheme

April 2013

Level 19, 12 Creek Street Brisbane Queensland 4000
GPO Box 2257 Brisbane Qld 4001
Telephone (07) 3222 0555
Facsimile (07) 3222 0599

general.enquiries@qca.org.au
www.qca.org.au

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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 (WSSs) from 1 July 2013 to 30 June 2017 (regulatory period). A copy of the Ministerial Direction forms Appendix A to Volume 1.

Summary of Price Recommendations

The Authority's recommended irrigation prices for Mary Valley and Pie Creek tariff groups for 2013-17, are outlined in Table 1 together with actual prices since 1 July 2006.

Table 1: Prices for Mary Valley WSS (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
Mary Valley											
Fixed (Part A)	10.44	10.76	12.68	14.84	17.06	17.67	17.90	20.81	23.38	26.07	27.40
Volumetric (Part B)	6.53	6.72	7.92	9.27	10.66	11.04	11.19	8.30	8.51	8.72	8.94
Pie Creek (Unbundled)											
Fixed (Part C)	-	-	-	-	-	-	-	14.01	14.36	14.72	16.57
Volumetric (Part D)	-	-	-	-	-	-	-	70.66	72.43	74.24	76.09
Pie Creek (Bundled)											
Fixed (Part A + C)	29.64	31.60	34.28	36.52	38.71	40.10	40.63	34.82	37.75	40.79	43.96
Volumetric (Part B + D)	42.36	45.15	48.96	52.18	55.30	57.29	58.03	78.96	80.94	82.96	85.03

Source: Seqwater (2012) and QCA (2013).

The termination fees for the Pie Creek tariff group for 2013-17 are shown below in Table 2.

Table 2: Termination Fees for Pie Creek (Nominal \$/ML)

Tariff Group	Termination Fee			
	2013-14	2014-15	2015-16	2016-17
Pie Creek	154.11	157.96	161.92	182.27

Source: QCA (2013).

In the Mary Valley WSS, cost reflective volumetric charges for 2013-14 are lower when compared to 2012-13. To maintain revenues, the balance not recouped by volumetric charges is recovered by fixed charges which are slightly higher compared to 2012-13. In Pie Creek, the volumetric charge is higher and the fixed charge lower when compared to 2012-13. As current revenues are below cost-reflective revenues, the Authority recommends price paths where fixed charges increase annually by \$2 per ML (plus CPI) until cost-reflective levels are reached. Volumetric charges are increased at CPI over the balance of the regulatory period.

For Pie Creek, due to the evident structural changes (such as increased urban encroachment and the decline of dairy production), the Authority has recommended that Government and Seqwater review service delivery arrangements. While recommended prices for Pie Creek should apply for 2013-17 during the recommended review, they are considered to be transitional.

Final Report

Volume 1 of this Final Report addresses key issues, guiding principles and recommendations 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 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.

All submissions received on the Draft Report have been taken into account by the Authority in preparing its Final Report.

1. MARY VALLEY WATER SUPPLY SCHEME

1.1 Scheme Description

The Mary Valley WSS is located near the town of Gympie. An overview of its characteristics is provided in Table 1.1.

Table 1.1: Key Scheme Information for Mary Valley WSS

<i>Mary Valley WSS</i>	
Irrigation Water Uses	Irrigation of fodder crops on dairy farms, improved pastures on grazing properties and for horticultural production.
Urban Water Supplies	Gympie Regional Council
Industrial Water Uses	Timber mill/manufacturing and confectionary manufacture and distribution.

Source: Seqwater (2012ap).

The Mary Valley WSS has 259 bulk customers. These comprise 205 irrigators in the Mary Valley with 17,528ML of medium priority (MP) water access entitlements (WAE), and 51 in Pie Creek with 835ML of MP WAE. The other three customers are Gympie Regional Council and two industrial customers.

Seqwater holds 6,500ML of high priority (HP) WAE for urban and industrial use, 3,426ML of MP WAE for distribution losses and 180ML of HP for amenities water and distribution losses. Total MP and HP WAE of relevance to irrigation are outlined in Table 1.2.

Table 1.2: Water Access Entitlements

<i>Customer Group</i>	<i>Irrigation WAE (ML)</i>	<i>Total WAE (ML)</i>
Medium Priority	18,789 [#]	21,829
High Priority	60 [*]	10,264
Total	18,849	32,093

Source: Seqwater (2012ap). [#] Includes 426 ML of MP distribution losses associated with Pie Creek. ^{*} 60 ML of HP distribution losses associated with Pie Creek.

1.2 Bulk Water and Distribution Infrastructure

Bulk Infrastructure

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

The full supply storage capacity and age of the key water storage assets are detailed in Table 1.3.

Table 1.3: Bulk Water Infrastructure in Mary Valley WSS

<i>Storage Infrastructure</i>	<i>Capacity (ML)</i>	<i>Age (years)</i>
Borumba Dam	46,000	49 years
Imbil Weir	46	58 years

Source: Seqwater (2012ap).

The characteristics of the bulk water assets are as follows:

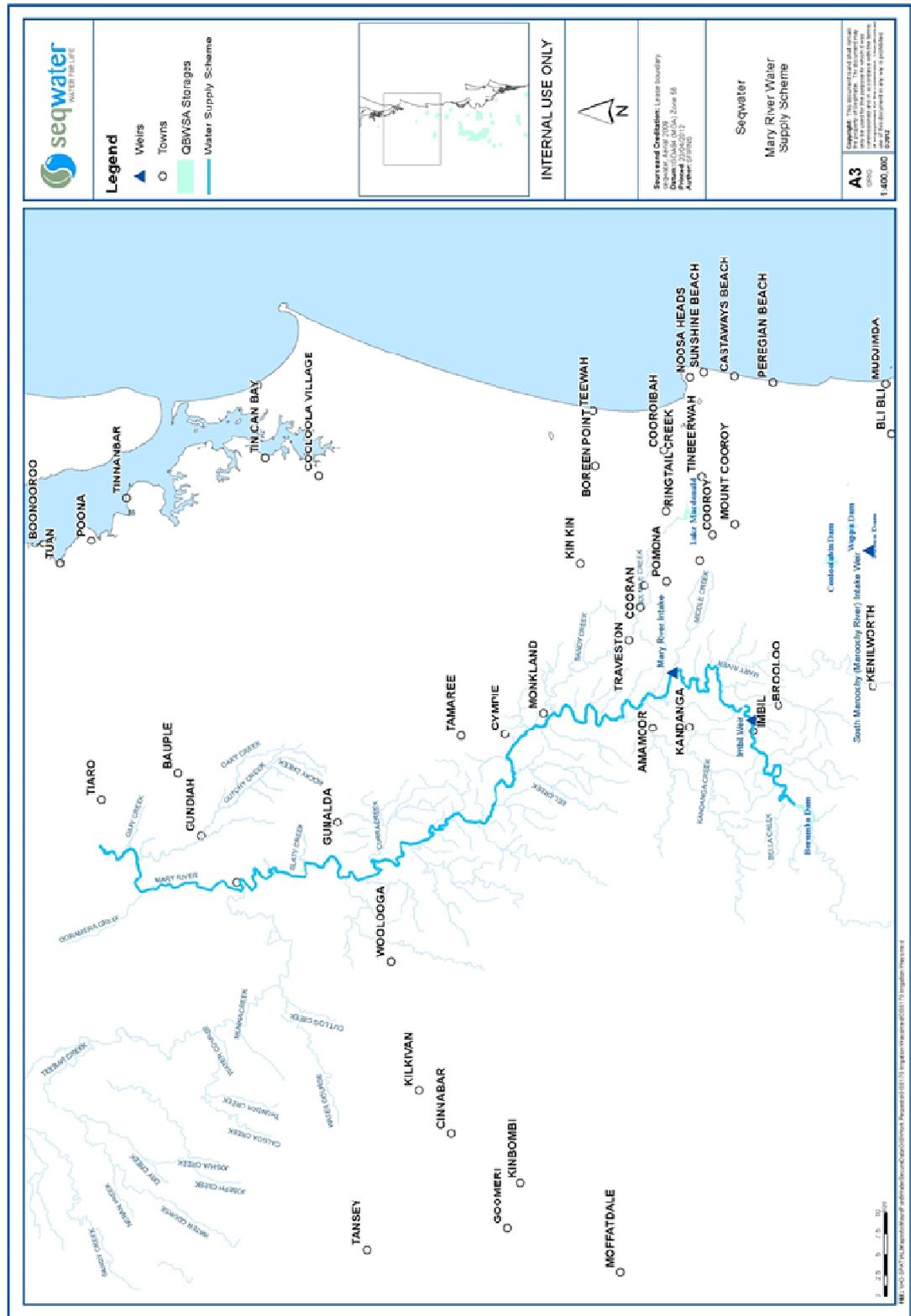
- (a) Borumba Dam – concrete faced rock-fill dam with spillway consisting of reinforced concrete crest and chute with reinforced concrete walls. The outlet works consist of a single 1219mm inlet pipe dividing into 2 x 1066mm outlet pipes with butterfly control valves. No releases are required for environmental purposes; and
- (b) Imbil Weir – non-gated structure with no spillway. Outlet works consist of two openings controlled by hardwood drop-boards. No releases are required for environmental purposes.

Distribution Infrastructure

Distribution infrastructure includes Pie Creek pump station, gauging stations, open channels and pipelines. The pump station diverts water from the Mary River into a system of channels including Calico Creek Channel, McIntosh Channel and Pie Creek Main Channel.

The location of the Mary Valley WSS and key infrastructure is shown in Figure 1.1.

Figure 1.1: Mary Valley WSS Locality Map



Source: Seqwater (2012ap).

1.3 Network Service Plans

Seqwater submitted the Mary Valley WSS network service plan (NSP) which presents:

- (a) existing service standards/service targets;
- (b) forecast operating and renewals costs, including the proposed renewals annuity;
- (c) risks relevant to the NSP; and
- (d) proposed lower bound irrigation reference tariffs (cost-reflective prices).

Seqwater has also submitted supporting information on various aspects of the review.

1.4 Consultation

The Authority has consulted with 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 2006-11, the Upper Mary River Tier 2 group favoured retaining the existing price cap arrangement. The Tier 2 group also chose not to adopt a drought tariff. For 2011-13, Seqwater continued the price cap arrangement.

2.2 Regulatory Framework and Risk Allocation

Draft Report

Stakeholder Submissions

Seqwater

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

In summary, Seqwater considers that volume risk be borne by customers through a tariff structure where fixed charges recover fixed costs and volumetric charges recover costs that vary with demand. For cost risk, Seqwater considers that it should not bear the risk for uncontrollable costs, such as unforeseen events and costs that are difficult to forecast. Seqwater (2012g) considers that an end-of-period adjustment for such costs is appropriate.

Other Stakeholders

The Queensland Farmers' Federation (QFF 2012) submitted that the Mary Valley WSS places some reliance on tributary flows to meet MP supply.

QFF (2012) also noted that the Ministerial Direction provides no scope to allow the Authority to consider significant structural issues in Pie Creek which is experiencing negative consequences resulting from urban encroachment and poor levels of water use.

During consultations in June 2012 (QCA 2012c), irrigators questioned whether Seqwater's past revenue under-recovery due to low water use will be carried forward into future prices. Irrigators also asked whether a water allocation could be surrendered.

Stakeholders during consultations in June 2012 (QCA 2012c) and QFF (2012) submitted that the theory of water moving permanently to higher value uses does not apply in Pie Creek with cost-reflective prices (well above current prices) favouring temporary trading.

G. Rozynski (2012) submitted that if sleepers and dozers [low water users] find it too costly to own allocations they can sell to others, thereby promoting economic development.

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

<i>Risk</i>	<i>Nature of the Risk</i>	<i>Allocation of Risk</i>	<i>Authority's Recommendation</i>
Short-Term Volume Risk	Risk of uncertain use from fluctuating water demand or supply.	Seqwater cannot manage these risks and under current legislative arrangements, they are the responsibility of customers. Allocate risk to customers.	Cost-reflective tariffs.
Long-Term Volume Risk (Planning and Infrastructure)	Matching storage capacity (or new entitlements from improving distribution loss efficiency) to future demand.	Seqwater cannot augment bulk infrastructure (Government is responsible). Seqwater can manage distribution system assets and losses.	Seqwater should bear the risks, and benefit from the revenues, associated with reducing distribution (and bulk) losses, (where/when the resulting water savings can be permanently traded).
Market Cost Risks	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	Changes to water planning framework imposing costs on service provider.	Customers should bear the risk though there may be some compensation associated with National Water Initiative (NWI) government decisions.	Cost variations may be immediately transferred to customers using a cost pass-through mechanism (depending on materiality).

Source: QCA (2012).

As noted in Volume 1, the Authority recommended that short term volume risk should be assigned to customers through a tariff structure that recovers fixed costs through fixed charges and any and all variable costs through volumetric charges.

Tributary Flows

In response to the QFF (2012), the Authority noted that natural tributary flows downstream of storages are typically part of the assessed system supply and are taken into account in defining WAE for water planning purposes.

The Authority also considered that the risk implications of low flow periods will be reflected in the allocation of fixed costs such as renewals costs and fixed operating costs between MP and HP users. This issue is further reviewed in Chapter 4.

No further submissions were received in relation to tributary flows.

Urban Encroachment

Draft Report

The Authority noted QFF's comments that there is currently no scope for the Authority to consider structural adjustment issues. In this context, the Authority is bound by the Ministerial Direction, which requires the Authority to recommend prices which reflect prudent and efficient expenditure on renewing and rehabilitating existing assets through a renewals annuity. Issues, including alternative management arrangements that achieve

structural adjustment are policy matters to be considered by Government in consultation with relevant parties.

Urban encroachment is a risk best managed by customers, as they have the ability to trade WAE. However, in some circumstances, large scale urban encroachment may result in increased urban demand for water, which could provide opportunities for trading.

The Authority noted that Pie Creek tariff group has a history of trading but this has occurred exclusively within the irrigation sector. Inter-sectoral trading needs to be examined as the options within the irrigation sector may be otherwise limited.

Submissions Received from Stakeholders on the Draft Report

During consultation in February 2013, irrigators commented that a review of Pie Creek needs to be undertaken, including consideration that Gympie's population is forecast to increase and will require more urban water in the future.

QFF (2013b) submitted options to address the future of Pie Creek could include:

- (a) State Government to purchase WAE from irrigators at agreed rates for lease back for a defined period – providing certainty and time for business to re-organise;
- (b) waive the termination fee to allow trading back into the Mary Valley WSS; and
- (c) state and local governments co-ordinate a response allowing irrigators to remain, by:
 - (i) the QCA investigating whether pump and distribution assets could be optimised to allow costs to be re-assessed; or
 - (ii) investigating options to identify differential tariffs for irrigation and rural residential; or
 - (iii) reviewing options for Gympie Regional Council to operate Pie Creek.

Authority's Response to Submissions Received on the Draft Report

The issue of increasing urban water demand requires discussions between Seqwater and relevant Governments about the long term transition of Pie Creek from irrigation to urban demand. However, the needs of the small number of remaining substantial irrigation users need to be recognised. If water use is generally lower, this will impact volumetric charges.

In terms of the options raised by QFF for Pie Creek, the Authority notes that:

- (a) a Government purchase and lease-back policy would be a matter for Government;
- (b) the Authority has taken into account the need to facilitate trading when recommending a revised termination fee (see Chapter 6);
- (c) the Authority agrees that there may be scope to optimise the pumping and channel assets where land use changes significantly to rural residential. The Authority has been directed to set prices on the basis of a renewal of existing assets. The matter of a reconfiguration or optimisation of scheme assets is for Government;
- (d) differential tariffs would be difficult to justify as all WAE are MP, however, if service standards were differentiated this could be achieved; and

- (e) local government operating Pie Creek may be an option if, for example, Pie Creek became predominantly rural residential. This would be a matter for Government and Seqwater.

Trading

Draft Report

In response to stakeholder comments during consultations in 2012, the Authority confirmed that WAE in Mary Valley and Pie Creek cannot be surrendered. However, in both tariff groups, WAE can be traded since the completion of the Mary Basin Resource Operating Plan (ROP) in September 2011. Trading between Mary River and Pie Creek is permitted, although a limit applies to the volume that can be traded into Pie Creek.

The volumes of temporary water traded and leased volumes for Mary Valley WSS are identified in Table 2.2. Lessees of WAE obtain the same benefits as WAE holders without holding title to the WAE. Seqwater provided no data on permanent trades that may have occurred since the ROP was completed.

Table 2.2: Volume of Water Traded in Mary Valley WSS (ML)

	<i>2008-09</i>	<i>2009-10</i>	<i>2010-11</i>	<i>2011-12</i>
Temporary	338	1,549	677	352
Leased	256	246	214	314

Source: Seqwater (2012ap). Note: Data for 2011-12 represents up to 31 March 2012.

Submissions Received from Stakeholders on the Draft Report

Stakeholder comment in regard to trading focused on issues related to termination fees. These are discussed in Chapters 3 and 6 below.

Other Matters

In response to irrigator questions whether past under-recovered revenue will be carried forward, the Authority confirmed that, aside from a community service obligation (CSO) contribution by Government for the shortfall, Seqwater has borne the risk associated with under-recovery. Therefore, future prices will not reflect this under-recovery.

3. PRICING FRAMEWORK

Under the Ministerial Direction, the Authority is required to recommend Seqwater's irrigation prices (and tariff structures) to apply over 2013-17.

3.1 Tariff Groups

The Ministerial Direction specifically directs the Authority to adopt the tariff groups as proposed in Seqwater's NSPs. In Mary Valley WSS these are:

- (a) Mary Valley (river); and
- (b) Pie Creek (distribution).

Seqwater (2012ap) proposed that the current tariff groups continue.

Accordingly, the Authority has adopted the proposed tariff groups for this WSS.

3.2 Tariff Structure

Previous Review 2006-11

In the 2006-11 price path, for the Mary Valley WSS:

- (a) Mary Valley tariff group fixed charges were set to recover 80% of revenue and variable charges set to recover 20% of revenue, given an agreed forecast use; and
- (b) Pie Creek tariff group fixed charges were set to recover 70% of revenue and variable charges set to recover 30% of revenue, given an agreed forecast use.

For 2006-11, prices were set for Mary Valley tariff group to increase by \$2.50 per year after 2006-07 to recover costs during the price path. Recovery of the original lower bound costs was achieved in 2010-11 after a real increase of \$7.26 per ML (Seqwater 2012g).

For 2006-11, prices were set for Pie Creek to increase by \$2.50 per year after 2006-07 towards the recovery of costs. The recovery of costs was not achieved by the end of 2006-11. A CSO was provided to cover the shortfall between prices and costs. A CSO was also provided to cover this shortfall during 2011-13.

Draft Report

Stakeholder Submissions

Seqwater

Seqwater (2012aj) submitted that during the 2006-11 price path the volumetric and fixed charges were set to recover a set percentage of lower bound costs, regardless of whether those costs were fixed or variable. This meant that the volumetric charge did not signal the marginal costs of taking water.

Seqwater agreed with the Authority's findings associated with the recent SunWater pricing review that a cost-reflective two-part tariff structure is appropriate. Specifically, the volumetric charge should be set to reflect those costs which are expected to vary with water use over the regulatory period with the fixed charge recovering the balance of costs.

Seqwater (2012g) considered that all costs associated with the provision of irrigation services in the Mary Valley tariff group are fixed. Accordingly, Seqwater proposed a single fixed tariff to Mary Valley irrigation customers.

Seqwater proposed that there are variable costs associated with pumping water to Pie Creek and that a variable tariff should apply to recover these costs.

Seqwater submitted that Pie Creek is a bulk tariff group, within the Mary Valley WSS, and is not a separate distribution system. Accordingly, Seqwater proposed that there be tariff groups comprising:

- (a) Mary Valley tariff group - Parts A and B (with Part A recovering bulk fixed costs and Part B recovering bulk variable costs); and
- (b) Pie Creek tariff group - Parts A and B (recovering the costs as outlined above). In addition, a Part A1 recovering distribution system fixed costs and Part B1 recovering distribution system variable costs.

Other Stakeholders

Stakeholders (during consultations in June 2012 - QCA 2012c and D. Burnett, 2012) noted that a high fixed charge will be difficult to pay when water availability is low and that allocations, if not used, become a liability and not an asset.

G. Rozynski (2012) submitted that if the Part B charge is only to be a small percentage of total charges, only a Part A charge would be necessary.

QFF (2012) submitted that:

- (a) contrary to Seqwater's (initial) submission, variable costs (such as pumping costs) are incurred in Pie Creek; and
- (b) there needs to be unbundling of the bulk and distribution tariffs for Pie Creek.

Stakeholders (during consultations in June 2012 - QCA 2012c and G. Rozynski 2012) submitted that if the volumetric charge were zero (as proposed by Seqwater), then meters will not need to be read as frequently, thereby decreasing costs.

Authority's Analysis

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

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 recommended that all, and only, variable costs be recovered through a volumetric charge, with fixed charge covering the balance of costs.

While noting stakeholder concerns regarding a high fixed charge, particularly in periods of low water availability, under current legislative and contractual arrangements (and the Ministerial Direction), customers must bear all the costs of water supply incurred by Seqwater, irrespective of whether it is made available (provided the costs of supply are efficient and prudent), and irrespective of whether there is a drought.

The ability to trade should ensure that WAE does not become a liability. Inactive WAE holders can trade their holdings to active users thereby increasing production from available water supplies.

The Authority noted stakeholder comment that if the Part B charge is a small percentage of total charges, then only a Part A charge should apply. However, the Authority considered that having a 100% Part A would provide an inefficient outcome as customers would not face the efficient price signal.

The Authority also noted that the recommended tariff structure does not result in zero variable charge as (initially) submitted by Seqwater. Seqwater subsequently submitted that Pie Creek does incur variable pumping costs only.

In response to QFF, the Authority proposed the unbundling of tariffs for Pie Creek.

The Authority considered that it is appropriate to consider the Pie Creek tariff group as a distribution system to which unbundling should apply as:

- (a) Pie Creek assets comprise a series of channels and pipes used for water distribution purposes, consistent with the definition¹ of a distribution system (that is, ancillary, non-bulk assets performing water distribution functions for channel irrigators);
- (b) Pie Creek customer off-takes are located on the exposed channels or pipelines;
- (c) there are a discrete set of costs, including electricity pumping costs from the river to the channel, that can be allocated to the Pie Creek tariff group; and
- (d) the Mary Basin ROP provides for losses that are described as ‘distribution loss’ WAE (not bulk / transmission loss WAE).

Seqwater’s approach to unbundling is consistent with the approach recommended by the Authority. As an example, Seqwater’s proposed unbundled tariff structure replaces the Part C charge with Part A1 and the Part D charge with Part A2. This is comparable to the Authority’s recommended unbundled tariff structure of Part A through to Part D.

The Authority recommended an unbundled tariff structure of Part A through to Part D, as the distinction submitted by Seqwater does not change the tariff structure but introduces unnecessarily new tariff group terminology.

In contrast to irrigators’ views that scheduled meter readings could be foregone to avoid costs, the Authority noted that meter readings fulfil requirements other than for billing. These include facilitating the trade of WAE and ensuring the integrity of the water planning process. As an example, formal water allocation security objectives as outlined in the *Water Resource (Mary Basin) Plan 2006* require meters to be read regardless of the necessity for a water service provider to issue invoices.

Submissions Received from Stakeholders on the Draft Report

Seqwater (2013a) agreed with the Authority’s tariff structure principles. However, Seqwater considered that Pie Creek, being a ROP zone, is more in the nature of a supplemented stream rather than a distribution system.

¹ As part of the SunWater review, The Hon. Stephen Minister Robertson MP, Minister for Natural Resources, Mines and Energy, wrote to the Authority to clarify which SunWater assets constituted bulk and distribution assets. <http://www.qca.org.au/files/W-SunWater-Sub-HonStephenRobertsonMP-AssetsBulkWater-1210.pdf>

Seqwater advised that the Pie Creek water infrastructure diverts water from the Mary River to Pie Creek, McIntosh Creek and Calico Creek. The Mary Basin ROP defines Pie Creek as a zone of the ROP, placing WAE in the Pie Creek system. The diversion of water from Mary River is therefore a supplementation of natural watercourses.

Seqwater noted the Condamine North Branch and Barker Barambah Redgate Relift segments in SunWater schemes as having the same ROP characteristics as Pie Creek. These SunWater tariff groups were not termed distribution systems.

Seqwater was concerned that if Pie Creek is characterised as a distribution system, there is a risk that charges under the distribution contract may not be enforceable. Seqwater agreed with the concept of Parts C and D tariffs, but submitted these be described as ‘bulk’ and not distribution charges to remove doubt.

Authority’s Response to Submissions Received on the Draft Report

While the Pie Creek system bears the characteristics of a distribution system given its lengths of channel and pipeline, the Authority accepts that it also has bulk characteristics in that it supplements natural water-courses and resembles the SunWater segments identified.

There are two Standard Supply Contracts for Mary Valley WSS (for river and distribution). Both contracts provide for the application of water charges and for termination fees in Pie Creek. The Authority has referred to Pie Creek as a distribution system for descriptive purposes for this for this review (including to ensure bulk and distribution costs are accounted for separately and to enable tariff unbundling). Determining the relevant contract for the Pie Creek tariff group is a commercial matter for Seqwater.

As Pie Creek is a separate tariff group and involves additional costs, these should be reflected in Parts C and D tariffs. The additional infrastructure also warrants the application of a termination fee to address any permanent trades to the Mary River.

3.3 Water Use Forecasts

Previous Review 2006-11

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 WAE, announced allocations and water use. The final water use forecasts were based on the long term average actual use level. Where there was a clear trend away from the long term average, SunWater adjusted the forecast in the direction of that trend.

Water use forecasts also took into account SunWater’s assessment of future changes in industry conditions, impact of trading and scheme specific issues (SunWater 2006a).

For the Mary Valley WSS, SunWater (2006b) assumed a water use forecast of 40% of WAE for the Mary Valley tariff group and 30% of WAE for the Pie Creek tariff group. Water use for high and MP irrigation WAEs were not separately identified (SunWater 2006b).

Draft Report

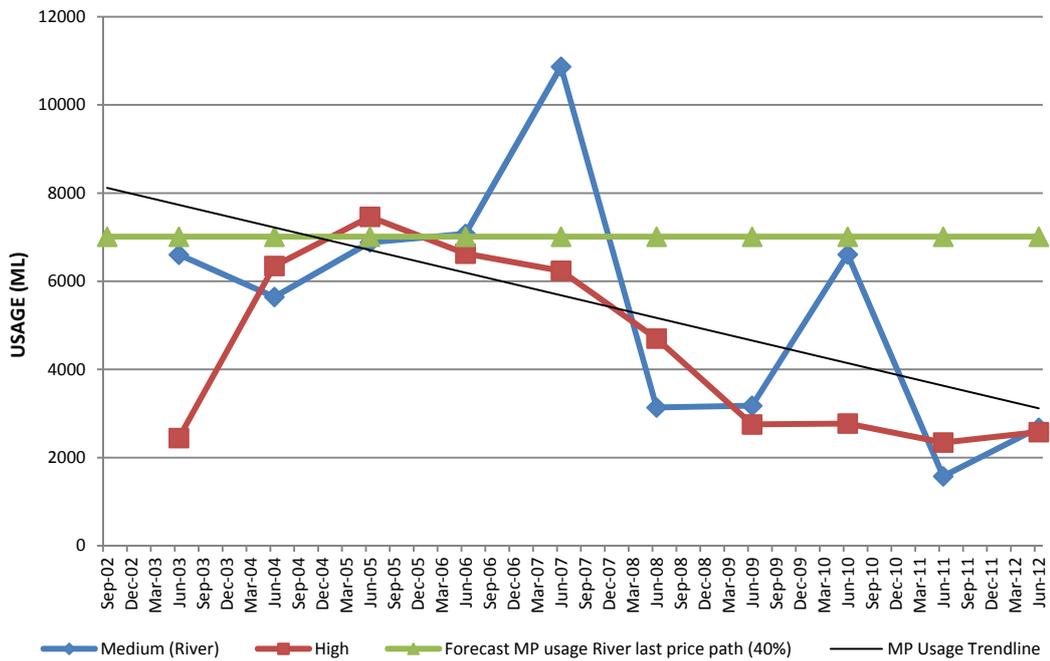
Stakeholder Submissions

Seqwater

Seqwater submitted that the forecast use of 40% in the Mary Valley tariff group is equivalent to 7,011ML per year. Seqwater also noted that the 35%² use forecast for Pie Creek was equivalent to 292ML per year (Seqwater, 2012ap).

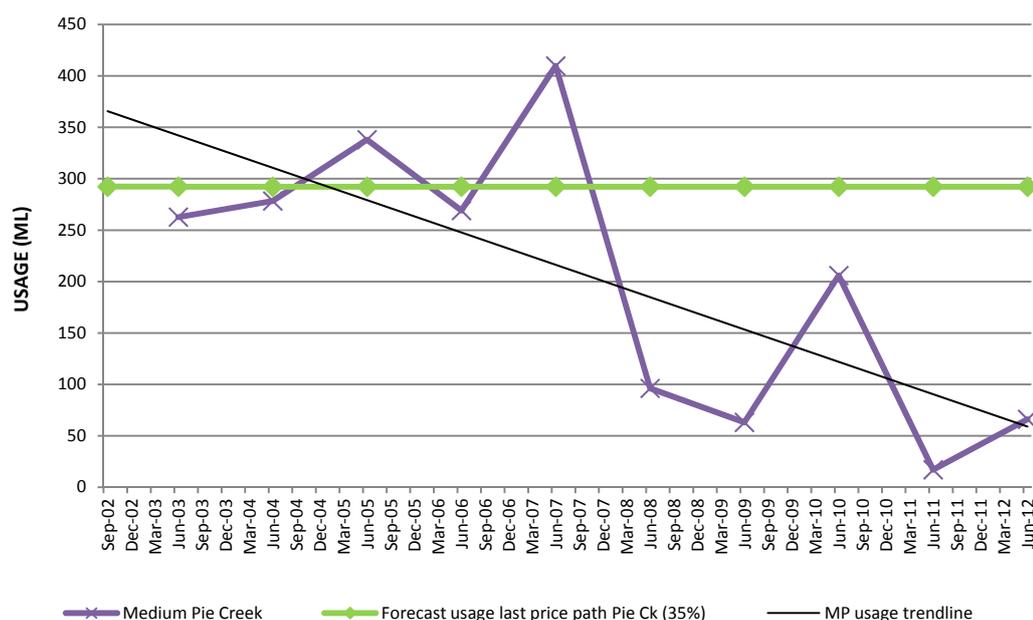
Figure 3.1 and Figure 3.2 show the historic use information for the two tariff groups of the Mary Valley WSS as submitted by Seqwater (Seqwater 2012ap).

Figure 3.1: Water Use for the Mary Valley Tariff Group



Source: Seqwater (2012ap).

² The Authority notes that the Pie Creek forecast use in 2006-11 was actually 30%, not 35%.

Figure 3.2: Water Use for the Pie Creek Tariff Group

Source: Seqwater (2012ap).

Authority's Analysis

The Authority noted that water use forecasting is problematic due to the changes that occur over time in cropping types and the significant variability associated with in-flow events.

The application of two-part tariffs removes the need for water use forecasts.

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. Refer Chapter 6: Total Costs and Final Prices (below).

Submissions Received from Stakeholders on the Draft Report

M and R Sims (2013) submitted that there has been increasing pressure from local government allowing development of agricultural land into rural residential lifestyle blocks in the Pie Creek area which has put downward pressure on water use in this tariff group.

Authority's Response to Submissions Received on the Draft Report

The Authority accepts that urban development has led to changes in Pie Creek water use. However, climate was also likely to be an important driver in water use over recent years. Details of the Authority's approach to water use forecasts are provided in Chapter 6.

3.4 Distribution Losses

Introduction

Seqwater holds WAEs to account for losses involved in delivering water to customers in distribution systems. Distribution losses are incurred in the delivery of water to the Pie Creek section of the Mary Valley WSS.

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

Draft Report

Stakeholder Submissions

Seqwater

Seqwater (2012aj) 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 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 (2012aj) submitted that the Pie Creek section of the Mary Valley WSS constitutes a distribution system where discrete infrastructure and corresponding tariff group exists. For the Pie Creek, Seqwater submitted that it holds both MP and HP distribution loss WAE to account for distribution losses (refer Table 3.1).

Table 3.1: Pie Creek Distribution Loss WAE

<i>MP Loss WAE</i>	<i>HP Loss WAE</i>	<i>Status</i>	<i>MP Customer WAE</i>	<i>Loss WAE as % of Total WAE</i>
426	60	Distribution loss WAE	835	37%

Source: Seqwater (2012ap). Note: Total WAE = MP & HP loss WAE + MP customer WAE.

Seqwater (2012s) subsequently submitted analysis to demonstrate the need for the total nominal distribution loss WAE held (refer Table 3.2).

Table 3.2: Pie Creek Loss WAE Surplus/Deficit

<i>Period</i>	<i>Total Water Delivered (ML)</i>	<i>Customer Metered Use (ML)</i>	<i>Actual Losses (ML)</i>	<i>Total Loss WAE</i>	<i>Unadjusted Actual Losses as a Portion of Total Loss WAE</i>	<i>Basis for Adjustment: Customer Use as Portion of Customer WAE</i>	<i>Adjusted Actual Losses as Portion of Total Loss WAE</i>	<i>Loss WAE Required (ML)</i>	<i>Loss WAE Surplus/Deficit (ML)</i>
2002-03	577	346	231	486	48%	41%	115%	558	(72)
2003-04	230	137	93	486	19%	16%	117%	569	(83)
2004-05	408	338	70	486	14%	40%	35%	172	314
2005-06	261	154	107	486	22%	18%	119%	580	(94)
2008-09	64	63	1	486	0%	8%	3%	13	473
2009-10	204	206	(2)	486	0%	25%	(2%)	(7)	493
2010-11	20	17	3	486	1%	2%	32%	158	328

Source: Seqwater (2012s).

Based on this subsequent submission, Seqwater noted that:

- (a) in 2002-03, 2003-04 and 2005-06, 100% (or more) of current nominal distribution loss WAE was required; and
- (b) in 2008-09 and 2009-10 losses were negligible due to atypical climatic conditions.

Seqwater noted that losses and distribution efficiency have varied widely over time. Efficiency can be close to 100% (as in recent years) or as low as 49%. This compared with an implied distribution efficiency from the loss WAE granted in the ROP of 63%.

Seqwater submitted that, for the purposes of determining a loss volume for pricing, it should be based on the mid-point between the implied ROP distribution efficiency (62%) and the case where no losses occur (100%). Seqwater proposed a distribution efficiency of 82%.

Other Stakeholders

QFF (2012) submitted that only required distribution losses should be established with costs associated with any losses not required to be borne by Seqwater.

Authority's Analysis

For the Pie Creek distribution system, there are no HP customers. Nevertheless, 100% of HP loss WAE can be required from time to time to fill the distribution system at the commencement of each irrigation season prior to water delivery recommencing. Periodically emptying the distribution system is necessary because, prior to the irrigation season, major distribution system maintenance work requires the distribution system to be emptied.

Seqwater submitted that if HP loss WAE were not available when needed, water delivery could be compromised.

The Authority noted that Pie Creek loss WAE as a percentage of total WAE (at 37%) represented a comparatively high percentage³. For the Pie Creek tariff group therefore, the price implications of holding HP loss WAE were material.

The SunWater review concluded that SunWater held excessive loss WAE in most distribution systems. However, in contrast to the SunWater review where inconsistencies were identified between actual and nominal losses, Seqwater has submitted evidence (as outlined in Table 3.3) that all nominal loss WAE is required to ensure the integrity of Pie Creek. The Authority confirmed that Seqwater's practice of using HP loss WAEs to supply MP customers was consistent with the water planning framework.

The Authority considered that on the basis of this data, the total loss WAE of 486 ML are, from time to time, required. If the full 486 ML was not available when needed, the integrity of the distribution system could be significantly compromised.

In response to Seqwater's proposal for an efficiency average of 82%, the Authority considered that the full volume of losses may at times be required and therefore should be considered for pricing purposes.

In response to QFF's submission that required distribution losses should be established with any costs associated with surplus losses to be borne by Seqwater, the Authority concluded that, for Pie Creek, required losses have been established and that there are no surplus losses.

For pricing purposes in Pie Creek, the Authority recommended that costs allocated to the 60ML (100%) of HP loss WAE and 426ML (100%) of MP WAE be recovered from Pie Creek customers.

However, DNRM should reconsider (review) the mix of MP to HP loss WAE currently prescribed for Pie Creek and make an amendment to the ROP, if needed, by 30 June 2015. This should take account of any expected long term changes in land use patterns in the scheme. Once the results of the reviews are known, any material impact on prices can be addressed either through a within or end of period adjustment.

Submissions Received from Stakeholders on the Draft Report

Seqwater (2013a) agreed in principle with the recommendation for a review of all bulk and distribution loss WAE by 30 June 2015, but suggested the review should only occur for schemes that are subject to a ROP (such as the Mary Valley WSS).

During consultation in February (QCA 2013), stakeholders submitted that as distribution losses WAE are high, significant costs are incurred. Irrigators therefore sought ways to reduce the loss WAE. M. and R. Sims (2013) submitted that scheme efficiency is a problem and effort is required to reduce losses.

DNRM (2013) submitted that it does not support the draft recommendation that DNRM review and determine the efficient levels of bulk and distribution loss WAE. The volume of WAE needed to cover the distribution losses is essentially a function of operation, asset maintenance and contractual arrangements between the scheme operator and the customer. It is inappropriate for a natural resource regulator, such as DNRM, to be exercising judgement as to what should be the appropriate loss WAE.

³ As an example, SunWater loss WAE (all sectors) as a % of total WAE in SunWater distribution systems range from 15% in the Eton Distribution System to 41.5% in the Burdekin-Haughton Distribution System. The average for all SunWater's distribution systems is 25%.

DNRM submitted that the initial allocation of loss WAE was established by DNRM based on minimising the risk of the water service provider having insufficient water to meet customer demand. The decisions were often based on limited data about the appropriate quantum of loss WAE. This led to a conservative [high] volume being allocated.

The mechanism for reducing the volume of distribution loss WAE would be to change its purpose to ‘any’. This change may be applied for by the entitlement holder (Seqwater) under section 130 of the Water Act. The WAE could then be sold.

Such a change of would need to be instigated by Seqwater as the holder of the loss WAE. Grounds for such a change could be revised operational requirements, improved infrastructure and/or better information. Such an application would need to be supported by sufficient information to enable the Chief Executive of DNRM to decide the application’s merits including documentation of the actual distribution losses incurred.

DNRM submitted that instead of introducing permanently tradeable WAE in the Central Lockyer Valley WSS by 30 June 2015, it proposes to issue customer IWA by 30 June 2017. [DNRM proposed no alternative date for the ROP amendment that would be associated with the issuance of permanently tradeable water allocations.]

QFF (2013b) supports the Authority’s draft recommendation that DNRM (by 30 June 2015) review and determine the efficient level of all bulk and distribution loss WAE to ensure that customers do not pay for loss WAEs held by Seqwater in excess of requirements.

Authority’s Response to Submissions Received on the Draft Report

The Authority notes Seqwater’s and QFF’s support for the recommendation that DNRM determine efficient bulk and distribution loss WAE by 30 June 2015.

The Authority also notes DNRM’s submission that because the appropriate volume of loss WAE is essentially a function of scheme operation and contractual arrangements between the WSS and customers, it is DNRM’s view that it is inappropriate for the resource regulator (DNRM) to exercise judgement as to what the appropriate volume of loss WAE should be.

In response, the Authority notes that DNRM has an ongoing role in WRP and ROP reviews, and is well placed to initiate a review to determine the efficient level of loss WAE.

The SunWater review identified that the original volumes of loss WAE were conferred by DNRM. As part of that review, a number of SunWater’s distribution systems were estimated by the Authority to be holding loss WAE well in excess of requirements. A recommendation of the SunWater review (also endorsed by Government) was that DNRM immediately review loss WAEs in all distribution systems. The Draft Report identified the best means for reviewing loss WAEs was an amendment to the ROP.

The Authority maintains that the efficient level of bulk and distribution system loss WAE needs to be reviewed and determined by DNRM according to timeframes established for ROP amendments. The Authority notes that Pie Creek is included in the Mary Basin ROP.

Stakeholder comments broadly support the need for loss amounts to be reviewed. Seqwater supported the draft recommendations on the timing of loss WAE reviews, on the proviso that any review to determine the efficient level of loss WAE, apply only to those tariff groups currently included in a ROP (that is, Pie Creek).

The Authority maintains its draft recommendation that DNRM should review and establish the efficient level of distribution losses in Pie Creek by 30 June 2015.

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.

However, the only Seqwater tariff group where termination fees currently apply is the Morton Vale Pipeline tariff group in the Central Lockyer Valley WSS.

Draft Report

Stakeholder Submissions

Seqwater

Seqwater's initial submissions state that Pie Creek is not a distribution system, on the basis that the customers of this tariff group are only subject to the conditions of the river supply contract for Mary Valley WSS. According to Seqwater, therefore, there are to be no termination fees for Pie Creek. In subsequent submissions, Seqwater confirmed its initial proposal that no termination fees are to apply in Pie Creek.

Other Stakeholders

QFF (2012) submitted that:

- (a) a termination fee should be established for the Pie Creek tariff group; and
- (b) the Authority needs to be mindful that any recommended termination fee will act as a restraint on trading out of Pie Creek.

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.

As indicated above, the Authority considered Pie Creek to be a distribution (like) system. This is in contrast to Seqwater's submissions to the contrary and Seqwater's recommendation that, accordingly, no termination fee should be applied to a Pie Creek customer seeking to exit the tariff group.

The Authority also noted stakeholder submissions in support of establishing a termination fee for Pie Creek.

Accordingly, and to deliver to (remaining) Pie Creek customers the benefits of the approach recommended for SunWater, the Authority recommended that a termination fee should apply to the Pie Creek tariff group consistent with the Authority's general methodology for this purpose.

As outlined in Volume 1, 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 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 resulted in a termination fee that equates to a multiple of about 11 times the distribution system fixed water charge (i.e. 11 times the Authority's published cost-reflective Part C tariff), including GST.

The Authority also noted the views of stakeholders that any termination fee that applies to Pie Creek could act as a disincentive to trading WAE to the Mary River WSS (exiting the Pie Creek tariff group). In response, the Authority noted that the recommended multiple of 11 is equivalent to that recommended by the ACCC and that this took into consideration impacts on water trading.

Consistent with the approach adopted in the SunWater review, the Authority recommended that termination fees are applied as a multiple of up to 11 (incl. GST) times the cost-reflective distribution system fixed charges (that is, the Authority's cost reflective Part C tariff) in the Pie Creek tariff group.

A lower multiple could be applied at Seqwater's discretion should it be consistent with Seqwater's commercial interests (e.g. in the interests of more efficient system management).

Seqwater should not recover the balance of any shortfall from remaining customers, arising from exit by another customer or Seqwater (upon converting loss WAE to saleable bulk WAE).

Submissions Received from Stakeholders on the Draft Report

Seqwater (2013a) advises that a termination fee should apply in Pie Creek, but that Seqwater would prefer such a fee be levied under the river (not distribution) Standard Supply Contract. Seqwater also agreed that it should have some measure of discretion about termination fees, but noted that the goal of cost recovery remains paramount.

QFF (2103b) submitted that applying the Authority's draft methodology to Pie Creek results in an excessive fee likely to prevent irrigators trading water to the Mary River.

During consultation in February (QCA 2013), stakeholders submitted that the termination fee in Pie Creek should be based on the recommended Part C, not the cost-reflective Part C.

Authority's Response to Submissions Received on the Draft Report

Exits of WAE can include customers trading water permanently to the Mary River or Seqwater converting loss WAE to 'other' and also transferring this to the Mary River.

The Authority accepts that for Pie Creek, the Draft Report's termination fee of \$3,595 per ML is likely to be a significant barrier to water trading, as it is substantially higher than any recommended for SunWater. The highest SunWater termination fee was \$1,116/ML (2012-13) for Lower Mary Distribution System.

Given the unique circumstances of Pie Creek, and in recognition of the economic/structural concerns raised by stakeholders, the Authority proposes an alternative approach as a

transitional measure, during any review of this tariff group during the regulatory period. The Authority recommends that the Pie Creek termination fee be based on 11 times the recommended (not the cost-reflective) Part C charge.

This is proposed to apply for the 2013-17 regulatory period as a transitional measure, during Seqwater and the Government's consideration of future options for this tariff group.

Importantly, the Authority reiterates its view that customers remaining in Pie Creek (after exits take place) should not pay any outstanding fixed costs.

The Authority notes the contract that the Standard Supply Contract Mary Valley WSS (River) and the Standard Supply Contract Mary Valley WSS (Distribution), both refer to termination fee methodologies that are inconsistent with those outlined in the Authority's Draft and Final Reports. The Authority recommends the Final Report approach.

In the initial years of the price path, the termination fee will increase at CPI, until the fixed Part A Mary River WSS bulk charge reaches the cost reflective target. The annual \$2/ML real increase is then applied to the Part C charge, so that the termination fee will then increase at a rate faster than CPI.

The Authority's recommended termination fees are detailed in Chapter 6: Total Costs and Final Prices (further below).

The Authority's recommended termination fee implies a higher CSO contribution from Government for 2013-17, to offset the cost impact on remaining users (i.e. the difference between the revised cost-reflective and recommended termination fees) – however, this is a matter for Government to determine in negotiations with Seqwater.

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 and 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; and
 - (ii) the unbundling of the opening ARR balance for bulk and distribution systems;
- (b) the prudence and efficiency of Seqwater's forecast renewals expenditure;
- (c) the methodology for apportioning renewals between MP and HP WAEs; and
- (d) the methodology to calculate the renewals annuity.

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

Seqwater has estimated that it has under management 74 bulk water storage assets relevant to entitlement holders in South East Queensland (SEQ), including irrigators, local government authorities, industrial users and the former SEQ Water Grid Manager. Seqwater (2012ap) 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.

Some of the assets were renewed during 2006-13 period. 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 prudence 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 to other similar renewal items to determine the prudence and efficiency of this expenditure.

4.2 Seqwater's Opening ARR Balances (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.

Seqwater (2012ap) submitted that the opening balance on 1 July 2006 for the Mary Valley WSS (bundled) was negative \$1,990,965.

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

Draft Report

Stakeholder 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) establishing a closing ARR balance on a whole of scheme (all sectors) basis at 30 June 2006;
- (b) calculating balances based on 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 interest rates of 0% for 2000-06 and 9.69% for 2006-13.

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 (Direct) Renewal Expenditure 2006-11 (Nominal \$'000)

<i>Tariff Group</i>	<i>Forecast 2006-11</i>	<i>Actual 2006-11</i>	<i>Variance</i>
Mary Valley	508	398	(110)
Pie Creek	164	84	(80)

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 actual renewals expenditure are shown in Table 4.2, allocated between direct and non-direct costs.

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

<i>Tariff Group</i>	<i>2006-07</i>	<i>2007-08</i>	<i>2008-09</i>	<i>2009-10</i>	<i>2010-11</i>
Mary Valley					
Direct	88,588	17,978	0	73,070	218,690
Non-direct	33,823	13,781	0	22,256	66,609
Total	122,411	31,759	0	95,326	285,299
Pie Creek					
Direct	14,599	6,893	0	16,701	46,070
Non-direct	7,508	3,284	0	5,087	14,032
Total	22,107	10,177	0	21,788	60,102

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 \$)

<i>Tariff Group</i>	<i>Actual 2011-12</i>	<i>Forecast 2012-13</i>	<i>Total</i>
Mary Valley	170,718	196,538	367,256
Pie Creek	197,980	249,225	447,205

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 and compared to the 1 July 2006 opening balance.

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

<i>Tariff Group</i>	<i>Seqwater Bundled - 1 July 2006</i>	<i>Seqwater Unbundled - 1 July 2006</i>	<i>Seqwater Proposed ARR Balance - 1 July 2013</i>
Mary Valley	(1,990,965)	(2,041,467)	(3,844,424)
Pie Creek	n.a	50,502	129,261

Source: Indec (2012).

Other Stakeholders

QFF (2012) noted that the significant negative ARR balances in both the Mary Valley and Pie Creek tariff groups being proposed in Seqwater's [initial] NSP. QFF submitted that these balances need to be rectified.

QFF (2012) sought clarity on how investigations being undertaken by the Authority on past renewals expenditure has affected Seqwater's proposed ARR balances as at 30 June 2013.

Authority's Analysis

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

Unbundling

Seqwater 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 considered 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 resulted in changes to the opening 1 July 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)

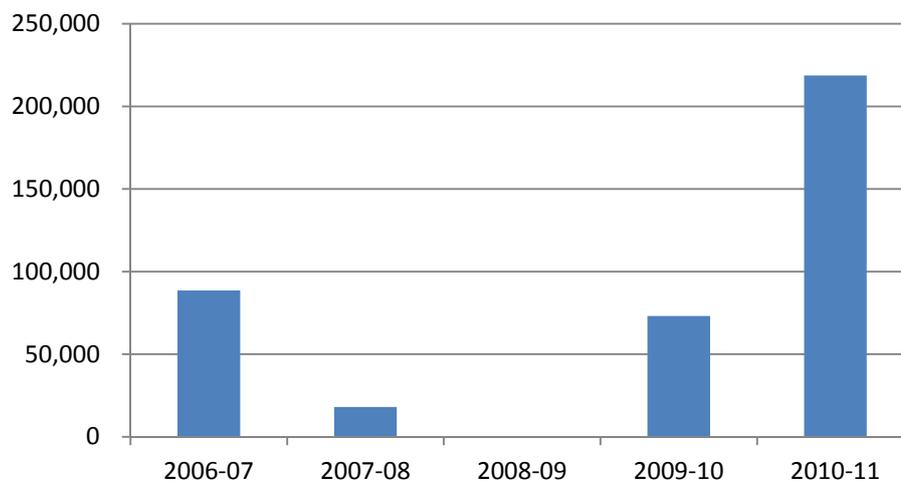
<i>Tariff Group</i>	<i>Seqwater Unbundled ARR Balance 1 July 2006</i>	<i>Authority Unbundled ARR Balance 1 July 2006</i>
Mary Valley	(2,041,467)	(1,959,887)
Pie Creek	50,502	(31,078)

Source: Indec (2012).

Renewals Expenditure 2006-13

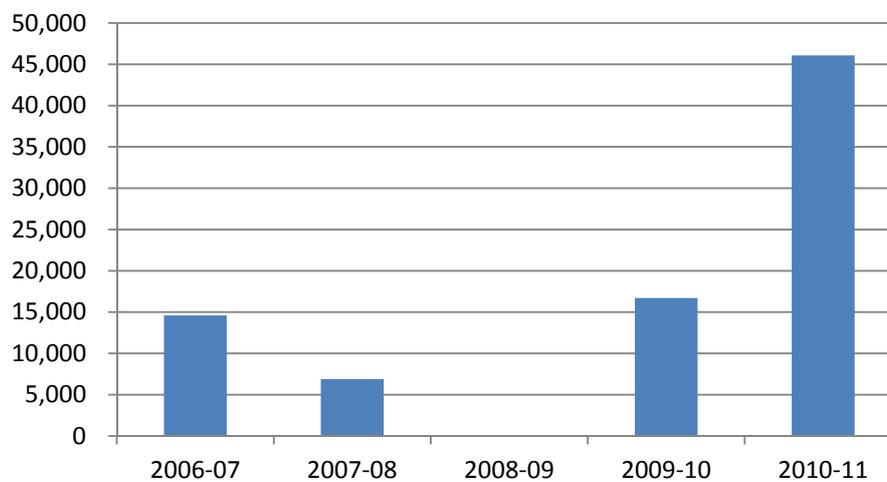
The total direct renewals expenditure over 2006-13 is detailed in Figures 4.1 and 4.2 for Mary Valley and Pie Creek respectively.

Figure 4.1: Past (Actual) Direct Renewals Expenditure Mary Valley 2006-11 (Nominal \$)



Source: Indec (2012).

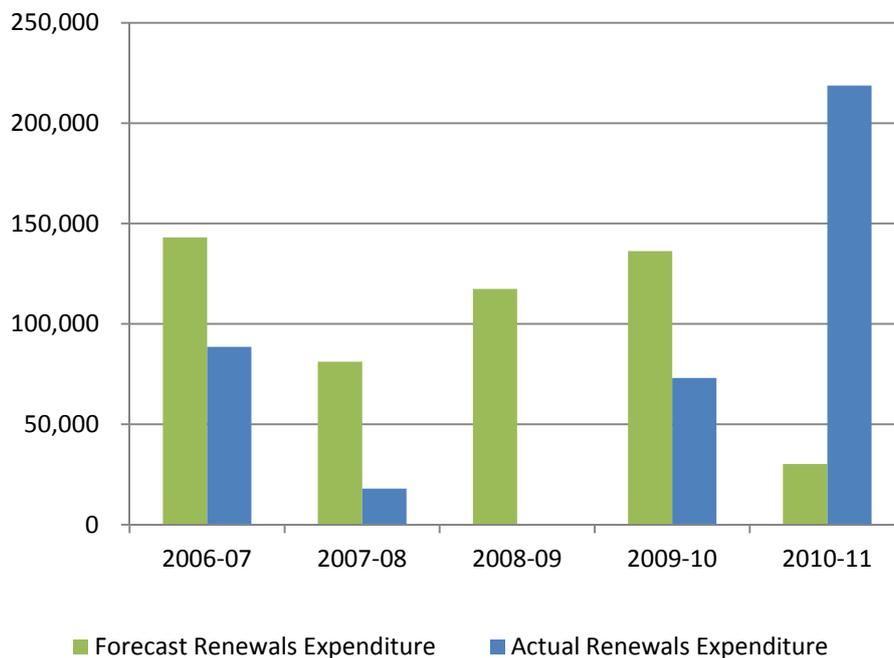
Figure 4.2: Past (Actual) Direct Renewals Expenditure Pie Creek 2006-11 (Nominal \$)



Source: Indec (2012)

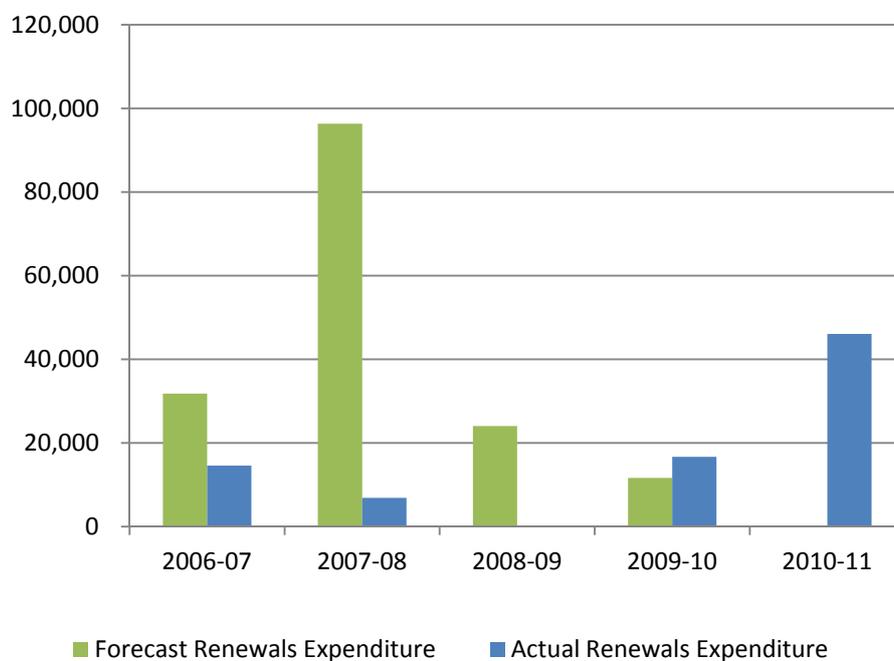
A comparison of forecast and actual direct renewals expenditure in the Mary Valley for 2006-11 is shown in Figure 4.3. The same comparison is shown for Pie Creek in Figure 4.4.

Figure 4.3: Comparison of Forecast and Actual Direct Renewals Expenditure 2006-11 Mary Valley (Nominal \$)



Source: Indec (2012)

Figure 4.4: Comparison of Forecast and Actual Renewals Expenditure 2006-11 Pie Creek (Nominal \$)



Source: Indec (2012).

In relation to the prudence and efficiency of past renewals, the Authority noted 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 un-sampled renewals expenditure during 2006-11. This was on the basis that the Authority's review 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 WSSs.

The Authority recommended, 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 remained 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 a sample of Seqwater's past renewals items for prudence and efficiency.

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. The Authority applied these findings to 100% of renewals expenditure incurred in 2008-09 in the Mary Valley WSS.

For 2009-10 and beyond, however, Seqwater has recorded renewals expenditure in a more detailed and verifiable way. As part of the SKM review, two past renewals items were selected in the Mary Valley WSS. Although these items were defined as maintenance, the Authority considered that the nature of the expenditure was predominantly renewals related. These items are reviewed in detail below.

Review of Sampled Items

Item 1: Recreational Maintenance – Mary Valley

Seqwater

Seqwater had submitted to the Authority that between 2008-09 and 2010-11, some \$230,186 was spent in Mary Valley WSS on recreation maintenance. The cost breakdown provided by Seqwater in response to SKM's request for information (RFI031) totals to \$233,894 for the years 2008-09 and 2010-11. According to Seqwater, no costs were incurred in 2009-10.

Project Description

The costs incurred for recreation maintenance, Mary Valley relate to the resurfacing and maintenance of the recreation area surrounding Borumba Dam in particular the resurfacing of the car park, boat ramp repair and re-arrangement of the traffic flow in the vicinity of the boat ramp. It also includes some landscape work resulting from the re-arrangement of the traffic flow.

Prudency

The recreation area located at Borumba Dam was serviced by an access road leading to a car park. At a corner of the car park, at the end of the access road, a boat ramp provided boat access to the water. Prior to the resurfacing work and traffic flow re-design, the road surface was worn and access to both the car park and boat ramp was via a narrow approach. This often created difficulties in accessing the car park and also constituted a public safety concern to both car and pedestrian traffic in the vicinity of the boat ramp due to the age and condition of the assets.

The resurfacing, enlarging and re-design of the traffic flow rectified the situation and enabled the approach to the car park to avoid the immediate area where boats are launched.

Seqwater is required to maintain the recreation facilities at its dams. These dams are part of South East Queensland's water supply system and Borumba Dam is a referable dam under the *Water Supply (Safety and Reliability) Act 2008*.

Consequently the operating expenditure item was assessed as prudent.

Efficiency

Data provided by Seqwater showed that most of the costs incurred in 2010-11 were due to the re-surfacing of the road, car park and repair the boat ramp. This work was carried out by Gympie Council.

Gympie Council was not on Seqwater's panel of contractors. However, Gympie Council was appointed to undertake the car park resurfacing work and boat ramp repair after a tender process resulted in prices that were above Seqwater's expectations. Gympie Council was already in the process of re-surfacing the access road to the car park and were then approached by Seqwater to provide a quote to undertake the car park re-surfacing work and repair the boat ramp in addition.

Given that Gympie Council was already deployed in the area and had labour and assets in place, they were able to provide a quote that was significantly below that quoted by the other parties. SKM was granted access to the quotes provided by the all parties and confirmed that Gympie Council's quotes amounted to less than 60% of the next lowest value quote due to the fact that much of their fixed and overhead costs had already been accounted for by the initial work to re-surface the access road.

Other works related to the recreation area were performed by panel contractors under the terms of their contracts.

No costs were identified by Seqwater for 2009-10. Costs for 2008-09 were recorded in Seqwater's previous financial system in one single order. The costs submitted by Seqwater for recreation maintenance were based on the assumption that, for the purposes of establishing renewals expenditure, the expenditure might be allocated to work orders based on work carried out in later years (2010-11). The actual breakdown of 2008-09 costs was not available for evaluation and an assessment of efficiency by SKM. This was highlighted in an allocation of over \$80,000 for construction work in 2008-09 due to the car park re-surfacing work and boat ramp repair undertaken in 2010-11.

On the basis of insufficient information to evaluate the costs incurred as compared to the scope of work, SKM determined that this expenditure was not efficient.

Based on the information provided by Seqwater, SKM was only able to consider the expenditure incurred by 2010-11 as efficient. Information did not exist for SKM to offer a view regarding costs proposed for 2008-09. SKM recommended costs for recreation maintenance of \$123,293 in 2010-11.

Authority's Analysis

The Authority recommended that the 2010-11 amount of \$123,293 be taken into account in past renewals calculations, for determining the ARR balances. The expenditure claimed in previous years was excluded.

Item 2: Unplanned Maintenance – Pie Creek

Seqwater

Seqwater submitted unplanned maintenance costs for Pie Creek of \$31,015 in 2008-09 and \$36,172 in 2010-11 (total cost of \$67,187).

Project Description

The costs incurred for unplanned maintenance, Pie Creek relate to breakdowns at the pump station at the Mary River.

Prudence

Operating the Pie Creek distribution system requires Seqwater to properly repair and maintain the assets that it owns and operates and which are used to service irrigation customers. The reactive maintenance costs incurred relate to the Pie Creek Pump Station and associated telemetry. As the pump station is needed to operate the Pie Creek distribution system, the operating expenditure item was assessed as prudent.

Efficiency

Data provided by Seqwater showed that the costs incurred in 2010-11 were incurred in maintaining the Pie Creek Pump Station and associated telemetry. The work was conducted by contractors under the terms of their contracts. A breakdown of costs for 2010-11 was provided in Seqwater's response to SKM's request for information (RFI031) and included:

- (a) ME Pie Creek Reactive Maintenance - electrical maintenance services - \$4,785;
- (b) ME Pie Creek Reactive Maintenance - P5455 - \$1,109;
- (c) ELE auto dialler fault – contractor electrical maintenance- \$553;
- (d) ELE e-stop enclosures – contractor electrical maintenance - \$2,173;
- (e) MEC SS skirt fitted to pump – P5457 - \$92;
- (f) ELE pump will not start – MP control system maintenance services - \$385;
- (g) MEC Flygt submersible pump – MP mechanical maintenance services - \$934;
- (h) MEC Flygt submersible pump – MP specialist maintenance services - \$15,555;
- (i) MEC Flygt submersible pump – Equipment hire – external - \$2,037; and

- (j) ELE fault pump control – MP – Instrument maintenance service - \$8,549.

No costs were identified by Seqwater for 2009-10. All 2008-09 costs were recorded in Seqwater's previous financial system under one single work order number. The 2008-09 allocation of costs submitted by Seqwater for unplanned maintenance at Pie Creek were based on the assumption that, for the purposes of establishing renewals expenditure, the expenditure might be allocated to work orders based on work carried out in later years (2010-11). The actual breakdown of the 2008-09 costs was not available for evaluation and efficiency assessment by SKM. There was an allocation of over \$31,015 for 2008-09.

Insufficient information was provided to assess the efficiency of expenditure of \$31,015 in 2008-09 for unscheduled maintenance, as such this expenditure was, by default, considered by SKM to be inefficient. A detailed breakdown of costs has been provided for 2010-11 and on assessment the costs were considered by SKM to be reasonable for the reactive maintenance of the Pie Creek Pump Station. As such, the expenditure of \$36,172 in 2010-11 was considered by SKM to be efficient.

Authority's Analysis

The Authority recommended that the 2010-11 amount of \$36,172 be taken into account in past renewals calculations, for determining the ARR balances. The expenditure claimed in previous years was excluded.

Conclusion

If the seven (now Seqwater and former SunWater) WSSs had been part of the Authority's previous SunWater review, a 4% cost reduction would have applied.

The Authority recommended, 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.

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 for this year could not be considered prudent or efficient.

As part of the SKM review, two past renewals items were selected with the findings considered for application to other renewals items. On this basis, expenditure in 2009-11 was considered to be prudent and efficient.

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 was unable to substantiate past renewals expenditure during its first year of operating the former SunWater schemes (2008-09), renewals expenditure in that year was reduced to zero in the Mary Valley WSS; and
- (c) all renewals expenditure 2009 to 2013 was accepted, unadjusted.

Based on this approach, the Authority recommended that past renewals expenditure be adjusted as shown below 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)
Mary Valley							
Seqwater Proposed	88,588	17,978	0	73,070	218,690	170,718	196,538
Authority Recommended	86,025	17,571	0	73,070	218,690	170,718	196,538
Pie Creek							
Seqwater Proposed	14,599	6,893	0	16,701	46,070	197,980	249,225
Authority Recommended	14,213	6,706	0	16,701	46,070	197,980	249,225

Source: Seqwater (2012ap) and QCA (2012).

Opening ARR Balance (at 1 July 2013)

Based on the Authority's assessment of the prudence and efficiency of past renewals expenditure for the Mary Valley WSS:

- the recommended opening ARR balance for 1 July 2013 for the Mary Valley tariff group is negative \$3,678,393, compared to negative \$3,844,424 proposed by Seqwater; and
- the recommended opening ARR balance for 1 July 2013 for the Pie Creek tariff group is negative \$28,002, compared to \$129,261 proposed by Seqwater.

QFF sought rectification of negative ARR balances and clarity on the Authority's reviews of past renewals expenditure. The Authority based its recommended ARR balances, not only on a review of Seqwater's methodology for establishing ARR balances, but also on the prudence and efficiency of past renewals expenditure.

Submissions Received from Stakeholders on the Draft Report

Seqwater (2013a) agreed with the Draft Report recommended opening ARR balances.

Authority's Response to Submissions Received on the Draft Report

The Authority proposes no change to its Draft Report recommendations in regard to ARR balances.

4.3 Forecast Renewals Expenditure

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

Draft Report

Stakeholder Submissions

Seqwater

Seqwater submitted a summary of the significant proposed renewals expenditure items for the Mary Valley tariff group to occur during the 2013-17 regulatory period as presented below in Table 4.7.

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

<i>Facility</i>	<i>2013-14</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>
Borumba Dam	230	270	30	100
Water flow-meters	99	99	56	56
Total	329	369	86	156

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

The significant expenditure items over 2013-17 are:

- (a) Borumba Dam sealing concrete face joints below water surface (\$230,000 in 2013-14);
- (b) Borumba Dam chute concrete repairs (\$100,000 in 2014-15); and
- (c) Borumba Dam cone valves (paint and replace seals) (\$100,000 in 2016-17).

Additional major expenditure items from 2017-18 onwards are:

- (a) gauging stations (recurring expenditure of \$70,000 occurring every 10 years from 2022-23); and
- (b) additional works at Borumba Dam (\$111,000 in 2034-35).

Seqwater submitted a summary of the significant proposed renewals expenditure items for the Pie Creek tariff group as presented below in Table 4.8.

Table 4.8: Pie Creek Forecast Renewals Expenditure 2013-17 (Real \$'000)

<i>Facility</i>	<i>2013-14</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>
Main Channel	73	0	0	0
Pump Station	186	0	0	0
Water flow-meters	20	20	11	11
Total	279	20	11	11

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

The significant expenditure items over 2013-17 are:

- (a) Pie Creek Main Channel – replacement of fencing, 50% of total as shared with landowners - \$53,000 in 2013-14; and
- (b) Pie Creek pump station – electrical refurbishment - \$186,000 in 2013-14.

Additional major expenditure items for Pie Creek from 2017-18 onwards are:

- (a) additional works at Calico Creek Channel (\$204,000 in 2022-23);
- (b) additional works at Macintosh Channel (\$63,000 in 2022-23); and
- (c) additional works at Pie Creek Main Channel (\$460,000 in 2022-23).

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 manufacturers' specifications (to ensure accuracy).

For Mary Valley and Pie Creek tariff groups, the proposed metering costs are as detailed in Table 4.9.

Table 4.9: Seqwater's Proposed Metering Costs (Real \$'000)

<i>Tariff Groups</i>	<i>Phase 1: 2012-13 to 2014-15</i>	<i>Phase 2: 2015-16 to 2021-22</i>	<i>Phase 3: 2022-23 to 2035-36</i>	<i>Total</i>
Mary Valley	198	392	252	842
Pie Creek	40	77	42	159

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 for both tariff groups are provided in Appendix A.

Other Stakeholders

QFF (2012) questioned whether costs associated with Borumba Dam (sealing of concrete face joints and spillway repairs) are flood related and should be met by insurance.

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.

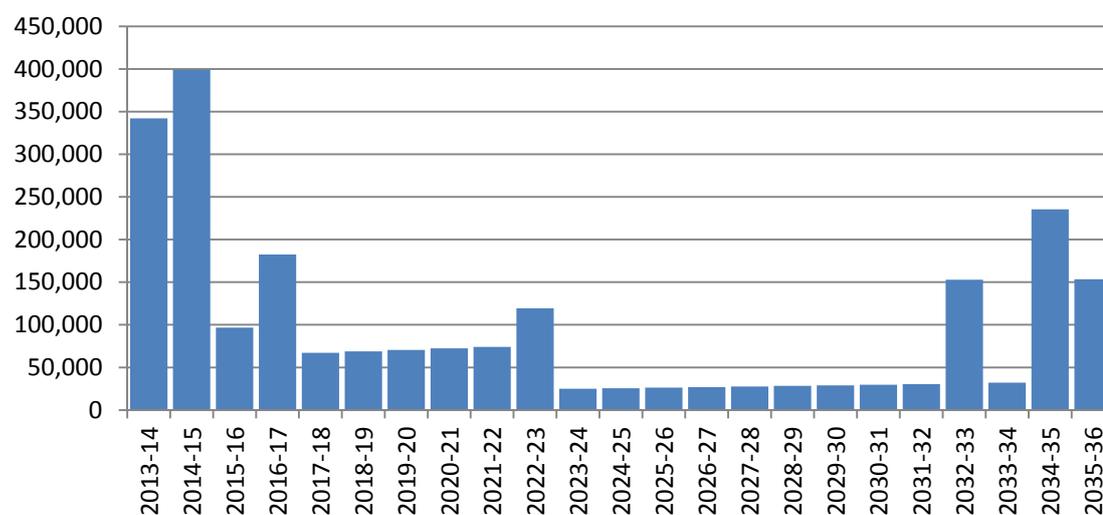
SKM concluded that although Seqwater may not currently have good asset condition information due to the lack of condition information transferred from previous operators, the policies and procedures Seqwater adopted to assess the condition of its assets will rectify this situation over time. Accordingly,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

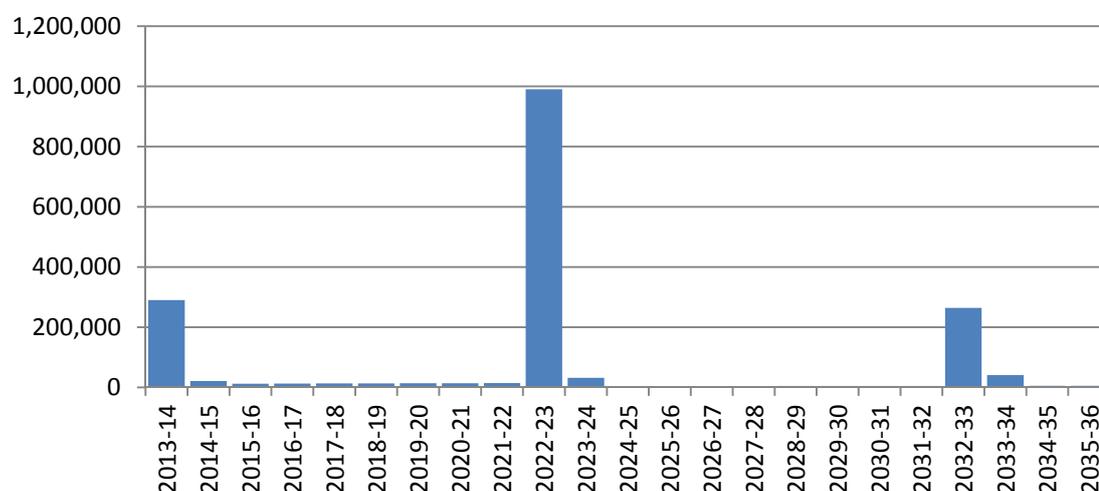
Total Costs

Seqwater's proposed renewals expenditure for 2013-36 for the Mary Valley tariff group is shown below in Figure 4.5. The equivalent expenditure for 2013-36 for the Pie Creek tariff group is shown in Figure 4.6.

Figure 4.5: Forecast Renewals Expenditure (Direct) Mary Valley 2013-36 (Nominal \$)



Source: Seqwater (2012aw).

Figure 4.6: Forecast Renewals Expenditure (Direct) Pie Creek 2013-36 (Nominal \$)

Source: Seqwater (2012ay).

The Authority noted QFF's submission that queried whether certain costs associated with Borumba Dam should be off-set through flood related insurance. Seqwater confirmed that, for the purpose of pricing, no flood-related costs have been included on the expectation that insurance revenues would account for all flood related damage costs. In addition, Seqwater considered those renewals items submitted by QFF (the sealing of concrete face joints and spillway repairs) are not related to flood damage.

Item Reviews

SKM reviewed the prudence and efficiency for a sample of items across all Seqwater WSSs. Those of relevance to the Mary Valley tariff group and the Pie Creek tariff group are discussed below.

Items reviewed included:

- (a) specific items sampled in Mary Valley and Pie Creek (Items 1 and 2); and
- (b) items reviewed in other WSSs where the conclusions were considered by SKM to be appropriate for application to either Mary Valley WSS or Pie Creek distribution system (Items 3 to 6 for Mary Valley and Items 7 and 8 for Pie Creek).

Each of the assessed future renewals items are discussed below.

Item 1: 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 manufacturers' specifications (to ensure accuracy).

Seqwater submitted the expenditure for replacing meters as noted in Table 4.9 above.

The estimates are a revision of the initial Seqwater submission which proposed a total cost of \$523,000 for Mary Valley and total costs of \$140,000 for Pie Creek.

Other Stakeholders

No other stakeholders have commented on this item.

Consultant's Review

Project Description

The replacement of water meters in Mary Valley WSS is required for management of water supplies, reporting and billing purposes. Seqwater advised that although they have river and groundwater meters, only river meters are applicable in the context of Mary Valley WSS.

Project Status

The project is to commence 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 considered 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 QCA, Seqwater, April 2012;
- (b) Information Request Response – QCA Irrigation Price Review 2013-17: RIF032 Additional Projects, Seqwater, 29 August 2012;
- (c) Business Case (Medium Projects) Irrigation Customer Meter Renewal, Seqwater, Version 1.0 8/06/12;
- (d) Business Case (Medium Projects) Irrigation Customer Meter Renewal, Seqwater, Version 2.0 12/07/12;
- (e) Information Request Response – QCA Irrigation Price Review 2013-17: RFI035 River Meters and Groundwater Meters, Seqwater, 29 August 2012;
- (f) RFI035 Meters Purchase Order, Seqwater, February 2012; and
- (g) 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 Mary Valley WSS is managed by a ROL which requires Seqwater to undertake monitoring and reporting in accordance with the Mary Basin ROP – namely, recording the total volume of water taken by each water user. For example Mary Basin ROP states:

The resource operations licence holder must record the total volume of water taken by each water user for each zone as follows—

- (a) *the total volume of water taken each quarter*

- (b) *the total volume of water entitled to be taken at any time; and*
- (c) *the basis for determining the total volume of water entitled to be taken any time.*

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 identified health and safety as a driver of cost. Seqwater 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 95 meters to be replaced per year for the first 3 years of the programme, including 15 in the Mary Valley WSS. 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 was provided on the current age of the assets to be replaced. Seqwater's standard useful asset life for water meters is 15 years (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 the 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 reviewed the outcomes of the condition assessment provided. The reviewed sites were 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 WSS, 466 meters were recorded with 56% being in use. For the Central Lockyer Valley WSS over 80% were rated as condition 4 or 5, and therefore require replacement, as opposed to refurbishment. This percentage is similar for river and groundwater meters.

Although no similar condition assessment was undertaken for the Mary Valley WSS, given the similar conditions recorded across the three areas investigated, SKM considered it is likely that many meters in Mary Valley WSS are in poor condition. Seqwater stated that advice from operational staff combined with the experience of condition from the audited schemes was used to predict the meter renewal requirements in the unaudited schemes.

SKM visited a number of metering sites as part of this investigation. This evidence 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 supported the need to provide an adequate pipe-work 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 existing meters.

Timing

Timing and Number of Meters to be Replaced

SKM investigated the timing and number of meters to be replaced across all WSS. According to Seqwater's business case, 700 active meters (half 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 was 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 (15 per year in Mary 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 (11 per year in Mary 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 (11 per year in Mary 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 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 use customers, on the basis that a more reliable meter may increase revenue. However, SKM's analysis of the Central Lockyer Valley example found that installation of magflow meters is not justified as there are very few high use irrigators and the water use changes frequently. SKM therefore recommended the lower cost mechanical meters for all SEQ schemes.

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 4.10.

Table 4.10: Comparison of Meter Installation Costs

<i>Item</i>	<i>Seqwater (\$)</i>	<i>SKM (\$)</i>	<i>Difference</i>
Parts – new flow meter	600	875	46%
Contractors - installation	4,000	5,700	43%
Management costs	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 Mary Valley WSS are outlined below in Table 4.11.

Table 4.11: SKM's Estimated Partially Prudent and Efficient Metering Costs Compared (Real \$'000)

	<i>2013-14 to 2014-15</i>	<i>2015-16 to 2021-22</i>	<i>2022-23 to 2035-36</i>	<i>Total</i>
Seqwater proposed costs (Mary Valley)	198	392	252	842
SKM revised costs	198	325	158	681
Seqwater proposed costs (Pie Creek)	40	77	42	159
SKM revised costs	40	62	29	131

Source: SKM (2012).

Authority's Analysis

The SKM review concluded that expenditure on Item 1: Metering Replacements is efficient in terms of the costs per meter and expenditure incurred in 2013-14 to 2014-15. However, SKM had reservations about the proposed timing of replacement and the number of meters to be replaced in later years. The expenditure was, therefore, efficient but only partially

prudent in these later years. Accordingly, the Authority concluded that the expenditure associated with metering be adopted as outlined, above, in Table 4.12.

Submissions Received from Stakeholders on the Draft Report

During consultation (QCA, 2013), irrigators commented that meters had been replaced about 5 years ago. However, Seqwater contractors have recently been on farms proposing to replace a 5-year old meter, which appears to be unnecessary and inefficient. Irrigators commented that attendance by four people in three vehicles did not appear efficient.

The Authority sought comment from Seqwater on the above.

Seqwater (2013f) advised it is undertaking a meter replacement program driven by meter installation safety considerations and the need to ensure meter installations meet manufacturer specifications. In the process, worn and non-functioning meters will also be replaced. The meters in question were already installed when Seqwater took responsibility for the Mary Valley WSS from SunWater on 1 July 2008. Seqwater does not have reliable records of the age and condition of the meters acquired from SunWater.

While SKM disagreed with the shorter meter lives that Seqwater ascribed to its meters, Seqwater suggested that the longer lives recommended by SKM appear to be more consistent with meters operating in reticulated water systems where the quality of the water is vastly higher than the quality of raw water pumped from rivers and streams for irrigation purposes. Seqwater submitted that after five to six years operating under these conditions the accuracy of irrigation meters has been found to progressively deteriorate.

Seqwater also indicated that meter replacement may also occur where meters are malfunctioning, the current location is unsafe or when the installation does not meet manufacturer specifications. When a meter installation is replaced, the associated meter may also be replaced because that is often the lowest cost option.

Seqwater advised that regarding the meters in question, the entire installations are being replaced to meet both safety requirements and manufacturer's specifications for accuracy. Consequently, it is clear that the meters were not installed to current standards. The four people, identified by stakeholders during consultation, on site were two Seqwater staff (local manager and project manager) and two independent contractors who attended at their own expense, so they could see the site before submitting quotes to undertake meter-replacement work. The three vehicles used were one Seqwater vehicle for the two Seqwater staff and each contractor had a vehicle.

Authority's Response to Submissions Received on the Draft Report

In response to stakeholder submissions, the Authority:

- (a) notes Seqwater's responses and that some meters may be replaced within SKM's recommended 15-year life, which is reasonable where justified by condition assessment. Some meters, however, may not need replacing every 15 years, but can be maintained for a longer period where it is cost effective and meters remain accurate and safe. The Authority continues to support an average 15-year life and notes that Seqwater must demonstrate that costs are prudent and efficient, for such costs to be included in future prices;
- (b) notes Seqwater's metering business case does not aim to replace meters in perfectly good working order. In certain circumstances (referred to in Seqwater's submission), Seqwater will repair or replace these meters for reasons including non-compliance

with WHS legislation and/or manufacturers' guidelines and will take a least-cost approach. The Authority supports reconditioning of meters for use or for spare parts, to reduce overall costs; and

- (c) considers that Seqwater should comply with relevant WHS legislation and the prudent and efficient cost of doing so should be borne by customers.

As the Authority has not identified any grounds to alter its Draft Report approach, the recommendation to accept SKM's findings is maintained.

Item 2: Calico Creek Channel and Pie Creek Main Channel Air Valves

Seqwater

Seqwater submitted that expenditure of \$269,000 in 2022-23 is proposed for the replacement of Calico Creek Channel and Pie Creek Main Channel Air Valves.

Other Stakeholders

No other stakeholders made comment regarding this item.

Consultant's Review

Project Description

The Calico Creek Channel and Pie Creek Main Channel Air Valves expenditure item involves the replacement of 26 air valves, which are at the end of their design life, installed along an asbestos cement pipe within the Pie Creek Water Supply Scheme. The valves vary in size (1 inch, 3 inch and 6 inch) and assist with protecting the pipe against collapse and facilitate efficient operation. This project is a single expenditure project as opposed to a rolling program expenditure project, occurring in the 2022-23 financial year.

Information initially submitted to the Authority by Seqwater identified that 26 air valves were in need of replacement in 2022-23. However information subsequently provided by Seqwater in response to a request for information indicated that 31 air valves were to be replaced.

Upon SKM seeking clarification of the number of air valves to be replaced, Seqwater stated that "The budget was developed on 26 air valves. More recent information indicates that 5 valves may have been missed".

Project Status

Seqwater stated that the project is not to commence until 2022-23 and that the project is to be classified as in the Concept and Feasibility phase of the Seqwater Asset Delivery Framework. SKM considered the current position 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 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) Mary Valley Water Supply Scheme – Network Service Plan, Seqwater, undated;
- (d) Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47: Report – Pie Creek Tariff Group, Seqwater, April 2012;
- (e) Information Request Response – QCA Irrigation Price Review 2013-17: Pie Creek WSS, Pie Creek Channel – Air Value, Seqwater, 10 August 2012;
- (f) SM Project Outline: Pie Creek and Calico Creek Pipelines Air Valves, Seqwater, undated;
- (g) ACV200 Air Control Valves – Technical Application Guide, Nelson Irrigation Corporation, undated;
- (h) Design 34923B – Mary Valley Irrigation Area, Pie Creek Diversion – 27” Rising Main, 6” Dia. Double Air Valve, no author, undated;
- (i) Design 34927 – Mary Valley Irrigation Area, Pie Creek Diversion, 3” Double Air Valve for M.S.C.L Pipeline, no author, undated;
- (j) Design 35202 – Mary Valley Irrigation Area, Pie Creek Diversion, 3” Air Valve at 4”808’, no author, undated; and
- (k) Design 51701 – Mary Valley Irrigation Area, Pie Creek Diversion, 1” Air Valve, no author, undated.

The level of documentation available for this project is in line with the current status of the project. Seqwater indicated that a formal condition assessment and detailed options analysis is scheduled to be completed more contemporaneously with the expected date of planned replacement 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 represented good industry practice.

SKM recommended that Seqwater undertakes a condition assessment and options analysis, prior to the implementation of the project as proposed. SKM also recommended that the planned approach and justification of the timing of refurbishment is suitably documented.

Prudence

This project was identified as being necessary to operate the Pie Creek Tariff Group. Air valves allow unwanted air out of the pipe while containing the pipe's fluids within the pipe during operation. Air in pipes can result in poor flow efficiency, water hammer problems, poor pressure control, damaged pumps and broken pipes. Air valves can also admit air into the pipes as they are being emptied, preventing a vacuum condition which could collapse the pipe. The use of air valves is a necessity for irrigation systems to operate smoothly.

The nature of air valves is such that their periodic replacement is required to operate Pie Creek. The Calico Creek Channel and Pie Creek Main Channel Air Valves were installed in 1972, and hence are currently 40 years old. The renewal of the air valves is based on a 50 year asset life, which aligns to the planned renewal in 2022-23.

Seqwater’s standard useful asset life for air valves is 50 years. The project renewal timing is in line with Seqwater’s standard useful asset life. The Australian Taxation Office’s TR

2012/2 identifies the effective life of valves associated with 'Irrigation water providers' as 40 years, which is similar to the standard useful asset life adopted by Seqwater. When transferred over from SunWater asset data for air valves indicated a 30 year useful life. Seqwater states that 'a sample inspection and discussion with operational staff in 2011 indicated the assets had not yet failed.' Based on the findings that the assets were still in fair condition and have no history of failure, the decision was made by Seqwater to revise the standard useful asset life to 50 years. Based on industry experience SKM considered that a useful life of 50 years is appropriate for air valves and in keeping with industry practice.

No documented condition assessments were provided to SKM. However, Seqwater stated that visual inspections found that the valves were still in fair condition and not in need of replacement.

SKM reviewed Seqwater's asset management methodology and considers that the approach adopted is appropriate for the type of asset and therefore the renewal timing is reasonable.

On the basis that replacement of the air valves is required to operate Pie Creek and the timing of the works is considered accurate, the project was assessed as prudent.

Efficiency

Seqwater stated that the scope of works is the supply and installation of 26 x 100 mm air valves and the replacement of risers on asbestos concrete pipelines. Seqwater advised that the 1 inch galvanised steel risers are fitted to the main pipe using a tapping band and the 3 inch and 6 inch galvanised steel risers are fabricated into the asbestos pipe and that the risers are likely to be in very poor condition after what will have been 60 years of operational service. It is reasonable to assume that the risers would have a similar standard life to the valves. However, SKM expected a condition assessment of the risers to be conducted prior to proceeding with the proposed scope of works to determine if replacement is required.

Seqwater advised that no options analysis was completed in the Concept and Feasibility phase, but will be completed in the Validation and Planning phase. Without an options analysis it is not possible to determine definitively that the replacement of the air valves 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.

Seqwater's indicative budget for refurbishment of air valves is in Table 4.12 (below).

Table 4.12: Breakdown of Costs – Air Valves

<i>Items</i>	<i>Sub-Items</i>	<i>Costs (\$)</i>
Contract Costs		
Design	Civil	10,000
	Mechanical	-
	Electrical	-
	Control	-
Procurement	Preparation of scope of work and RFQ	8,500
Supply and Install	78 x DN375 DICL Gibaults	92,400
	26 x DN375 x DN30 SO/L DICL Tee	40,000
	26 x DB80 DF air valve isolator	13,000
	26 x DN100 air valve	21,700
	Site establishment	5,000
	Asbestos removal and disposal	30,000
Sub-Total		220,600
Seqwater Internal Costs		
Work Supervision		15,000
PM Costs (15% of Contract Costs)		33,000
Sub-Total		48,000
Total		268,600

Source: SKM (2012).

Seqwater indicated that the budget is accurate to $\pm 30\%$. SKM considered this level of accuracy is appropriate for a project in the Concept and Feasibility phase. Seqwater advised that the cost estimate was developed on the basis that the entire fleet of air valves were being replaced with 100 mm air valves and that there is a requirement to replace the risers as well. The materials cost elements were determined in consultation with a likely supplier and component costs known from similar projects.

SKM provided a cost estimate for the supply and installation costs, based on recently completed projects and industry experience. SKM expected the total overhead costs associated with the project to be up to 25% of the contract costs for a project with a value greater than \$100,000 but less than \$1 million. SKM's estimate is provided and contrasted with Seqwater's cost estimate in Table 4.13.

Table 4.13: Comparison of Costs – Seqwater and SKM

<i>Component</i>	<i>Seqwater Estimate (\$)</i>	<i>SKM Estimate (\$)</i>	<i>Difference Between Estimates</i>
Design	10,000	8,063	(19%)
Procurement	8,500	6,047	(29%)
Supply and Install	202,100	161,261	(20%)
Seqwater Internal Costs	48,000	26,205	(45%)
Total	268,600	201,576	(25%)

Source: SKM (2012).

SKM assessed the allowance for design, procurement and Seqwater internal costs. While 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.

Authority's Analysis

The Authority accepted SKM's conclusion that the proposed expenditure is prudent. However, the Authority notes that Seqwater's cost estimate is actually not within 30% of SKM's efficient cost and is in fact 33% higher. On this basis, the Authority considered that Seqwater's cost is not efficient, and proposed to adopt SKM's estimate.

Item 3: Borumba Dam – Embankment Refurbishment

Seqwater

Seqwater submitted that expenditure of \$230,000 in 2014 is proposed for the refurbishment of Borumba Dam embankment.

Other Stakeholders

No other stakeholders made comment regarding this item.

Consultant's Review

SKM reviewed a dam embankment related project at Clarendon Dam in the Central Lockyer Valley WSS. This involved replacement of riprap (a layer of rock) on the lake side of the embankment to absorb and disperse the wave energy for a total cost over a 6-year period of \$312,000.

While the Clarendon Dam was considered prudent and efficient, SKM considered that the conclusions could not be applied to the Borumba Dam embankment 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 accepted SKM's conclusion. The item was regarded as an unsampled item and a 13% generic saving was applied.

Item 4: Replacement of Control Equipment – Borumba Dam

Seqwater

Seqwater submitted that expenditure of \$14,000 in 2036 is proposed to replace control equipment at Borumba Dam.

Other Stakeholders

No other stakeholders provided comment regarding this item.

Consultant's Review

SKM reviewed proposed capital expenditure on replacement of diversion control equipment at Clarendon Dam in the Central Lockyer WSS. This project had a cost of \$174,000 in 2028-29. Given similar characteristics, the results of this review were considered for application to the forecast renewals item at Pie Creek Pump Station. Replacement of the control equipment involves a full control panel fitted with programmable logic controller (PLC), telemetry and SCADA equipment, and necessary water level sensing devices.

Prudency and Efficiency

SKM considered that replacement of the Clarendon Dam diversion control equipment is prudent noting that:

- (a) the equipment is necessary to meet the requirements of Seqwater's operating rules (as prescribed by the Interim Resource Operations License (IROL));
- (b) remote control of the equipment is necessary in the Central Lockyer Valley case to maximise access to infrequent water harvesting opportunities. Remote start-up and shut-down capability comprises some \$25,000 of the total cost; and
- (c) while a 35-year life is proposed by Seqwater, this was considered to be at the outer end of expected life. In SKM's experience, control equipment is typically obsolete after 15-20 years. A condition assessment in August 2012 indicated that some automated components were not functional. SKM indicated that earlier replacement was likely to be necessary given the criticality of the equipment, which would mean bringing forward the proposed replacement to 2013-14. SKM recommended Seqwater review the timing of the project.

SKM's review of efficiency of proposed costs was based on market valuations and historic benchmark costs from similar projects. In the Central Lockyer Valley WSS, SKM's estimate of \$164,000 compared to Seqwater's estimate of \$174,000. SKM, therefore, considered Seqwater's estimated cost to be efficient.

SKM noted that the Borumba Dam project is to replace existing control equipment to comply with the ROP. SKM concluded that on the proviso that Seqwater follows the same processes for the development of the project as was applied for Clarendon Dam, then the Central Lockyer Valley WSS review can be applied to the proposed works at Borumba Dam. Accordingly, SKM concluded the expenditure to be prudent and efficient.

Authority's Analysis

Based on the SKM analysis, the Authority concluded that the expenditure associated with this item be adopted as prudent and efficient.

Item 5: Mary River – Gauging Station

Seqwater

This renewals item is the replacement of the Mary River gauging station scheduled for 2022-23 and 2032-33 at a total cost of \$140,000.

Other Stakeholders

No other stakeholders provided comment regarding this item.

Consultant's Review

SKM reviewed proposed capital expenditure on gauging stations in the Central Lockyer Valley WSS. This project involved works in 2022-23 and in 2032-33 at a total cost of \$143,400. This represents a revised cost estimate compared to the initial provision of \$120,000 following Seqwater's experience from the Bromelton Weir upgrade. Given similar characteristics, the results of this review were considered for application to the Mary River gauging station.

The nominated works for the Central Lockyer Valley project are replacement of both upstream and downstream gauging equipment on a 10-year recurring interval. SKM considered the 10-year life appropriate as electronic and communications equipment becomes obsolete after such a period, with less reliability, increased component failure and a lack of service support.

Prudency and Efficiency

SKM considered the gauging stations associated with the storages in the Central Lockyer Valley WSS are prudent on the basis that they are a required to enable continuous data recording as required under the IROL. SKM considered that other gauging stations, on Lockyer and Redbank Creeks, are needed to maximise diversions to Clarendon Dam while ensuring there is no breach of diversion restrictions.

SKM indicated that there are a number of methods of gauging available, but the method adopted by Seqwater involves a bubbler tube through which low pressure air is supplied. This is a simple method, appropriate for the required level of accuracy, has minimal moving parts and no electronic sensors, and should prove reliable. SKM was satisfied that the gauging technology used is appropriate. SKM also considered Seqwater's telemetry method of a simple radio link with battery back-up to be appropriate.

In the Central Lockyer Valley WSS, SKM estimated a cost of \$86,000 for each renewal, compared to Seqwater's \$71,700. SKM therefore considered the Seqwater estimate to be efficient.

In applying the findings to Mary Valley WSS, SKM concluded that given the Mary River gauging station is also a requirement of the Mary Basin ROP, the findings on prudency can be applied. However, SKM concluded that in the absence of more relevant details (such as the type of gauging stations involved) SKM was unable to establish whether the cost estimates are efficient.

Authority's Analysis

The Authority accepted SKM's conclusion that the proposed expenditure is prudent. The Authority also noted SKM's recommendation that a conclusion on efficiency cannot be considered for application to the Mary Valley WSS.

However, given the similar nature of the assets, and the fact that SKM's estimate for the Central Lockyer Valley stations was higher than Seqwater's, the Authority considered that there was sufficient basis to conclude that the proposed expenditure on gauging stations in the Mary Valley WSS is also efficient.

Item 6: Borumba Dam – Trash Screens

Seqwater

These renewals items are for the replacement of trash screens at Borumba Dam at a cost of \$111,000 in 2035.

Other Stakeholders

No other stakeholders provided comment regarding this item.

Consultant's Review

SKM reviewed trash screen refurbishments for the Clarendon Diversion in Central Lockyer Valley WSS, which were considered for comparison with Borumba Dam trash screens.

Trash screens provide protection from damage arising from debris entering pumps. Refurbishment involves removal of the screens from the pump well, preparation of the surface and application of 2-pac epoxy paint. The project involves a cost of \$10,000 in 2014-15, then occurring 5-yearly thereafter.

Given project similarities, the results of this review were considered for application to the forecast replacement of trash screens at Borumba Dam.

Prudency and Efficiency

SKM concluded that the proposed periodic refurbishment of corrosion protection on the Clarendon Diversion trash screens is prudent to ensure operation of the system and avoidance of damage to pumps. SKM indicated that Seqwater's standard useful life of trash screens is 70 years, with refurbishment every 5 years in pump stations and every 10 years in dams. SKM considered the 5-yearly refurbishment period appropriate and in keeping with industry practice.

In the case of the Clarendon Diversion, SKM noted that the trash screens are submerged and require removal by a crane. Refurbishment then involves patch-painting, stripping screens to bare metal where rust is evident, applying primer and undercoat to those areas, then a top-coat to the entire screen.

SKM estimated the cost of refurbishment at Clarendon Diversion to be \$11,500 compared to Seqwater's proposed \$10,000. SKM considered Seqwater's cost to be prudent and efficient.

However, SKM noted that the trash screen projects in Seqwater's schemes range significantly in cost. As an example, refurbishment of trash screens at Clarendon Diversion are forecast to be \$10,000 every 5 years, while for Upper Warrill Diversion the forecast is for a one-off replacement of the inlet trash screen in 2025 at a cost of \$3,000.

In addition, there are a number of variables including design, size, location (that is, pump station, weir and dam), site specific conditions (such as flow of creek/river/dam) and whether the renewals expenditure is for replacement or refurbishment. SKM noted that as the Borumba Dam expenditure is for replacement (as opposed to the refurbishment of Clarendon Diversion trash screens), the conclusions cannot be applied to this project.

Authority's Analysis

The Authority accepted the outcome of the SKM review that the conclusions regarding Clarendon Diversion trash screens cannot be applied to the Borumba Dam trash screens. The proposed expenditure, therefore, could not be considered efficient and the Authority treated the item as unsampled and applied a 13% generic saving.

Item 7: Replacement of Control Equipment – Pie Creek

Seqwater

Seqwater submitted that expenditure of \$123,000 in 2014 is proposed to replace control equipment at Pie Creek Pump Station.

Other Stakeholders

No other stakeholders provided comment regarding this item.

Consultant's Review

As noted above, SKM reviewed proposed capital expenditure on replacement of diversion control equipment at Clarendon Dam in the Central Lockyer Valley WSS. SKM noted that, as for Clarendon Dam, the Pie Creek and Borumba Dam projects consist of the replacement of existing control equipment to meet the requirements of the ROP.

SKM concluded that on the proviso that Seqwater follows the same process for the development of the project (and associated costs) as applied in the Central Lockyer Valley WSS, the results of this review can be applied to the proposed works at Pie Creek Pump Station. On this basis, SKM concluded the expenditure to be prudent and efficient.

Authority's Analysis

Based on the SKM analysis, the Authority concluded that the expenditure associated with this item is prudent and efficient

Item 8: Pie Creek Pump Station – Access Road

Seqwater

Seqwater submitted a cost of \$81,000 for replacement of the access road to Pie Creek Pump Station in 2033.

Other Stakeholders

No other stakeholders made comment regarding this item.

Consultant's Review

SKM reviewed two road related projects in other WSSs – Warrill Creek Diversion Weir access road (in the Warrill Valley WSS) and Clarendon Diversion access road (in the

Central Lockyer Valley WSS). SKM concluded that both projects were prudent and efficient with these results to be considered for application to a range of similar projects.

However, SKM concluded that additional consideration was required so that these findings (which represent the prudence and efficiency of refurbishment as opposed to replacement) could be applied to the replacement of the access road to Pie Creek Pump Station.

SKM, therefore reviewed the proposed costs based on the information available but without visual inspection of the assets. SKM considered that developing a cost estimate for Pie Creek pump station access road was problematic as costs are dependent on the condition of existing concrete and whether this can be replaced with bitumen.

On the basis that the existing concrete is to be removed and replaced, Seqwater's proposed costs are within 30% of SKM's estimate. SKM concluded that as the proposed costs are of the right order of magnitude, the findings on prudence and efficiency can be applied.

Authority's Analysis

The Authority noted the outcome of the SKM review that conclusions on prudence and efficiency regarding access roads associated with the Warrill Creek Diversion Weir and Clarendon Diversion can be applied to the access road to Pie Creek Pump Station.

The Authority considered, therefore, that the proposed expenditure is prudent and efficient.

Conclusion

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Sampled Items

In summary, two items for the Mary Valley WSS were sampled for detailed review.

One item (meter replacements in the Mary Valley and Pie Creek tariff groups) was found to be prudent and efficient for the period 2013-14 to 2014-15. However, proposed expenditure for subsequent periods was found to be only partially prudent. For these subsequent periods, SKM's revised cost estimates were adopted.

Also, air valves were sampled for Pie Creek and found to be prudent and efficient.

Four other reviews undertaken by SKM in other schemes were considered to be applicable to forecast expenditure items in the Mary Valley tariff group. Of these, the replacement of control equipment at Borumba Dam and the replacement of Mary River gauging stations were found to be prudent and efficient.

However, SKM considered that results from other scheme reviews could not be applied to determine the prudence and efficiency of proposed expenditure at Borumba Dam (embankment refurbishment and replacement of trash screens).

These items, therefore, were categorised as a non-sampled items and subject to the appropriate implied cost saving (see below).

For the Pie Creek tariff group, two other reviews undertaken by SKM in other schemes were considered for application to Pie Creek. These items (the replacement of control equipment at, and the replacement of the access road to, Pie Creek Pump Station) were both found to be prudent and efficient.

Non-Sampled Forecast Renewals Expenditure

As discussed in Volume 1, the Authority did not review all past or forecast renewals expenditure for prudence 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 practical, nor desirable given the potential costs involved, to assess the prudence and efficiency of each planned expenditure item.

The direct (non-metering) forecast renewals cost savings identified by SKM are summarised in Table 4.14.

Table 4.14: Summary of SKM Findings on Forecast (Non-Metering) Renewals

<i>Number of Items Sampled</i>	<i>Value Sampled (Real \$'000)</i>	<i>Variance to SKM Estimate (Real \$'000)</i>	<i>Average Saving Identified</i>
11	5,079	(681)	13%

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

The 11 (non-metering) forecast renewals items reviewed account for an average across the schemes of some 20% 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 30% by value of forecast renewals.

The identified errors in Seqwater's renewals expenditure forecasting approach were considered to be systematic. Hence, the Authority considered 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 \$0.68 million was the appropriate basis for the Authority's cost savings to be applied to non-sampled items.

The net variance of \$0.68 million, expressed as a portion of Seqwater's initially submitted sampled forecast irrigation renewal expenditure of \$5.08 million, resulted in about a 13% implied cost saving. A similar proportion was found when a weighted average was calculated to take account of the sampled, small, medium and large projects. The Authority therefore applied a 13% (rounded) generic cost saving to unsampled forecast renewals items. Details are provided in Volume 1: Chapter 5.

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In total, the Authority recommended the direct renewals expenditure be adjusted as shown below in Table 4.15.

Table 4.15: Review of Forecast (Direct) Renewals Expenditure 2013-36 (Real \$'000) – Mary Valley and Pie Creek

<i>Item</i>	<i>Year</i>	<i>Seqwater</i>	<i>Authority's Findings</i>	<i>Recommended</i>
Sampled Items				
1. Meter Replacements				
Mary Valley	2013-14 to 2014-15	198	Prudent and efficient	198
	2015-16 to 2021-22	392	Partially Prudent.	325
	2022-23 to 2035-36	252	Partially Prudent	158
Pie Creek	2013-14 to 2014-15	40	Prudent and efficient	40
	2015-16 to 2021-22	77	Partially Prudent	62
	2022-23 to 2035-36	42	Partially Prudent	29
2. Calico Creek and Pie Creek Air Valves	2022-23	269	Prudent. Not efficient	202
Results Applied from Other Reviews – Mary Valley				
3. Borumba Dam – Embankment Refurbishment	2014	230	Results could not be applied to assess prudence and efficiency – 13% saving applied	200
4. Borumba Dam – Control Equipment	2035-36	14	Prudent and efficient	14
5. Replacement of Mary River Gauging Stations	2023 & 2033	140	Prudent and Efficient	140
6. Borumba Dam – Replacement of Trash Screens	2035	111	Prudent. Results could not be applied to assess efficiency – 13% saving applied	97
Results Applied from Other Reviews – Pie Creek				
7. Pie Creek Pump Station – Replacement of Control Equipment	2014	123	Prudent and efficient	123
8. Pie Creek Pump Station – Replacement of Access Road	2033	81	Prudent and efficient	81
Non-Sampled Items Mary Valley				13% saving applied
Non-Sampled Items – Pie Creek				13% saving applied

Source: Seqwater (2012aw), Seqwater (2012ay) and QCA (2012).

4.4 Seqwater's Consultation with Customers and Reporting

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Stakeholder Submissions

Seqwater made no submission in regard to stakeholder consultation.

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

QFF (2012) 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.

During Round 1 consultations in June 2012 (QCA 2012c), stakeholders submitted that Seqwater's communication needs to be improved and suggest an irrigators' council may achieve this.

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 including about the proposed renewals expenditure program. The Authority considered that this approach should also be adopted by Seqwater.

In addition, Seqwater should be required to annually submit renewals expenditure programs to irrigators for comment and that irrigator submissions and Seqwater's responses be published on Seqwater's website.

Submissions Received from Stakeholders on the Draft Report

Seqwater (2013a) submitted that the *South East Queensland Water (Restructuring) Act 2007* provides in Section 51A, for the responsible Ministers to issue a Statement of Obligations to Seqwater. Section 51C includes provisions for customer consultation. Seqwater advised that a Statement of Obligations including a requirement to consult has been issued to Seqwater.

In subsequent advice Seqwater (2013b) proposed that the annual costs for renewals options analysis would be \$4,182 for the Mary Valley and a further \$4,182 for Pie Creek. In addition, a cost of \$3,430 would be incurred to develop NSPs each year and \$3,570 to establish and run a Scheme Advisory Committee for the Mary Valley scheme as a whole.

Seqwater (2013c) later submitted that as an alternative to options analysis, a more cost-effective approach would be to establish scheme advisory committees and for Seqwater to present its renewals estimates to these committees for information and discussion. Renewals estimates would also be published annually in NSPs.

QFF (2013b) supported Seqwater's estimated cost of \$3,340 per annum per WSS for the detailed NSPs however, the formation of a scheme advisory committee is subject to discussions by both Mary Valley and Pie Creek tariff groups.

During Round 2 consultation (2013), irrigators submitted that it was difficult to comment on consultation without knowing costs associated with consultation options, and the costs should be modest given Seqwater should already have relevant internal reports available.

G. and L. Rozynski (2013) commented that consultation through customer councils, although successful over the years, is not required in years of full allocation. In years of less than 90% allocation, regular customer council type meetings are required to discuss options to achieve the most efficient use of the remaining water from the scheme.

Authority's Response to Submissions Received on the Draft Report

Options Analysis

While the Authority considers that high-level renewals expenditure options analysis and more detailed options analysis should be undertaken where the proposed renewals represent more than 10% of the net present value of total forecast renewals expenditures, the relative benefit and cost of doing so are also relevant.

In Mary Valley WSS, Seqwater identified a single material renewal item to review, which the Authority has already reviewed as part of this process. It would seem unnecessary, therefore, for Seqwater to duplicate the process by reviewing the same material item again.

Irrigation customers – in consultation with Seqwater through advisory committees – are best placed to assist Seqwater decide whether [detailed] options analysis of particular items should occur and the nature of the analysis. Less complex analysis (tailored to reflect the benefits and costs of the analysis) may suffice for smaller projects. In some circumstances, none may be required (for example, where a project has been previously reviewed by the Authority).

The nature of the recommended high-level and detailed options analysis must be tailored to take into account the benefits and costs associated with the proposed project. That is a decision best made by Seqwater, but in consultation with irrigation advisory committees.

The Authority would consider an application for an end-of-period adjustment to prices, to allow Seqwater to recover associated costs.

NSPs and Consultation

The Authority notes that Seqwater's Statement of Obligations explicitly requires Seqwater to consult with irrigation customers. It does not specify that such consultation should occur (at least) annually. The Statement of Obligations also includes a provision that requires it to be made public.

However, to achieve certainty that (at least) annual consultation with irrigators will take place throughout 2013-17 [and beyond], Seqwater's Strategic and Operational Plans should be amended to make this a requirement.

The Authority has considered the submitted costs for Seqwater to enhance the NSPs and establish and support irrigation advisory committees, and considers them to be reasonable. NSPs should contain annual updates detailing Seqwater's proposed renewals (and operating) expenditure items and accounting for significant variances between previously forecast and actual material renewals expenditures.

The total annual cost of NSP preparation and consultation committees is about \$7,000 for Mary Valley WSS and is treated as a fixed irrigation only direct bulk (operating) cost.

Regarding irrigator comments about consultation, the Authority considers that the precise details of consultation for each WSS should be decided by Seqwater in consultation with irrigators. In general, it is considered that the benefits of consultation will justify the relatively small costs. The issues raised by Rozynski are relevant issues that could be discussed by customer councils.

4.5 Allocation of Headworks Renewals Costs

Previous Review

For 2006-11, the renewals costs for the Mary Valley WSS bulk water infrastructure were apportioned between priority groups using converted nominal water allocations. The conversion to MP WAE for the Mary Valley WSS was determined by a WPCF of 2.3:1; that is, 1 ML of HP WAE was considered equivalent to 2.3 ML of MP WAE.

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Stakeholder Submissions

Seqwater

For the 2013-17 regulatory period Seqwater proposed that renewals costs for bulk water infrastructure be apportioned in accordance with the share of utilisable storage headworks volumetric capacity dedicated to that priority group – as measured by the HUF.

Seqwater submitted that, in general, the HUF allocates a greater proportion of capital costs per ML to HP WAE. Specifically, the HUF methodology takes into account water sharing rules, critical water sharing arrangements (CWSAs) and other operational requirements that typically give HP entitlement holders exclusive access to water stored in the lower levels of storage infrastructure.

Seqwater (2012aj) submitted a detailed outline of the HUFs methodology, outlining its derivation and application for each scheme. For the Mary Valley WSS, Seqwater's consultants, Parsons Brinckerhoff (PB), considered that the proposed HUF methodology was applicable on the proviso that downstream inflows were excluded from the calculation. This methodology, discussed in detail Volume 1, can be summarised as follows.

Step 1: Identify the water entitlement groupings for each scheme, as listed in DERM's Water Entitlement Register, and establish which groups are to be considered as HP and MP for the purposes of HUF calculation⁴.

Step 2: Determine the volumes associated with the HP and MP groupings identified in Step 1, taking into account any allowable conversion from MP to HP under the scheme's ROP.

⁴ If more than two priority groups exist, water sharing rules and other differentiating characteristics are taken into account to determine whether they are included in the high or medium priority grouping, or neither.

Step 3: Determine the extent to which water sharing rules, CWSAs and other operational requirements give the different water entitlement priority groups exclusive or shared access to capacity components of the storage infrastructure.

This step divides the storage infrastructure into three levels: the bottom layer, which is exclusively reserved for HP; the middle layer, which is effectively reserved for MP; and the top layer, which is shared between the MP and HP groups.

Step 4: Assess the hydrological performance of each headworks' storage using the Integrated Quantity and Quality Modelling (IQQM) to determine the probabilities of each component of headworks storage being accessible to the relevant water entitlement priority group during periods of low storage (under critical water sharing rules).

Step 5: Determine the HUFs derived from the above process using the SunWater method with calculations being based on 10-, 15- and 20-year drought periods for comparative analysis.

The results of applying this methodology are outlined below in Table 4.16, where the HUFs are compared based on analyses including and excluding minimum levels of inflows. PB recommended a HUF based on excluding inflows, and using a 15-year drought period.

Table 4.16: Summary of HUF Methodology

<i>Drought Period</i>	<i>Drought Period With Minimum Inflows</i>		<i>Drought Period Without Minimum Inflows</i>	
	<i>Medium Priority (%)</i>	<i>High Priority (%)</i>	<i>Medium Priority (%)</i>	<i>High Priority (%)</i>
10 year	61	39	22	78
15 year	60	40	26	74
20 year	61	39	35	65

Source: Parsons Brinckerhoff (2012).

As outlined above in Table 4.16, HUF percentages are significantly lower for MP users when minimum inflows are excluded - e.g. 64% lower for the 10-year drought period analysis.

The change in the HUF from removing inflows reflects that MP WAE holders gain more from stream inflows than do HP WAE holders. This is because:

- (a) HP WAE holders have priority to water in storage, and their security of supply is dependent on the volume in storage;
- (b) MP WAE holders receive a large proportion of their water from stream-flow rather than from storage releases, meaning that the storage volume is significantly higher than it would be in the absence of stream inflows; and
- (c) when stream flows are removed from the model, storage volumes are lower meaning that MP cut-off is reached more often with a smaller proportion of the storage being attributed to MP WAE holders.

The HUFs for this scheme (Seqwater 2012ap) are 26% for MP and 74% for HP WAE.

Other Stakeholders

No other stakeholders have provided comment regarding this topic.

Authority's Analysis

As outlined in Volume 1, the Authority noted that the proposed modification to exclude downstream inflows is consistent with the purpose of the HUF methodology to allocate capital costs according to benefit.

This modification by Seqwater to the SunWater approach accords with the purpose of the HUF (to allocate headworks capital costs to beneficiaries). That is, MP holders receive a large proportion of their water from unsupplemented stream flows rather than storage volumes. When stream flows are removed from the HUF simulation model, the MP cut-offs for access to storage volumes are reached more often, resulting in a smaller proportion of costs being attributed to MP.

Accordingly, Seqwater's approach reduces costs that would otherwise have been attributed (inappropriately) to MP WAE.

The Authority recommended that Seqwater's proposed HUF methodology be adopted for the Mary Valley WSS.

The Authority estimated that based on the HUF methodology, the conversion for MP to HP would be 5.8:1. This compared with the WPCF of 2.3:1 used for 2006-11 price paths. Further, the Authority noted that under the HUF approach, MP irrigators will now pay 26% of the cost of renewals whereas previously MP irrigators paid 47%.

Submissions Received from Stakeholders on the Draft Report

Seqwater (2013a) and QFF (2013b) both supported the Authority's Draft Report approach.

Authority's Response to Submissions Received on the Draft Report

The Authority proposes no change to the Draft Report approach.

4.6 Calculating the Renewals Annuity

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

For the Mary Valley WSS, the recommended renewals annuity for 2013-17 is shown in Table 4.17. The renewals annuity for 2006-13 is also presented for comparison. Table 4.18 shows the recommended renewals annuity for Pie Creek distribution system. Both tables allow a comparison of the Authority's draft and final renewals annuities.

The change in renewals annuities is due to a change in the Weighted Average Cost of Capital (WACC) rate from 5.86% to 6.2%, which is used to determine the annuity (see Volume 1).

Table 4.17: Mary Valley 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
Mary Valley – Draft											
Seqwater (April)	328,517	276,213	326,562	362,545	341,936	372,977	397,192	650,496	654,449	662,463	669,062
Seqwater (November)	160,063	140,867	105,148	110,230	107,323	113,401	118,580	491,958	492,729	496,529	499,109
Authority											
High Priority	-	-	-	-	-	-	-	223,738	221,035	221,312	220,429
Medium Priority	-	-	-	-	-	-	-	115,635	114,933	115,279	115,237
Distribution Losses	-	-	-	-	-	-	-	3,617	3,587	3,595	3,590
Total Authority	-	-	-	-	-	-	-	342,990	339,556	340,186	339,255
Irrigation	-	-	-	-	-	-	-	117,937	117,221	117,573	117,530
Mary Valley - Final											
High Priority	-	-	-	-	-	-	-	230,019	227,526	227,908	227,168
Medium Priority	-	-	-	-	-	-	-	118,305	117,695	118,095	118,120
Distribution Losses	-	-	-	-	-	-	-	3,707	3,680	3,691	3,687
Total Authority	-	-	-	-	-	-	-	352,031	348,901	349,693	348,975
Irrigation	-	-	-	-	-	-	-	120,660	120,037	120,445	120,471

Source: Seqwater (2012g), Seqwater 2012ap), QCA (2012) and QCA (2013). Note: Includes some variations to the Draft Report as a result of further quality assurance.

Table 4.18: Pie Creek Distribution System 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
Pie Creek - Draft											
Seqwater (April)	196,656	173,223	199,126	205,334	206,695	217,761	218,473	45,340	46,181	46,350	46,525
Seqwater (November)	68,576	59,842	69,352	72,461	71,807	75,041	75,700	64,174	64,822	64,943	65,065
Authority											
High Priority	-	-	-	-	-	-	-	0	0	0	0
Medium Priority	-	-	-	-	-	-	-	65,769	65,805	65,142	64,490
Distribution Losses	-	-	-	-	-	-	-	0	0	0	0
Total Authority	-	-	-	-	-	-	-	65,769	65,805	65,142	64,490
Irrigation	-	-	-	-	-	-	-	65,769	65,805	65,142	64,490
Pie Creek - Final											
High Priority	-	-	-	-	-	-	-	0	0	0	0
Medium Priority	-	-	-	-	-	-	-	65,859	65,947	65,360	64,783
Distribution Losses	-	-	-	-	-	-	-	0	0	0	0
Total Authority	-	-	-	-	-	-	-	65,859	65,947	65,360	64,783
Irrigation	-	-	-	-	-	-	-	65,859	65,947	65,360	64,783

Source: Seqwater (2012g), Seqwater 2012ap), QCA (2012) and QCA (2013).

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:

- (a) Seqwater's direct operating expenditure forecasting methodology;
- (b) the prudence 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).

Draft Report

Stakeholder Submissions

Seqwater

Seqwater (2012aj) 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 for it to make a comparison between total forecast and historical operating expenditures.

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

- (a) does not disaggregate operating costs for each tariff group within schemes where relevant - that is, Pie Creek 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 submitted 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.

Authority's Analysis

The Authority acknowledged 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 considered 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 (GSCs).

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

Final Report

No submissions were received in regard to historical costs.

For information, historical forecast costs and actual costs (where available) are provided in Table 5.1.

Table 5.1: Actual and Forecast Total Operating Expenditure 2006-11 (Nominal \$)

	2006-07	2007-08	2008-09	2009-10	2010-11
Mary Valley					
Forecast	503,571	630,298	602,359	621,090	623,720
Actual	890,409	868,934	n.a.	n.a.	n.a.
Variance	386,838	238,636	n.a.	n.a.	n.a.
Pie Creek					
Forecast	102,378	128,142	122,462	126,271	126,805
Actual	245,974	181,787	n.a.	n.a.	n.a.
Variance	143,596	53,645	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 (2012aj) 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 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 Operating 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). 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 and 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 Mary Valley WSS; and
 - (ii) detailed dam safety inspections conducted five-yearly, in addition to the costs of routine (annual) dam safety inspections (included in operations expenditure).

Seqwater also disaggregates its 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 activities⁵;
- (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 Operating Costs

Non-direct operations 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 include business services, organisational development and the office of the Chief Executive Officer (CEO), including the costs of IT services, finance, procurement, legal and risk, governance and compliance activities; and
- (d) other costs mainly associated with the Creek Street facilities and flood control centres.

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

- (a) non-infrastructure costs of assets such as buildings and 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

Draft Report

Stakeholder Submissions

Seqwater

Seqwater (2012aj) submitted forecast total operating costs by activity for 2012-13 in the Mary Valley (all sectors) and Pie Creek tariff groups and escalated these over each year of the regulatory period on the basis of predetermined escalation factors.

⁵ 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 GSC submission to the Authority.

Seqwater 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, Seqwater noted that the 2012-13 operating expenditure forecasts provided in the GSCs submission have been previously reviewed by the Authority for prudence 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 non-direct costs were escalated at forecast CPI (2.5% per annum).

Seqwater provided two versions of its Mary 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 (Seqwater 2012g); and
- (b) a version in November 2012 (Seqwater 2012ap) with revised operating costs compiled in response to the Authority's review of GSC, the Minister's subsequent decision regarding these charges and further analysis by Seqwater of bulk water costs.

Total operating costs from the two NSPs are compared in Table 5.2 and Table 5.3.

Table 5.2: Seqwater's Forecast Operating Costs for 2012-13 – Mary Valley (Nominal \$)

	<i>April NSP</i>	<i>November NSP</i>	<i>Variance</i>
Direct Operating Costs			
<i>Operations</i>			
Labour	404,438	227,367	(177,071)
Contractors	0	0	0
Materials	26,415	22,415	(4,000)
Electricity	33,717	23,717	(10,000)
Other	181,311	179,311	(2,000)
Sub-total	645,881	452,810	(193,071)
<i>Repairs and Maintenance</i>			
Planned	147,982	144,431	(3,551)
Unplanned	60,443	58,993	(1,450)
Sub-total	208,425	203,424	(5,001)
<i>Dam Safety</i>	0	0	0
<i>Rates</i>	0	0	0
Total Direct Operating Costs	854,306	656,234	(198,072)
Non-Direct Operating Costs			
<i>Operations</i>			
Water Delivery	91,506	67,529	(23,977)
Asset Delivery	40,852	33,263	(7,589)
Corporate	326,934	208,520	(118,413)
Other	27,866	5,746	(22,121)
Sub-total	487,159	315,058	(172,101)
<i>Non-Infrastructure</i>	40,707	32,333	(8,374)
<i>Insurance</i>	133,101	117,798	(15,303)
<i>Working Capital</i>	16,483	16,483	0
Total Non-Direct Operating Costs	677,450	481,672	(195,778)
Total Operating Costs	1,531,756	1,137,906	(393,850)

Source: Seqwater (2012g) and Seqwater (2012ap).

Table 5.3: Seqwater's Forecast Operating Costs for 2012-13 – Pie Creek (Nominal \$)

	<i>April NSP</i>	<i>November NSP</i>	<i>Variance</i>
Direct Operating Costs			
<i>Operations</i>			
Labour	21,806	55,753	33,947
Contractors	0	0	0
Materials	7,342	11,342	4,000
Electricity	0	12,133	12,133
Other	0	2,000	2,000
Sub-total	29,148	81,228	52,080
<i>Repairs and Maintenance</i>			
Planned	46,915	50,465	3,550
Unplanned	19,163	20,613	1,450
Sub-total	66,078	71,078	5,000
<i>Dam Safety</i>	0	0	0
<i>Rates</i>	0	0	0
Total Direct Operating Costs	95,226	152,306	57,080
Non-Direct Operating Costs			
<i>Operations</i>			
Water Delivery	10,200	15,673	5,473
Asset Delivery	4,554	7,720	3,166
Corporate	36,442	48,396	11,954
Other	3,106	1,334	(1,773)
Sub-total	54,302	73,122	18,820
<i>Non-Infrastructure</i>	4,537	7,504	2,967
<i>Insurance</i>	11,016	9,750	(1,266)
<i>Working Capital</i>	1,622	1,622	0
Total Non-Direct Operating Costs	71,477	91,998	20,521
Total Operating Costs	166,703	244,304	77,601

Source: Seqwater (2012g) and Seqwater (2012ap).

Details submitted by Seqwater of the direct and non-direct operating expenditure forecasts for the Mary Valley and Pie Creek by activity are provided in Tables 5.4 and 5.5 respectively, based on the November 2012 NSP.

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

<i>Costs</i>	<i>2012-13</i>	<i>2013-14</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>
Direct					
Operations	452,810	467,877	483,471	499,610	516,315
Repairs and Maintenance	203,424	211,561	220,023	228,824	237,977
Dam Safety	0	0	0	26,922	0
Rates	0	0	0	0	0
Non-Direct					
Operations	315,058	322,934	331,008	339,283	347,765
Non-infrastructure	32,333	33,141	33,970	34,819	35,690
Insurance	117,798	120,743	123,762	126,856	130,027
Working Capital	16,483	16,895	17,317	17,750	18,194
Total	1,137,906	1,173,152	1,209,551	1,274,064	1,285,968

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

Table 5.5: Seqwater's Operating Expenditure by Activity – Pie Creek (Nominal \$)

	2012-13	2013-14	2014-15	2015-16	2016-17
Direct					
Operations	81,228	84,265	87,418	90,692	94,092
Repairs and Maintenance	71,078	73,921	76,878	79,953	83,151
Dam Safety	0	0	0	0	0
Rates	0	0	0	0	0
Non-Direct					
Operations	73,122	74,950	76,824	78,744	80,713
Non-infrastructure	7,504	7,692	7,884	8,081	8,283
Insurance	9,750	9,994	10,244	10,500	10,762
Working capital	1,622	1,663	1,704	1,747	1,790
Total	244,304	252,484	260,952	269,717	278,792

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

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

Table 5.6: Seqwater's Operating Costs by Type – Mary Valley (Nominal \$)

	2012-13	2013-14	2014-15	2015-16	2016-17
Labour	227,367	236,462	245,920	255,757	265,987
Contractors and Materials	22,415	23,312	24,244	25,214	26,222
Electricity	23,717	24,310	24,918	25,541	26,179
Others	179,311	183,794	188,389	193,098	197,926
Planned repairs and maintenance	144,431	150,208	156,217	162,465	168,964
Unplanned repairs and maintenance	58,993	61,353	63,807	66,359	69,013
Dam Safety	0	0	0	26,922	0
Rates	0	0	0	0	0
Non-direct	481,672	493,714	506,057	518,708	531,676
Total	1,137,906	1,173,152	1,209,551	1,274,064	1,285,968

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

Operating costs by type for Pie Creek are shown in Table 5.7.

Table 5.7: Seqwater's Operating Costs by Type – Pie Creek (Nominal \$)

	2012-13	2013-14	2014-15	2015-16	2016-17
Labour	55,753	57,983	60,302	62,715	65,223
Contractors and Materials	11,342	11,796	12,268	12,758	13,269
Electricity	12,133	12,436	12,747	13,066	13,393
Others	2,000	2,050	2,101	2,154	2,208
Planned repairs and maintenance	50,465	52,484	54,583	56,766	59,037
Unplanned repairs and maintenance	20,613	21,438	22,295	23,187	24,114
Dam Safety	0	0	0	0	0
Rates	0	0	0	0	0
Non-direct	91,998	94,298	96,655	99,072	101,549
Total	244,304	252,484	260,952	269,717	278,792

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

Other Stakeholders

G. Rozynski (2012) and D. Burnett (2012) commented that recreational costs should not be a cost passed on to irrigators as they are a financial burden and are used by the general public. If recreation costs are included then community access should be restricted to save costs.

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 recommended 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 irrigators in relation to the forecasting and incurrence of operating costs.

In response to the stakeholders commenting that recreation costs should not be passed on to irrigators, the Authority notes that the Ministerial Direction explicitly requires that Seqwater be allowed to recover efficient recreation costs.

For the purposes of the analysis of the prudence of operating costs, the Authority reviewed Seqwater's November 2012 revised NSP data.

Submissions Received from Stakeholders on the Draft Report

G. and L. Rozynski (2013) and stakeholders during consultation in February (2013), commented that government policy requiring recreational costs to be borne by water users is wrong and constitutes a misuse of government power. Recreational costs associated with Seqwater WSS are higher compared to SunWater WSS, given the higher population density. Discussions should be held to convince government to change this policy.

Authority's Response to Submissions Received on the Draft Report

The Authority is bound by the Minister's Direction.

5.4 Prudence and Efficiency of Direct Operating Costs

Introduction

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

Accordingly, the Authority focused its review on 2012-13 budgeted costs and the method of cost escalation.

Draft Report

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 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 Authority 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 Authority'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 five-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. For the Mary Valley WSS, Seqwater has allowed for inspection of Borumba Dam in 2015-16.

Seqwater's proposed direct operating costs by activity for Mary Valley and Pie Creek, as per in Seqwater's November 2012 NSPs, are detailed below in Table 5.8 and Table 5.9.

Table 5.8: Seqwater Direct Operating Costs by Activity – Mary Valley (Nominal \$)

	<i>2012-13</i>	<i>2013-14</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>
Operations	452,810	467,877	483,471	499,610	516,315
Repairs and Maintenance	203,424	211,561	220,023	228,824	237,977
Dam Safety	0	0	0	26,922	0
Rates	0	0	0	0	0
Total	656,234	679,438	703,494	755,356	754,292

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

Table 5.9: Seqwater Direct Operating Costs by Activity – Pie Creek (Nominal \$)

	<i>2012-13</i>	<i>2013-14</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>
Operations	81,228	84,265	87,418	90,692	94,092
Repairs and Maintenance	71,078	73,921	76,878	79,953	83,151
Dam Safety	0	0	0	0	0
Rates	0	0	0	0	0
Total	152,306	158,186	164,296	170,646	177,243

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

Direct operating costs by type are outlined in Table 5.10 and Table 5.11.

Table 5.10: Seqwater Direct Operating Costs by Type – Mary Valley (Nominal \$)

	2012-13	2013-14	2014-15	2015-16	2016-17
Labour	227,367	236,462	245,920	255,757	265,987
Contractors and Materials	22,415	23,312	24,244	25,214	26,222
Electricity	23,717	24,310	24,918	25,541	26,179
Other	179,311	183,794	188,389	193,098	197,926
Planned Repairs & Maintenance	144,431	150,208	156,217	162,465	168,964
Unplanned Repairs & Maintenance	58,993	61,353	63,807	66,359	69,013
Dam Safety	0	0	0	26,922	0
Rates	0	0	0	0	0
Total	656,234	679,438	703,494	755,356	754,292

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

Table 5.11: Seqwater Direct Operating Costs by Type – Pie Creek (Nominal \$)

	2012-13	2013-14	2014-15	2015-16	2016-17
Labour	55,753	57,983	60,302	62,715	65,223
Contractors and Materials	11,342	11,796	12,268	12,758	13,269
Electricity	12,133	12,436	12,747	13,066	13,393
Other	2,000	2,050	2,101	2,154	2,208
Planned Repairs & Maintenance	50,465	52,484	54,583	56,766	59,037
Unplanned Repairs & Maintenance	20,613	21,438	22,295	23,187	24,114
Dam Safety	0	0	0	0	0
Rates	0	0	0	0	0
Total	152,306	158,186	164,296	170,646	177,243

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

Other Stakeholders

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

Authority's Analysis

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

SKM's review of specific cost categories for the Mary Valley WSS and the Authority's conclusions are outlined below in accordance with sampled cost Item 1 and Item 2.

Although SKM did not specifically review Seqwater's proposed electricity costs for Pie Creek, the Authority considered these costs require specific consideration⁶. Accordingly, they are included as Item 3.

Item 1: Operations – Direct Labour (Mary Valley)

Stakeholder Submissions

Seqwater

Initially, direct labour costs forecast for 2013-14 are typically determined by Seqwater escalating the 2012-13 budget by a factor of 4%. Given Seqwater's 2012-13 budget for the Mary Valley tariff group is \$404,000, the 2013-14 forecast is \$421,000 (April 2012 estimates).

Prior to SKM's review being completed, Seqwater further revised its 2012-13 forecast to \$413,000.

In November 2012, Seqwater subsequently revised its estimate for 2012-13 to \$227,300 [Mary Valley – see Table 5.10]. Although SKM's analysis was primarily based on the initial estimates, SKM was requested to further review its analysis having regard to Seqwater's lower expected cost.

Other Stakeholders

QFF (2012) submitted that labour costs are too high and need to be analysed to determine need and efficiency.

Consultant's Review

Seqwater submitted the following associated with the 2013-14 budget for the operating expenditure item direct labour (Table 5.12 refers).

Table 5.12: Mary Valley Tariff Group – Direct Labour (Nominal \$'000)

<i>Item</i>	<i>2012-13 Budget</i>	<i>2013-14 Forecast (Seqwater's initial submission)</i>	<i>2013-14 Forecast (Seqwater's revised submission)</i>
Direct Labour	404	421	429

Source: SKM (2012).

Seqwater's initial 2013-14 forecast was escalated from the budgeted 2012-13 base forecast by 4%. The 2012-13 base forecast was built up from a zero base (bottom up). This category of costs relates to internal Seqwater staff costs only. SKM was subsequently provided a revised Seqwater submission that increased the original 2013-14 forecast from \$421,000 to \$429,000. No information was provided to support this increase in the forecast.

⁶ During the 2012-13 Grid Service Charges review SKM assessed Seqwater's electricity costs as being prudent and efficient. 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.

Item Description

Labour relates to the operation of certain functions and activities such as Borumba Dam (including catchment and associated recreation areas) and the Borumba (Recreation) WTP (Table 5.13 refers).

Table 5.13: Labour Costs - Initial Seqwater 2013-14 Forecast (Nominal \$'000)

<i>Function/Activity</i>	<i>Amount</i>
Borumba Dam Operations	223
Mary Valley Irrigation	71
Borumba Dam Catchment Services	49
Borumba Recreation WTP	78
Total	421

Source: SKM (2012).

Documentation Provided

The documents used for this review were:

- (a) Seqwater, 2013-14 Irrigation Pricing, Submission to the QCA, April 2012;
- (b) Seqwater, Mary Valley Water Supply Scheme, Network Service Plan;
- (c) Seqwater, Information Request Response – QCA Irrigation Price Review 2013-17, RFI 020, Mary Valley WSS, Operations – Direct Labour, 14 Aug 2012;
- (d) Seqwater, Budget 2012-13, Salaries and Wages, Dam Operations;
- (e) Seqwater, Budget 2012-13, Salaries and Wages, Group Support;
- (f) Seqwater, Opex – Irrigation Updated YTD.xlsx;
- (g) Seqwater, Opex – Irrigation Salaries Queries.xlsx; and
- (h) Seqwater Enterprise Bargaining Certified Agreement 2009 – 2012.

SKM also requested evidence of historical costs for contracted recreational area maintenance including the cost of mowing services. While some information was provided for 2008-09 to 2011-12, SKM indicated that a change in classification in mowing services (possibly leading to inclusion in General Maintenance Contracts) resulted in the non-identification of costs for this aspect of operating expenditure budget for subsequent years.

Prudency

Borumba Dam is referable under the *Water Supply (Safety and Reliability) Act 2008*. Accordingly, labour resources are needed to undertake:

- (a) Dam Operations - to meet Market Rules requirements, water ownership and water use legislation, water information reporting requirements, dam safety and reliability legislation;

- (b) Catchment Services – to meet environmental protection legislation, recreation responsibilities, catchment management responsibilities and land ownership legislation; and
- (c) Water Treatment Operations: to meet Market Rules requirements and recreation responsibilities.

Accordingly, proposed expenditure was considered prudent.

Efficiency

Labour projections are not based on water demand (as a cost driver) but are rather based on the 2012-13 budget. SKM considered that basing the labour forecast cost on a previous budget is not satisfactory as actual costs may vary significantly from budget. Forecast costs should be based on actual incurred costs taking into account trends exhibited by recent actual expenditure, changes in working practices and changes asset operation. Accordingly, SKM sought additional information regarding actual historical expenditure.

Seqwater provided historical and budgeted costs between 2009-10 and 2012-13. SKM noted that the budget information provided in this instance was not consistent with other information provided, although the difference was small. SKM understood that this inconsistency is due to the fact that Seqwater updated their original submission and that the 2012-13 budget (as outlined in Table 5.14 below) is consistent with the revised cost forecast.

However, no further details were provided and SKM's detailed review below is limited to the available information provided by Seqwater which is consistent with their original budget forecast.

Table 5.14: Actual and Budgeted Direct Labour Costs (Nominal \$)⁷

<i>Item</i>	<i>2009-10 Actual</i>	<i>2010-11 Actual</i>	<i>2011-12 Actual</i>	<i>2011-12 Budget</i>	<i>2012-13 Budget</i>
Direct Labour	211,708	308,476	316,265	453,077	412,645

Source: SKM (2012).

SKM noted that the original proposed budget of \$421,000 for 2013-14 is significantly higher than the historic actual expenditure in 2010-11 (a \$112,524 or 36.5%, increase) and 2011-12 (a \$104,735 or 33.2% increase).

Seqwater advised that:

- (a) reductions applied to the cost of Dam Operator and WTP Operations are for time spent on other schemes/activities not associated with the Mary Valley tariff group;
- (b) the Dam Operations Supervisor's time is allocated between Mary Valley and Pie Creek tariff groups and Cedar Pocket WSS; and
- (c) about \$13,500 of a Dam Operator's costs has been transferred to Pie Creek tariff group.

⁷ SKM noted that this information differs from that supplied to SKM from Seqwater in an earlier information request.

Dam operations are the largest contributor to direct operating costs and comprise the operating, maintaining and monitoring associated with water source infrastructure. Dam operations are relatively labour intensive with expenditure required to provide various services as noted in Seqwater's submission above.

Group Support (and catchment management) is responsible for the development and delivery of recreation and catchment maintenance services for all operational assets. The team of rangers and bio security officers ensures that asset management plans, processes, systems and practices are implemented in accordance with relevant regulatory requirements. Seqwater also has responsibility for the ongoing management and maintenance of any associated recreation sites.

While the use of Seqwater assets for recreational purposes is not a core function, these facilities, which are an operating licence condition, must be managed in a responsible manner to ensure that Seqwater's core responsibilities are not adversely impacted. When SunWater managed these recreation facilities prior to transfer to Seqwater, dam operators were also responsible for daily maintenance like mowing and minor repairs.

Under Seqwater's operating model, these maintenance activities have been transferred from Dam Operations to Group Support. Seqwater informed SKM that grounds maintenance such as slashing and mowing are now managed by the rangers and much contracted out to third parties. Seqwater endeavoured to separate operations and maintenance activities between the operations and maintenance teams such that the minor asset maintenance previously undertaken by operators is now only undertaken by the maintenance teams or contractors.

Seqwater advised that with the change in duties between SunWater's and Seqwater's operations, the dam operators had acquired other duties, including increased monitoring and inspections. Seqwater also advised that with the transfer of the assets to Seqwater, dam operators have not had their work load reduced.

Moreover, Seqwater ranger workloads have increased to maintain recreational facilities. These discussions have indicated that dam operators have a potential capacity to undertake at least 20% to 30% more work while the rangers responsible for the maintenance of the recreational facility are fully (perhaps even over) utilised. As a result, these rangers are often not able to undertake the maintenance work themselves but rather have to contract for third party contractors to undertake the grounds maintenance work (mainly mowing of the lawn associated with the recreational facilities and slashing of verges and access routes).

Information provided by Seqwater on the cost of mowing and slashing services allocated to the Mary Valley indicates that about \$10,000 was paid to the mowing contractor in 2008-09. If this service is reclassified as part of dam operations and brought (back) under the responsibility of the dam operator, this will more fully utilise the dam operators, reduce ranger work-load in managing the mowing contractor and save on the contract cost.

About 0.6 FTE rangers have been allocated. Discussions indicate that rangers are fully utilised and they are also trained to supplement dam operators during peak events as would occur during a flood.

For dam operators, Seqwater has allowed 0.8 FTE to Borumba Dam although the Operations Supervisor also allocates a significant amount of time to this dam. Although Seqwater indicated that 100% of this supervisor's time is allocated to Borumba Dam, the reduction applied suggests that only about 70% of the full cost is applied.

The overall number of dam operators is appropriate given some excess capacity may be necessary during normal operations to address peak requirements. As mentioned, outside

peak requirements, this excess may be utilised in non-core activities like mowing and minor maintenance work. However, the current operating model does not take advantage of this capacity but rather incurs extra maintenance contracting costs that are inefficient.

An overtime allocation of \$19,000 for dam operations was provided. This is equivalent to 15% of the normal dam operations labour cost allocated. Allowances account for a further \$21,000. In SKM's view these allocations were reasonable.

SKM also noted that the dam operators are also responsible for operating infrastructure downstream (e.g. Imbil Weir) and operating the Cedar Pocket Dam WSS. Analysing the proportion of time spent by these operators indicates that dam operators' costs has been over-allocated across the three asset groups after taking into account the reduction applied (that is, their total labour costs allocation is greater than 100%). This assessment does not include the overtime allowance that is separately provided for.

Seqwater advised that employee costs will be re-cast based on an updated allocation of time. This however was not received by SKM.

The Mary Valley tariff group has a larger number of WTP operators compared to other WSSs although each operator only allocates 7.5% of their time. In total, the scheme accounts for just less than one WTP FTE. The pay rates are consistent with other operators and rangers employed by Seqwater and are considered to be reasonable.

In contrast to the high overtime allocated for dam operators, overtime of \$2,400 budgeted for the WTP operator at Borumba Dam is reasonable. The 0.8 FTE WTP operators incur a normal time cost of about \$80,000. Overtime is thus expected to account for another \$2,400 or about 3% of normal time cost.

Of concern is the large increase in the 2012-13 budget of labour cost from costs incurred in 2010-11 and 2011-12 (Table 5.15 refers).

No reasons were provided in any of the documents from Seqwater to explain the approximately 29% increase. While there may be an argument that as Seqwater set labour budgets in an integrated manner for all WSSs, the annual allocation of individual schemes may change. However, SKM did not expect an increase in labour expenditure from less than \$320,000 in 2011-12 to over \$405,000 in 2012-13 (or \$412,000 in other sources of information provided to SKM). Also the unsuitability of using the 2012-13 budget as the base to forecast the 2013-14 budget is highlighted by the large (i.e. \$136,812) under spend in 2011-12 (comparing actual to budget).

Table 5.15: Labour Costs Compared (Nominal \$)

	<i>2009-10 Actual</i>	<i>2010-11 Actual</i>	<i>2011-12 Actual</i>	<i>2011-12 Budget</i>	<i>2012-13 Budget</i>	<i>Increase 2011-12 (actual) to 2012-13 (budget)</i>
Mary Valley	211,709	308,476	316,265	453,077	404,438	28%
Seqwater	1,802,969	3,780,608	4,185,252	3,968,741	4,784,302	14%

Source: SKM (2012).

Accordingly, SKM initially recommended the 2012-13 budget be adjusted to reflect the percentage increase in cost 2010-11 to 2011-12 (estimated at \$348,270). This recommendation was developed by adjusting the percentage of time allocated by staff to

relevant assets. Also, an adjustment to the percentage of time allocated to Borumba Dam and the irrigation scheme was made to account for the over-allocation of dam operator time.

However, subsequent to SKM's recommendation being made available to Seqwater, Seqwater subsequently revised their budget allocation for 2012-13. As a result of this further information being made available by Seqwater, the Authority commissioned SKM to undertake further analysis to establish whether this expenditure was prudent and efficient.

The re-allocation of budgeted resources resulted in Seqwater's estimate of the labour cost budget being reduced from an initial forecast of \$421,000 (revised to \$429,000) to \$227,400 (an alternative estimate of \$224,494 was provided to SKM). The reduced budget is therefore below SKM's initial estimate of \$348,270.

The main reasons for this reduction were the lower allocation of Catchment Services to levels similar to that seen in the last two years and significant reduction in the time allocated by the dam operators. The allocation of costs by the WTP operators remains the same. SKM reviewed these new costs and their allocation and concluded that this is a more appropriate estimate of the likely resources required to operate the Mary Valley WSS. Accordingly, SKM considered the revised budget for 2012-13 of \$224,494 to be efficient (Table 5.16 refers).

Table 5.16: Seqwater's Revised Labour Cost Budget – 2012-13 (Nominal \$)

<i>Activity/Cost Item</i>	<i>Salaries and Wages Applied</i>
Catchment Services	29,055
Dam Operations	112,683
WTP Ops	72,150
Overtime	2,400
Infrastructure Maintenance	8,206
Total Labour Costs for 2012-13	224,494

Source: SKM (2012).

SKM's revised labour cost budget for 2012-13 is outlined below (Table 5.17 refers). For the purpose of comparison, Seqwater's labour cost budgets for 2012-13 is also included.

Table 5.17: SKM's Revised Direct Labour Cost Budget (2012-13) Nominal \$)

<i>Item</i>	<i>Seqwater's Initial Proposed Budget 2012-13</i>	<i>Seqwater's Revised Budget 2012-13</i>	<i>SKM Recommended Budget 2012-13</i>
Direct Labour	404,438	227,400	224,494

Source: SKM (2012).

Authority's Analysis

The Authority noted (consistent with QFF's concerns) that SKM confirmed that the direct labour costs initially proposed by Seqwater were excessive. SKM recommended that

Seqwater's revised direct labour costs budget for 2012-13 (i.e. \$224,494 down from \$404,438) is prudent and efficient; representing a 45% reduction on the original submission.

The Authority noted that SKM's analysis uses a revised estimate slightly different from to Seqwater's November 2012 NSP (i.e. \$224,494 rather than \$227,400 for 2012-13).

The Authority accepted the 2012-13 revised budget estimate of \$224,500 recommended by SKM as prudent and efficient. The escalation of these amounts is discussed below.

Submissions Received from Stakeholders on the Draft Report

Seqwater (2013a) submitted that SKM subsequently accepted Seqwater's explanations that the supposed under-utilisation of staff was not actually occurring.

During consultation in February 2013, stakeholders questioned whether the reduction in direct labour costs was due to a shift towards contractors.

Authority's Response to Submissions Received on the Draft Report

In the Draft Report, the issue of potential underutilisation of operations staff was addressed in a subsequent review by SKM following the provision of new information by Seqwater. The Authority accepted the revised labour costs proposed by SKM.

Seqwater differentiates direct operations costs into labour, contractors and other. The reduction in labour costs recommended by SKM (from \$404,438 to \$224,494) is based, not on the increased use of contractors, but a revised labour budget being provided by Seqwater. As outlined previously, SKM considered that Seqwater's revised budget is based on a lower allocation of Catchment Services and a reduction in time allocated by dam operators.

Item 2: Planned Repairs and Maintenance – Pie Creek

Stakeholder Submissions

Seqwater

The initial forecast of maintenance costs for 2013-14 are typically determined by Seqwater escalating the 2012-13 budget by a factor of 4%. Given Seqwater's 2012-13 budget for the Pie Creek tariff group for this operating expenditure is \$47,000, the 2013-14 forecast is \$49,000.

Seqwater subsequently updated the 2012-13 budget to \$50,500. This amount remained unchanged for the November 2012 submission of revised NSPs.

Other Stakeholders

QFF (2012) and irrigators during Round 1 consultations in June 2012 (QCA 2012c) submitted that proposed planned maintenance costs appear excessive. Accordingly, the Authority should review proposed costs to establish prudent and efficient expenditure.

Consultant's Review

Proposed Operating Expenditure

For the Pie Creek tariff group, Seqwater submitted the following associated with the 2013-14 budget for the operating expenditure item planned repairs and maintenance (Table 5.18 refers).

Table 5.18: Pie Creek -- Planned Repairs and Maintenance (Nominal \$'000)

<i>Item</i>	<i>2012-13 Budget (April NSP)</i>	<i>2013-14 Forecast (April NSP)</i>	<i>2012-13 Budget (November NSP)</i>	<i>2013-14 Forecast (November)</i>
Repairs and Maintenance – Planned	47	49	50.5	52.5

Source: SKM (2012).

Forecast costs for 2013-14 were determined by Seqwater by escalating the 2012-13 budget by a factor of 4%. The 2012-13 costs were zero-based (that is, using a bottom up method).

SKM noted that when compared to the actual historical expenditure, the 2012-13 budget is 200% and 350% higher than historic actual spends for 2010-11 and 2011-12 respectively.

Item Description

Seqwater's asset maintenance program refers to scheduled or planned maintenance. Scheduled maintenance refers to periodic maintenance scheduled in advance and designed to minimise deterioration of an asset's condition and/or performance. Planned maintenance is undertaken to improve asset condition to a required level and is operational in the immediate term or is in response to work arising from safety audits, environmental audits or process improvements.

Documentation Provided

The documents used for this review were:

- (a) Information Request Response, RFI022, Pie Creek WSS, Repairs & Maintenance – Planned, Seqwater, 14/08/201;
- (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. Discussions with Seqwater staff during interviews provided further information, and resulted in the identification of a number of additional information sources that were subsequently requested.

Additional information requested and provided by Seqwater included rates for the old contractor panel and the MMW Panel User Guide.

Prudency

Operating the tariff group and achieving compliance with legislation (e.g. dam safety), requires Seqwater to properly repair and maintain the assets that it owns and operates.

The repairs and maintenance required to operate Pie Creek predominantly relate to ensuring the ongoing operation and reliability of the Pie Creek Pump Station. Consequently the operating expenditure item has been assessed as prudent.

Efficiency

The budget was developed using baseline data contained in the Operational Cost Report for 2012-13 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 to 3%. However, this method for budget determination relies on the accuracy of previous budget and does not consider the actual costs that have been incurred.

For 2012-13, the repairs and maintenance budget for the Pie Creek Distribution System is \$71,078, while the actual spend for 2010-11 was \$36,046 and for 2011-12 was \$20,024. Using Seqwater's allocation of 71% of maintenance as planned maintenance, the actual planned maintenance spends can be calculated as \$25,593 in 2010-11 and \$14,299 in 2011-12. Applying an escalation factor of 4% to the average planned maintenance expenditure between 2010-11 and 2011-12 of \$19,911 provides forecasts of \$20,707 for 2012-13 and \$21,536 for 2013-14. These values are significantly lower than the originally forecast \$47,000 and \$49,000 listed in Seqwater's initial submission (Table 5.19 refers).

Table 5.19: Actual Expenditure/Seqwater's Initial Budget, Compared (Real \$)

<i>Average actual expenditure 2010-11 to 2011-12</i>	<i>Revised forecast – escalated previous actual to 2012-13</i>	<i>Seqwater initial budget 2012-13</i>	<i>Revised forecast - escalated previous actual to 2013-14</i>	<i>Seqwater initial budget 2013-14</i>	<i>Difference between revised forecasts & Seqwater's initial budget</i>
19,911	20,707	47,000	21,536	49,000	+227%

Source: SKM (2012).

SKM considered that Seqwater's budgeting methodology for planned maintenance is not appropriate, as it does not consider actual historic spend. SKM therefore concluded that the 2012-13 and 2013-14 budgeted costs are not efficient.

Planned maintenance is delivered through a panel of providers (that is, contractors). Each of Seqwater's operational regions has a panel of four contractors, who have been selected through expression of interest for each classification including electrical, mechanical, instrumentation, control system pipeline and civil. Seqwater indicated that contractors were appointed in accordance with the State Procurement Policy.

The previous panel agreement ran from 2009 to 2012, whilst the new panel runs from 2012 for two years, with an option to extend for a further one or two year period. The new panel contains efficiencies over the previous panels including removing the allowance for a contractor to charge for travel time and providing short-term and long-term rates.

Panel contractors are audited to determine work performance. The audit performed by Seqwater, details performance in terms of work order completion and supply of documentation, contractor timesheet entry and other categories as appropriate.

The use of panel contractors to complete maintenance (including, panel contractor rates and the new panel agreement) was considered efficient.

In the previous panel, projects under \$50,000 required one written quote from a panel member, projects from \$50,000 to \$250,000 required a minimum of three panel member quotes and projects greater than \$250,000 required an invitation to tender. More stringent procedures have been included in the new panel agreement, providing further governance for the engagement of contractors (Table 5.20 refers).

Table 5.20: Minimum Quote Requirements – Engaging Panel Contractors

<i>Work Type</i>	<i>Minimum Number and Type of Quote</i>	
	<i>Value of Work < \$100,000</i>	<i>Value of Work > \$100,000</i>
Emergency	Nil	Nil
Non-emergency (relatively urgent, or difficult to scope upfront, or is planned maintenance, or is very low in value - for which seeking WCQ is not feasible.	1 x QCWO (or WCQ if deemed appropriate)	3 x WCQ
Other non-emergency	1 x WCQ	3 x WCQ

Source: SKM (2012). Note: QCWO – Quotation Compliant Work Order; WCQ – Written Contractor Quote.

Conclusion

SKM initially assessed this operating expenditure item as prudent. SKM also initially assessed this operating expenditure as not efficient as the operating expenditure is not consistent with historical costs. Accordingly, SKM estimated Seqwater's proposed budget for 2012-13 down from the revised forecast of \$50,500 to \$20,700 (a decrease of approximately 60%).

However, subsequent to SKM's recommendation being made available to Seqwater, Seqwater provided further information and evidence that the 2011-12 budget for Pie Creek repairs and maintenance of \$106,000 (planned and unplanned) included an amount of \$60,000 expected to be undertaken by the Infrastructure Maintenance group. Instead, the work was carried out by the Asset Development group. However, these costs were not captured in the earlier information provided to SKM. This occurred due to the Asset Development group, which undertakes capital works, being excluded from the report in the erroneous understanding they had no operating expenditure.

Total expenditure for 2011-12 for repairs and maintenance is revised to \$80,000 (not the \$20,000 initially reported to SKM). This accorded with the 2012-13 budget of \$71,000 for total repairs and maintenance. Applying the planned/unplanned split (71%/29%) resulted in a genuine \$50,500 budget for planned repairs and maintenance for Pie Creek.

Accordingly, revised expenditure considered by SKM to be prudent and efficient is outlined below (Table 5.21 refers).

Table 5.21: SKM’s Revised Planned Repairs & Maintenance Budget (2012-13) & Forecast (2013-14) (Real \$’000)

<i>Item</i>	<i>Seqwater’s Proposed Budget 2012-13</i>	<i>SKM Revised Budget 2012-13</i>	<i>Seqwater’s Proposed Initial Forecast 2013-14</i>	<i>SKM Revised Forecast 2013-14</i>
Planned Repairs & Maintenance	50.5	50.5	52.5	52.5

Source: SKM (2012).

Authority’s Analysis

The Authority noted submissions from stakeholders (that is, QFF and irrigators during consultations in June 2012) that Seqwater’s Pie Creek planned repairs and maintenance costs appear excessive and require further analysis to determine their prudence and efficiency.

The Authority accepted the outcome of the SKM review that Seqwater’s proposed (planned) repairs and maintenance costs are prudent and efficient (see Table 5.21). The Authority accepted SKM’s recommendation in relation to the amount for 2012-13.

Item 3: Electricity – Mary Valley and Pie Creek

Stakeholder Submissions

Seqwater

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 proposed 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 (2012ap) proposed the following fixed electricity costs (Table 5.22):

Table 5.22: Seqwater’s Proposed Fixed Electricity Costs 2012-13

<i>Tariff Group</i>	<i>April NSP</i>	<i>November NSP</i>	<i>Variance</i>
Mary Valley	\$33,717	\$23,717	-\$10,000 (-30%)
Pie Creek	0	\$392	\$392 (+100%)
Total	\$33,717	\$24,109	-\$9,608 (-28.5%)

Source: Seqwater (2012g) and Seqwater (2012ap).

Seqwater (2012ap) also proposed a variable charge specific to Pie Creek to recover the cost of electricity that is incremental to water use – that is, the additional electricity cost incurred when a customer takes an additional ML of water.

Seqwater proposed to levy a variable electricity charge on each ML of metered water used by customers of the Pie Creek tariff group, on the following basis:

- (a) calculate the per ML electricity charge by dividing the total kilowatt hours (kWh) (based on historic use), by a forecast of the future volumes to be pumped. The average was based on past water and electricity use data from December 2008 to March 2012. Accordingly, Seqwater considers 329kWh is required to pump one ML; and
- (b) adopt 2012-13 electricity rates⁸ (which include carbon tax impacts) as the baseline for cost calculation, which were then indexed by 2.5% for each year of the regulatory period. Tariffs are for peak (67%) and off-peak (33%) energy use.

Following the approach outlined above, the unit cost of variable energy per ML pumped was \$45.47 (in 2012-13)⁹.

However, Seqwater submitted that distribution efficiency (that is, avoiding losses) changes year-to-year depending on factors such as rainfall, the physical condition of channels/supplemented streams and the timing and pattern of customer demand. As an example, in times of high rainfall (such as in recent years) there is little need to pump to provide for losses. Seqwater submitted that while records are incomplete, information available suggests efficiency can be close to (or at) 100%, or as low as 49%.

Accordingly, Seqwater submitted that a distribution efficiency factor is to be applied when setting the variable electricity charge to account for the variability of pumping costs associated with providing loss WAE. Seqwater submitted that 82% is appropriate as it represents the mid-point between the implied Mary Basin ROP distribution efficiency of 63%¹⁰ and the scenario when no losses occur (that is, 100% efficiency).

Seqwater's resulting unit cost of variable energy charge per ML pumped was \$55.72 which equated to a total cost of \$16,381 for 2012-13. This is based on the Authority's estimate of typical water use of 292ML per year (see Chapter 6: Total Cost and Final Prices - below).

Other Stakeholders

No other stakeholders have made submissions regarding this item.

Authority's Analysis

SKM did not directly review electricity costs in the Mary 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).

The electricity budget for 2013-14 was determined by escalating the 2010-11 historical spend. During the 2012-13 GSC review SKM assessed electricity costs as prudent and efficient. Providing that the method of obtaining electricity has not changed since the 2012-13 GSC review, SKM considered electricity costs were 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

⁸ Seqwater has a small contestable contract with Energy Australia procured (from the then TRUenergy) in 2010 as part of an energy procurement process across a range of Seqwater sites and receives a discount for small sites.

⁹ Seqwater's NSP describes the \$45.47 in 2013-14 dollars. In contrast, Seqwater's pricing model describes the \$45.47 as being in 2012-13 dollars. The Authority considers that the pricing model is the authoritative source.

¹⁰ Seqwater's calculation: distribution efficiency = irrigation WAE (835) / total WAE (1321) * 100 = 63%

Tax. In the Authority's review of GSCs, 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.

The Authority noted that Seqwater estimated down fixed electricity costs between the submission of its April NSP and its November NSP by \$9,608 (or 28.5%). Accordingly, the Authority accepted Seqwater's revised fixed electricity costs for the Mary Valley and Pie Creek tariff groups for 2012-13 of \$24,109. The Authority also noted Seqwater's approach to establishing the variable electricity charge per ML is \$45.47 which translates into \$55.72 after a distribution efficiency factor is applied. At issue was the appropriateness of:

- (a) the proposed methodology to establish the variable energy per ML charge;
- (b) applying a distribution efficiency factor to accommodate pumping loss WAE; and
- (c) the methodology used to calculate this efficiency factor.

In response to (a) above, the Authority considered Seqwater's pricing model which refers to the calculation of the electricity charge. Although the Authority did not review Seqwater's methodology in detail, the Authority considered the general approach to be reasonable and comparable to the methodology recommended in the recent SunWater review.

In response to (b), the Authority noted Chapter 3: Pricing Framework which identifies distribution loss WAE associated with Pie Creek represents 37% of total WAE (Table 5.23, replicated below, refers). The Authority, therefore, acknowledged that pumping costs associated with loss WAE had a material consequence on tariffs.

Table 5.23: Pie Creek Distribution Losses

<i>MP Loss WAE</i>	<i>HP Loss WAE</i>	<i>Status</i>	<i>MP Customer WAE</i>	<i>Loss WAE as % of Total WAE</i>
426	60	Distribution loss WAE	835	37%

Source: Seqwater (2012ap). Note: Total WAE = MP & HP loss WAE + MP customer WAE.

The Authority's recent SunWater review established a relationship between irrigator demand and losses incurred. In other words, an announced allocation of 70% applies to MP WAEs as well as distribution loss WAE. In addition, as noted earlier, some loss WAE (including HP loss WAE) are required to ensure the integrity of the distribution system regardless of the level of demand. In this context, the Authority considered that it is appropriate for Seqwater to apply a distribution efficiency factor.

In response to (c), the Authority considered that, although the proposed approach represents a mid-point between the implied ROP distribution system efficiency of 63% and the no-loss scenario of 100%, no weighting was given to events of less than 100% efficiency. If weighting were to be applied, this would reduce Seqwater's proposed distribution efficiency to less than 82% [relating to losses] and increase the variable energy per ML charge. However, in the absence of Seqwater providing historical data regarding losses, the Authority considered Seqwater's proposed methodology to be appropriate.

Submissions Received from Stakeholders on the Draft Report

In response to the Draft Report, Seqwater (2013i) corrected an error in its financial model used to establish the initial estimate of \$45.47 (2012-13). Specifically, this error meant that the amounts charged under the off-peak tariff were not included.

Seqwater also reconsidered some of the parameters used in calculating the proposed unit charge of variable electricity costs – specifically:

- (a) Seqwater revised the estimated kWh per ML pumped - instead of 329.4kWh required to pump one ML (as outlined in the Draft Report), Seqwater now consider 321.6kWh is required. This adjustment was made after correction of the total ML pumped for the period from 310.5 ML to 318 MLⁱ and
- (b) instead of a peak tariff of \$0.202 per/kWh (as outlined in the Draft Report), the updated tariffs under the contract for 2012-13 are \$0.2053 for the peak tariff and \$0.1167 for the off-peak tariff.

Seqwater, therefore, submitted that the charge for electricity associated with Pie Creek tariff group is \$68.94/ML (2012-13) or \$70.66 (2013-14), based on 2.5% escalation.

Authority's Response to Submissions Received on the Draft Report

In response to Seqwater's submission, the Authority has further reviewed electricity costs since the Draft Report. These changes are outlined below in Table 5.24.

In Table 5.24, the Authority has first established the total costs incurred over a period from 12/12/08 to 15/3/12 and compared this cost to volumes pumped over the same period to determine a cost per ML pumped. Costs are based on 2102-13 electricity rates, which are then indexed to 2013-14. Finally, a loss efficiency factor is applied to estimate the cost per ML delivered.

Table 5.24: Pie Creek Variable Electricity Costs

	<i>Draft Report</i>	<i>Final Report</i>
Electricity Used		
Peak (kWh)	68,181	68,181
Off-Peak (kWh)	34,086	34,086
Electricity Rates		
Peak (\$/kWh)	0.2020	0.2053
Off-Peak (\$/kWh)	-	0.1167
Total Electricity Cost (2012-13)		
Peak (\$)	13,773	13,998
Off-Peak (\$)		3,978
Total (\$)	13,773	17,976
Total (2013-14 \$)	14,117	18,425
Water Volumes		
ML Pumped	310.5	318.0
\$/ML Pumped (2013-14)	45.47	57.95
Adjustment for losses	0.82	0.82
\$/ML Delivered (2013-14)	55.72	70.66

Source: QCA (2013), Seqwater (2013i)

The Authority reviewed the revised electricity tariffs and recommends that the 2013-14 electricity charge should be \$70.66/ML rather than \$55.72/ML used in the Draft Report.

Also, based on the Authority's forecast for 2013-14, the fixed electricity charge for Pie Creek will increase from the draft amount of \$392 to \$438 per year. This assumes one electricity connection, although Seqwater could (but did not) make a case for three connections and three fixed charges to apply. However, the information was not available.

The Authority also proposes that the electricity cost will be escalated at 2.5% per year from 2013-14 to 2016-17 (the remaining three years of the regulatory period).

Conclusion

Draft Report

Sampled Operating Cost Items

In the Mary Valley, Seqwater's initial direct labour cost provided in April was \$404,000 (Seqwater initially reduced this to \$337,000). Seqwater's revised labour cost forecast for this tariff group was \$224,494, 45% lower than its initial submission. SKM reviewed and accepted the corrected cost of \$224,494.

However, Seqwater's actual final estimate was \$227,400 for 2012-13. As the estimate assessed by SKM is not materially different, the Authority recommended that SKM's final (lower) estimate be accepted.

In Pie Creek, Seqwater provided an initial planned repairs and maintenance cost estimate in April 2012 of \$47,000. SKM initially reduced this to \$21,000, primarily on the basis of past expenditure. However, it was noted that the available data was insufficient to make a detailed determination. Seqwater's subsequent revised repairs and maintenance forecast for repairs and maintenance for this tariff group was \$50,500. SKM reviewed the detailed justification for this revised cost and accepted it as prudent and efficient.

For sampled items therefore, the Authority accepted SKM's recommendations and adopted:

- (a) a revised direct labour costs budget for 2012-13 of \$224,494; and
- (b) Seqwater's planned repairs and maintenance budget for 2012-13 of \$50,500.

The Authority also accepted Seqwater's revised fixed electricity costs for Mary Valley and Pie Creek for 2012-13 of \$24,109 and Seqwater's proposed approach to establishing the 2013-14 variable energy charge per ML of \$55.72. However, the Authority's recommended total variable cost of \$16,381 differed from Seqwater's proposed total cost of \$11,741 due to varying water use assumptions (Chapter 6: Total Costs and Final Prices refers).

Unsampled Operating Costs Items

As outlined in Volume 1, the Authority reviewed in detail approximately 55% of proposed direct operating expenditure for prudence and efficiency. An 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 applied an average, uniform saving to unsampled direct operating expenditure (excluding electricity and rates) of 5%¹¹.

Submissions Received from Stakeholders on the Draft Report

G. and L. Rozynski (2013) and stakeholders during consultation in February (2013) commented that Seqwater have a long way to go in achieving efficiencies associated with the Mary Valley WSS (for example, upgrading water meters that are only five years old).

¹¹ Although the average saving identified from sampled items was 15.53%, the Authority chose not to include a large reduction in Repairs & Maintenance costs in the Central Lockyer Valley WSS that were included in the original sample in error.

Authority's Response to Submissions Received on the Draft Report

The Authority recommends a change to Pie Creek's 2013-14 electricity costs due to recent increases in electricity tariffs. The revised amount is equivalent to about \$23,800 per year based on average water use.

The implications of the revised electricity charges for recommended Part B charges are discussed in Chapter 6: Total Costs and Final Prices (below).

The Authority's recommended direct operating expenditure is outlined below, including a comparison of draft and final recommendations (Table 5.25 refers).

Table 5.25: Review of Budgeted 2012-13 Direct Operating Expenditure (Real \$'000)

	<i>Seqwater (April NSP)</i>	<i>Seqwater (November NSP)</i>	<i>Authority (Draft)</i>	<i>Authority (Final)</i>
Sampled Item				
Item 1: Direct Labour - Mary Valley	404	224	224	224
Item 2: Planned Repairs & Maintenance - Pie Creek	47	51	51	51
Item 3: Electricity – Fixed (Mary Valley & Pie Creek)	34	24	24	24
Item 3: Electricity – Variable (Pie Creek)	-	11	16	24
Unsampled Items				
Other Direct Operating Costs - Mary Valley	-	-	5% saving to apply	5% saving to apply
Other Direct Operating Costs - Pie Creek	-	-	5% saving to apply	5% saving to apply

Source: SKM (2012), Seqwater (2012g), and QCA (2012ap) and (2013).

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 four years of the regulatory period (2013-14 to 2016-17). Details are provided in Volume 1.

Cost Information Issues

Seqwater (2012aj) submitted that Seqwater's April NSPs did not properly allocate direct operating costs between related tariff groups due to overlaps in certain operational areas. That is, for the Mary Valley operational area, Mary Valley WSS is linked operationally to Pie Creek tariff group and Cedar Pocket Dam WSS (the latter was previously a bulk tariff group within the Mary Valley WSS, but is now a WSS in its own right).

In each of these operational areas, Seqwater did not initially accurately allocate costs to each tariff group. In the absence of economic regulation (and therefore the apparent need to

allocate costs carefully for irrigation pricing purposes) Seqwater's budgets had previously been developed more generally for an operational area.

In response to the Authority's review, Seqwater substantially revised its forecast operating costs in these tariff groups. Seqwater's revised direct labour costs are shown in Table 5.26, together with the Authority's decision as reviewed above.

Table 5.26: Direct Labour Costs – Mary Valley Operational Area (\$2012-13)

<i>Tariff Group</i>	<i>April Seqwater Forecast</i>	<i>Revised Seqwater Forecast</i>	<i>Change in Seqwater Forecast</i>	<i>SKM Final Estimate</i>	<i>QCA Decision</i>	<i>QCA Variation to April</i>
Mary Valley (Sampled)	404,000	224,000	(180,000)	224,000	224,000	(45%)
Pie Creek (Unsampled)	22,000	56,000	34,000	n.a.	53,200	142%
Cedar Pocket Dam (Sampled)	44,000	57,000	13,000	44,000	44,000	0%
Total	470,000	337,000	(133,000)	n.a.	321,200	(32%)

Source: QCA (2012).

Table 5.26 shows that Seqwater reduced the overall (revised) costs in the Mary Valley operational area by \$133,000. Of these, the Authority reduced Pie Creek's 2012-13 revised labour cost forecast of \$56,000 by 5% as it was not sampled by SKM. (The Authority adopted SKM's final estimate for Mary Valley and Cedar Pocket Dam WSSs – these revised costs were sampled / reviewed by SKM.)

Seqwater (2012aj) submitted that similar cost allocation issues had arisen for repairs and maintenance costs submitted in April 2012 for the Mary Valley operational area. Table 5.27 refers.

Table 5.27: Repairs and Maintenance – Mary Valley Operational Area (\$2012-13)

<i>Tariff Group</i>	<i>April Seqwater Forecast</i>	<i>Revised Seqwater Forecast</i>	<i>Change in Seqwater Forecast</i>	<i>SKM Final Estimate</i>	<i>QCA Decision</i>	<i>QCA Variation to April</i>
Mary Valley (Unsampled)	208,000	203,000	(5,000)	n.a.	192,850	(7%)
Pie Creek (Sampled)	66,000	71,000	5,000	71,000	71,000	8%
Cedar Pocket Dam (Unsampled)	14,000	14,000	0	n.a.	13,300	(5%)
Total	288,000	288,000	0	n.a.	277,150	(3.8%)

Source: QCA (2012).

Table 5.27 shows that Seqwater did not reduce the total revised repairs and maintenance costs in the Mary Valley operational area, but did reallocate \$5,000 from the Mary Valley bulk tariff group to the Pie Creek distribution tariff group.

On the basis of Seqwater's new data and SKM's finding, the Authority increased Pie Creek's cost forecast to \$71,000. The Authority reduced the forecast cost for Mary Valley tariff

group by a corresponding \$5,000 (to \$203,000) and applied a further 5% generic cost reduction to this item as it was not sampled / reviewed by SKM.

Summary of Direct Operating Costs

A comparison of Seqwater's and the Authority's direct operating costs for the Mary Valley WSS is set out in Table 5.28. The table shows that in the Mary Valley WSS, the revised costs are slightly higher due to the inclusion of consultation costs.

The Authority's proposed costs include all specific adjustments and the Authority's proposed cost escalations as noted above.

Table 5.28: Direct Operating Costs (Nominal \$) – Mary Valley

<i>Tariff Groups</i>	<i>Seqwater</i>				<i>Authority</i>			
	<i>2013-14</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>	<i>2013-14</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>
Mary Valley	Draft							
Operations	467,877	483,471	499,610	516,315	453,008	460,503	468,031	475,587
Repairs and Maintenance - Planned	150,208	156,217	162,465	168,964	156,395	160,174	164,005	167,886
Repairs and Maintenance Unplanned	61,353	63,807	66,359	69,013	41,573	42,578	43,596	44,628
Dam Safety	0	0	26,922	0	0	0	24,425	0
Rates	0	0	0	0	0	0	0	0
Total	679,438	703,494	755,356	754,292	650,977	663,255	700,058	688,102
Mary Valley	Final							
Operations					450,207	457,711	465,251	472,821
Repairs and Maintenance – Planned					156,395	160,174	164,005	167,886
Repairs and Maintenance- Unplanned					41,573	42,578	43,596	44,628
Dam Safety					0	0	24,425	0
Rates					0	0	0	0
Consultation					7,175	7,354	7,538	7,727
Total					655,351	667,818	704,816	693,062

Source: Seqwater (2012ap), QCA (2012) and QCA (2013). Note: Totals vary from NSP due to rounding and the exclusion of revenue offset (which is dealt with in Chapter 6 below).

Table 5.29 shows the total direct operating costs for Pie Creek. Since the Draft Report, total costs have increased with the inclusion of higher electricity costs.

Table 5.29: Direct Operating Costs (Nominal \$) – Pie Creek

Tariff Groups	Seqwater				Authority			
	2013-14	2014-15	2015-16	2016-17	2013-14	2014-15	2015-16	2016-17
Pie Creek					Draft			
Operations	84,265	87,418	90,692	94,092	84,223	86,059	87,919	89,803
Repairs and Maintenance – Planned	52,484	54,583	56,766	59,037	57,459	58,847	60,254	61,680
Repairs and Maintenance – Unplanned	21,438	22,295	23,187	24,114	15,274	15,643	16,017	16,396
Dam Safety	0	0	0	0	0	0	0	0
Rates	0	0	0	0	0	0	0	0
Total	158,186	164,296	170,646	177,243	156,955	160,549	164,191	167,879
Pie Creek					Final			
Operations					91,476	93,494	95,540	97,614
Repairs and Maintenance - Planned					57,459	58,847	60,254	61,680
Repairs and Maintenance – Unplanned					15,274	15,643	16,017	16,396
Dam Safety					0	0	0	0
Rates					0	0	0	0
Consultation					0	0	0	0
Total					164,209	167,984	171,811	175,690

Source: Seqwater (2012ap) and QCA (2012) and QCA (2013). Note: Totals vary from NSP due to exclusion of revenue offsets (which is dealt within the following chapter), and rounding.

5.5 Prudence and Efficiency of Non-Direct Operating Costs

Introduction

Seqwater (2012aj) 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 prudence and efficiency of Seqwater's overall non-direct costs were reviewed for the Authority previously by SKM as part of the 2012-13 grid services charges (GSC) review.

For this investigation, Seqwater made adjustments to the aggregate non-direct cost estimates that it 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 (see 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.

Draft Report

Stakeholder Submissions

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 (except for insurance costs which were allocated by asset replacement value). These costs were then escalated forward to derive forecast non-direct costs for the regulatory period.

Total non-direct costs and those allocated to Mary Valley and Pie Creek are in Table 5.30.

Table 5.30: Seqwater's Budgeted and Forecast Non-Direct Costs (Nominal \$'000)

	<i>2012-13</i>	<i>2013-14</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>
Seqwater	9,524	9,762	10,006	10,256	10,512
Mary River Tariff Group	482	494	506	519	532
Pie Creek Tariff Group	92	94	97	99	102

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

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 GSCs, the Minister's subsequent decision and further analysis by Seqwater. A comparison of the alternative estimates for the Mary Valley and Pie Creek tariff groups is provided for non-direct operations costs in Table 5.31 and Table 5.32 (below).

Table 5.31: Mary Valley Non-Direct Operations Costs - 2012-13 Forecasts (Nominal \$)

	<i>April NSP</i>	<i>November NSP</i>	<i>Variance (\$)</i>	<i>Variance (%)</i>
Water Delivery	91,506	67,529	(23,977)	(26)
Asset Delivery	40,852	33,263	(7,589)	(19)
Business Services	225,841	134,969	(90,872)	(40)
Organisational Development	92,031	63,542	(28,488)	(31)
Executive	9,062	10,009	947	10
Other	27,866	5,746	(22,121)	(79)
Total Operations Non-Direct	487,159	315,058	(172,101)	(35)

Source: Seqwater (2012g) and Seqwater (2012ap).

Table 5.32: Pie Creek Non-Direct Operations Costs - 2012-13 Forecasts (Nominal \$)

	<i>April NSP</i>	<i>November NSP</i>	<i>Variance (\$)</i>	<i>Variance (%)</i>
Water Delivery	10,200	15,673	5,473	54
Asset Delivery	4,554	7,720	3,166	70
Business Services	25,174	31,325	6,151	24
Organisational Development	10,258	14,748	4,489	44
Executive	1,010	2,323	1,313	130
Other	3,106	1,334	(1,773)	(57)
Total Non-Direct Operations	54,302	73,122	18,820	35

Source: Seqwater (2012g) and Seqwater (2012ap).

Corporate functions were 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 ICT functions 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 Mary Valley and Pie Creek tariff groups are detailed in Table 5.33 and Table 5.34 below (November 2012 NSP).

Table 5.33: Mary Valley - Seqwater's Budgeted and Forecast Non-Direct Costs (Nominal \$)

	2012-13	2013-14	2014-15	2015-16	2016-17
Operations					
Water Delivery	67,529	69,217	70,947	72,721	74,539
Asset Delivery	33,263	34,095	34,947	35,821	36,716
Business Services	134,969	138,343	141,802	145,347	148,980
Organisational Development	63,542	65,131	66,759	68,428	70,139
Executive	10,009	10,259	10,516	10,779	11,048
Other	5,746	5,889	6,037	6,188	6,342
Sub-Total	315,058	322,935	331,008	339,283	347,765
Non -Infrastructure Assets	32,333	33,141	33,970	34,819	35,690
Insurance	117,798	120,743	123,762	126,856	130,027
Working Capital	16,483	16,895	17,317	17,750	18,194
Total	481,672	493,714	506,057	518,708	531,676

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

Table 5.34: Pie Creek - Seqwater's Forecast Non-Direct Costs (Nominal \$)

	2012-13	2013-14	2014-15	2015-16	2016-17
<i>Operations</i>					
Water Delivery	15,673	16,065	16,466	16,878	17,300
Asset Delivery	7,720	7,913	8,111	8,314	8,522
Business Services	31,325	32,108	32,911	33,734	34,577
Organisational Development	14,748	15,116	15,494	15,882	16,279
Executive	2,323	2,381	2,441	2,502	2,564
Other	1,334	1,367	1,401	1,436	1,472
Sub - Total	73,122	74,950	76,824	78,745	80,713
Non-Infrastructure Assets	7,504	7,692	7,884	8,081	8,283
Insurance	9,750	9,994	10,244	10,500	10,762
Working Capital	1,622	1,663	1,704	1,747	1,790
Total	91,998	94,298	96,656	99,072	101,549

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

In addition to operations related non-direct costs, Seqwater identified costs associated with the use of non-infrastructure assets, insurance and working capital.

Mary Valley and Pie Creek use a range of non-infrastructure assets (buildings, plant and equipment). These assets are not included in the renewals expenditure forecasts. However, 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 was 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 allocated its 2012-13 insurance premium to Mary Valley and Pie Creek tariff groups 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 Authority has already adopted a methodology for calculating Seqwater's working capital in GSCs. Seqwater calculated the working capital allowance using this methodology and the values submitted to the QCA for 2012-13, at \$5.538 million.

Seqwater allocated a portion of its working capital allowance to Mary Valley and Pie Creek on the basis of revenue attributable to the scheme. The 2012-13 working capital allowance was 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 CPI at the time of its submission, being 2.5% per annum.

Other Stakeholders

Stakeholders during consultations in June 2012 (QCA 2012 and QFF 2012) submitted that costs of the proposed Traveston Crossing Dam should be quarantined with WAEs associated with properties purchased by Government to be allocated appropriate 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 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 did not propose a further reduction for 2012-13.

The Authority noted 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 accepted these adjustments, noting that specific cost attribution may remain problematic in some cases.

In addition to the above adjustments for 2012-13, the Authority applied 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 recommended a reduction in forecast non-direct operating costs by a further 1.5% per annum in real terms, applied cumulatively for each of the four years of the regulatory period.

For working capital, the largest portion of irrigators' payments to Seqwater arises from fixed 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 did not incorporate a working capital allowance in this instance.

The Authority accepted Seqwater's proposed escalation of 2.5% per year for 2013-17 for non-direct costs.

In response to costs associated with the proposed Traveston Dam, the Authority noted Seqwater's submission which confirms that:

- (a) the Mary Basin ROP lists a series of WAE held by *The Coordinator-General* as a result of land acquired for the proposed Traveston Dam; and

- (b) costs will be allocated to all WAE regardless of ownership. For example, costs are allocated to MP WAE owned by Seqwater in the same manner as irrigators or other MP WAE holders, including the Coordinator-General.

Submissions Received from Stakeholders on the Draft Report

Seqwater (2013a) submitted that the 1.5% efficiency reduction should not be applied to insurance as Seqwater has limited ability to influence the amount of insurance premiums. This is particularly as Seqwater has made large claims for flood damage in recent years. Insurance is negotiated on a portfolio of assets and not a scheme basis. Therefore, Seqwater submitted that the efficiency reduction should not apply to insurance costs in any scheme.

During consultation in February (2013), stakeholders questioned whether a reduction in non-direct costs due to the merger in January 2013 of Seqwater, LinkWater and the WGM, featured in the costs outlined in the Draft Report. If not, this reduction should be applied to costs outlined in the Final Report.

Authority's Response to Submissions Received on the Draft Report

In response to Seqwater, as insurance service provision is a competitive market, generally, it should be possible to negotiate savings in premiums – the position reflected in the Draft Report. However, the Authority agrees that since the flood inquiry and other events subsequent to the Draft Report, it may not be reasonable for Seqwater to be expected to achieve year-on-year reductions in insurance premium costs.

The Authority concludes that Seqwater's insurance premiums for 2013-17 should be exempt from the productivity gains due current circumstances (that is, recent claims made by Seqwater and increasing insurance risks due to climate change). Accordingly, the Authority accepts Seqwater's submission and will not apply the 1.5% annual saving to insurance costs.

In relation to merger efficiencies, Seqwater advised that reductions already applied, such as the removal of 62.5 FTEs, were in anticipation of efficiency gains from the merger. These are already incorporated in the Authority's draft and final estimated efficient costs. The Authority notes Seqwater's preliminary advice that the merger may have increased non-direct costs allocated to irrigators and accepts Seqwater's recommendation to not change non-direct costs allocated to irrigators. (Total non-direct costs have decreased, however, across the former entities Seqwater, LinkWater and the WGM.)

The Authority's final recommended non-direct costs to be recovered from the Mary Valley WSS (from all customers) are set out in Table 5.35, compared to Draft Report estimates.

Non-direct costs for Mary Valley are slightly higher compared to the Draft Report due to a re-allocation of costs across the schemes in response to changes in total direct costs. However, in Pie Creek non-direct costs have been reduced. Since the Draft Report, variable electricity costs are not included in the direct costs for the purposes of cost allocation.

The allocation of these costs between HP and MP customers is discussed below.

Table 5.35: Non-Direct Costs (Nominal \$)

Costs	Seqwater				Authority			
	2013-14	2014-15	2015-16	2016-17	2013-14	2014-15	2015-16	2016-17
Mary Valley					Draft			
Non-Direct Operations	322,934	331,008	339,283	347,765	313,160	317,797	322,426	327,041
Non-Infrastructure	33,141	33,970	34,819	35,690	31,916	32,215	32,510	32,800
Insurance	120,743	123,762	126,856	130,027	118,931	120,048	121,147	122,225
Working Capital	16,895	17,317	17,750	18,194	0	0	0	0
Total	493,714	506,057	518,708	531,676	464,007	470,061	476,082	482,065
Mary Valley					Final			
Non-Direct Operations					314,393	319,048	323,695	328,328
Non-Infrastructure					32,024	32,325	32,621	32,911
Insurance					120,742	123,761	126,855	130,026
Working Capital					0	0	0	0
Total					467,160	475,134	483,171	491,266
Pie Creek					Draft			
Non-Direct Operations	74,950	76,824	78,744	80,713	75,201	76,315	77,426	78,534
Non-Infrastructure	7,692	7,884	8,081	8,283	7,664	7,736	7,807	7,877
Insurance	9,994	10,244	10,500	10,762	9,844	9,936	10,027	10,116
Working Capital	1,663	1,704	1,747	1,790	0	0	0	0
Total	94,298	96,655	99,072	101,549	92,709	93,987	95,260	96,527
Pie Creek					Final			
Non-Direct Operations					67,322	68,319	69,314	70,306
Non-Infrastructure					6,857	6,922	6,985	7,047
Insurance					9,993	10,243	10,499	10,762
Working Capital					0	0	0	0
Total					84,173	85,484	86,798	88,115

Source: Seqwater (2012ap) and QCA (2012) and (2013).

5.6 Allocation of Non-Direct Operating Costs

Draft Report

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 direct 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 fixed costs assigned to tariff groups in Stage 1 above (which at this point include direct and non-direct costs), between MP and HP 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 (2012aj) 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. The Authority considered that TDC (excluding variable electricity) is a suitable method for allocating non-direct costs.

Stage 2 - Allocation of Costs Between Priority Groups

Previous Review

For the 2006-11 price paths, all costs were apportioned between MP and HP customers according to WPCFs in both bulk and distribution systems.

Stakeholder Submissions

Seqwater

Seqwater (2012ap) proposed that renewals and maintenance costs be allocated to MP using the HUF). Seqwater commissioned Parsons Brinckerhoff (PB) to calculate the HUF percentage for the scheme, using the methodology endorsed by the QCA for irrigation pricing in SunWater schemes.

PB calculated a HUF for Mary Valley MP customers of 26%.

Seqwater has assigned working capital costs between MP and HP customers proportional to lower bound revenue.

The balance of costs for the Mary Valley part of the scheme have been allocated to MP based on a 50:50 split between the HUF (26%) and the nominal ML entitlements attributable to MP customers (68%).

There is only MP WAE in the Pie Creek tariff group, and hence no need to assign costs between priority groups in this segment. All costs are allocated on a nominal WAE basis.

Authority's Analysis

The Authority agreed with Seqwater's proposal to use the stage 2 cost allocation approach that it recommended for the SunWater investigation (QCA 2012a).

For the Mary Valley WSS:

- (a) fixed repairs and maintenance costs are to be allocated to MP and HP customers using HUFs (as for renewals expenditure) as repairs and maintenance expenditures have a similar purpose to renewals expenditures. As these activities are more related to headworks assets, they are more likely to deliver a higher standard of service per ML to HP users; and
- (b) in principle, those components of fixed operations costs that are asset-related (for example, dam safety, water, facilities and environmental management) are to be allocated to MP and HP customers using HUFs, while those components of fixed

operations costs that are more related to service provision (scheduling, water delivery, customer service, account management) be allocated using current WAE. The asset-related components of fixed operations costs are more closely linked to the provision of higher service standards (reliability) than the non-asset components, which tend to provide similar service standards to all users. However, as Seqwater does not disaggregate operations costs into those which are asset and non-asset related, it is proposed that 50% of these costs be allocated using HUFs and 50% using current nominal WAEs.

The effect for the Mary Valley WSS is detailed in the following chapter (as it takes into account other factors relevant to establishing total costs).

Submissions Received from Stakeholders on the Draft Report

Seqwater (2013a) concurred with the Authority's draft recommendations about the allocation of costs between priority groups.

Authority's Response to Submissions Received on the Draft Report

The Authority proposes no change to Draft Report recommendations.

5.7 Cost Escalation

Draft Report

Seqwater

Seqwater proposed that where its costs rise in line with inflation, it adopted the mid-point of the RBA's target range for CPI 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 five 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 end-of-period adjustment to reflect any material actual electricity costs incurred.

Seqwater proposed that other direct operating cost categories (that is, other than direct labour and contractors and materials) and all non-direct costs, be escalated from 2012-13 at CPI.

Authority's Analysis

The Authority's draft analysis of cost escalation is detailed in Volume 1.

The Authority's draft recommendations for 2013-17 were that:

- (a) the costs of direct and non-direct labour and contractors should be escalated by 3.6% per annum, rather than 4% as 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.

Submissions Received from Stakeholders on the Draft Report

Seqwater (2013a) advised that the actual enterprise bargaining increase for 2012-13 is 2.2% and the average salary increment is approximately 3%. Seqwater submitted, therefore, that labour cost escalation for 2012-13 could be about 5.2%.

However, as future enterprise bargaining outcomes are not known and as average salary increments may trend down over-time (if staff turnover is low); Seqwater submitted that the annual nominal escalation factor for total labour costs should be 4% for 2012-17. This is preferred to the Authority's draft proposal of 3.6% per annum in nominal terms.

Seqwater clarified that it accepts the Authority's draft recommended annual nominal escalation for contractors at 3.6% per annum for 2012-17.

Seqwater (2013a) agreed that [from 2013-14] electricity should be escalated by 2.5% per annum in nominal terms. However, in the event that Seqwater experiences material actual electricity cost increases (or decreases) relative to the recommended escalated levels, Seqwater may apply to the Authority for an end-of-period adjustment to future prices.

QFF (2013b) accepted the escalation rates recommended in the Authority's Draft Report.

Authority's Response to Submissions Received on the Draft Report

Labour Costs

The Authority notes that while Seqwater's submission proposes a possible 5.2% increase in labour costs from 2012-13 to 2013-14, Seqwater recommends that the annual nominal escalation factor for total labour costs should be 4% for 2012-17. However, Seqwater provides limited support for this recommendation, except that it acknowledges the uncertainty of future enterprise agreements and salary increments.

The Authority's draft recommendation was that all labour costs be escalated by 3.6% per annum for 2012-17, based on the Queensland Treasury (Treasury) labour cost forecasts for 2013-2016 (2012-13 State Budget). That is, the available three-year average forecast in Queensland Wage Price Index (WPI) growth is 3.6% per annum for 2013-16.

There is no forecast for 2016-17; however, the Authority considers Treasury's WPI forecast to be the most appropriate basis for escalating labour costs for 2012-17. The Authority also notes Seqwater's acceptance of the Authority's recommended 3.6% escalation for contractor costs.

As there are no compelling grounds to alter the Draft Report, the Authority recommends that total labour and contractor costs be escalated at 3.6% per annum from 2012-13 to 2016-17.

To clarify that the above relates to total (direct and non-direct) labour costs, while Seqwater initially proposed a 2.5% escalation for non-direct labour costs, the Authority adopted a 3.6% escalation for all labour costs in its Draft Report. Seqwater has since confirmed its intention to submit that the escalation for non-direct labour should be the same as for direct labour. The Authority therefore recommends application of a 3.6% nominal escalation rate to all direct and non-direct labour costs from 2012-17.

Electricity

In February 2013, the Authority published the Draft Determination: Regulated Retail Electricity Prices 2013-14, which has been adopted as the basis for any 2013-14 regulated electricity tariffs incurred by Seqwater in its irrigation schemes.

While the Authority's draft electricity tariffs may change, this is the most current and public source of electricity forecasts for 2013-14. By adopting this approach, the Authority has effectively increased 2012-13 regulated electricity prices by about 15% (e.g. using the draft Tariff 22 for 2013-14).

On 16 April 2013, however, Seqwater submitted that the variable cost of electricity in Pie Creek may be below that implied by the Authority's draft Tariff 22 for 2013-14. This arose due to the Authority's discovery that Pie Creek is now on an unregulated Energy Australia tariff (set with reference to the regulated Tariff 22). Costs are only available for 2012-13 and as there is no published basis to escalate this figure, the Authority recommends escalation of the 2012-13 cost for Pie Creek by 2.5% in nominal terms.

Beyond 2013-14, and consistent with the Draft Report, the Authority recommends escalation of all electricity costs by 2.5% each subsequent year of the regulatory period. The Authority also endorses Seqwater's view that material variations could be addressed via application for an end-of-period adjustment to future prices.

5.8 Summary of Operating Costs

Seqwater's proposed operating costs by activity and type are set out in Table 5.36 for Mary Valley tariff group. The Authority's draft and final recommended operating costs are set out in Table 5.37 and Table 5.38 respectively.

Table 5.36: Seqwater's Proposed Operating Costs – Mary Valley WSS (Nominal \$)

	<i>2013-14</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>
Direct Operations				
Labour	236,462	245,920	255,757	265,987
Contractors and Materials	23,312	24,244	25,214	26,222
Electricity	24,310	24,918	25,541	26,179
Other	183,794	188,389	193,098	197,926
Repairs and Maintenance				
Planned	150,208	156,217	162,465	168,964
Unplanned	61,353	63,807	66,359	69,013
Dam Safety	0	0	26,922	0
Rates	0	0	0	0
Non-Direct Costs				
Non-Direct Operations	322,934	331,008	339,283	347,765
Non-Infrastructure	33,141	33,970	34,819	35,690
Insurance	120,743	123,762	126,856	130,027
Working Capital	16,895	17,317	17,750	18,194
Total	1,173,152	1,209,551	1,274,064	1,285,968

Source: Seqwater (2012ap).

Table 5.37: Authority's Draft Operating Costs – Mary Valley (Nominal \$)

	<i>2013-14</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>
Direct Operations				
Labour	229,088	233,721	238,390	243,093
Contractors and Materials	25,707	26,328	26,958	27,596
Electricity	24,310	24,918	25,541	26,179
Other	173,903	175,536	177,142	178,719
Repairs and Maintenance				
Planned	156,395	160,174	164,005	167,886
Unplanned	41,573	42,578	43,596	44,628
Dam Safety	0	0	24,425	0
Rates	0	0	0	0
Non-Direct Costs				
Non-Direct Operations	313,160	317,797	322,426	327,041
Non-Infrastructure	31,916	32,215	32,510	32,800
Insurance	118,931	120,048	121,147	122,225
Working Capital	0	0	0	0
Total	1,114,984	1,133,316	1,176,140	1,170,167

Source: QCA (2012).

The Authority's draft recommended operating costs for 2013-14 for Mary Valley WSS were 5% lower than Seqwater's proposed amount, as defined in its November NSP.

For the Final Report, total operating costs are higher than estimated in the Draft Report, the main reasons being the inclusion of consultation costs and higher insurance costs.

Table 5.38: Authority's Final Operating Costs – Mary Valley (Nominal \$)

	<i>2013-14</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>
Direct Operations				
Labour	229,088	233,721	238,390	243,093
Contractors and Materials	24,964	25,568	26,179	26,799
Electricity	27,274	27,956	28,655	29,372
Other	168,880	170,466	172,026	173,557
Repairs and Maintenance				
Planned	156,395	160,174	164,005	167,886
Unplanned	41,573	42,578	43,596	44,628
Dam Safety	0	0	24,425	0
Rates	0	0	0	0
Consultation	7,175	7,354	7,538	7,727
Non-Direct Costs				
Non-Direct Operations	314,393	319,048	323,695	328,328
Non-Infrastructure	32,024	32,325	32,621	32,911
Insurance	120,742	123,761	126,855	130,026
Working Capital	0	0	0	0
Total	1,122,510	1,142,952	1,187,986	1,184,327

Source: QCA (2013).

Seqwater's proposed operating costs by activity and type for Pie Creek are in Table 5.39.

Table 5.39: Seqwater's Proposed Operating Costs – Pie Creek (Nominal \$)

	<i>2013-14</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>
Direct Operations				
Labour	57,983	60,302	62,715	65,223
Contractors, Materials	11,796	12,268	12,758	13,269
Electricity	12,436	12,747	13,066	13,393
Other	2,050	2,101	2,154	2,208
Repairs and Maintenance				
Planned	52,484	54,583	56,766	59,037
Unplanned	21,438	22,295	23,187	24,114
Dam Safety	0	0	0	0
Rates	0	0	0	0
Non-Direct Costs				
Non-Direct Operations	74,950	76,824	78,744	80,713
Non-Infrastructure	7,692	7,884	8,081	8,283
Insurance	9,994	10,244	10,500	10,762
Working Capital	1,663	1,704	1,747	1,790
Total	252,484	260,952	269,717	278,792

Source: Seqwater (2012ap).

The Authority's draft and final recommended operating costs are set out in Table 5.40 and Table 5.41, respectively.

Table 5.40: Authority's Draft Operating Costs – Pie Creek (Nominal \$)

	<i>2013-14</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>
Direct Operations				
Labour	54,049	55,142	56,244	57,354
Contractors, Materials	12,984	13,298	13,616	13,938
Electricity	17,189	17,619	18,059	18,511
Other	0	0	0	0
Repairs and Maintenance				
Planned	57,459	58,847	60,254	61,680
Unplanned	15,274	15,643	16,017	16,396
Dam Safety	0	0	0	0
Rates	0	0	0	0
Non-Direct Costs				
Non-Direct Operations	75,201	76,315	77,426	78,534
Non-Infrastructure	7,664	7,736	7,807	7,877
Insurance	9,844	9,936	10,027	10,116
Working Capital	0	0	0	0
Total	249,664	254,536	259,451	264,406

Source: QCA (2012).

The Authority's draft recommended operating costs for 2013-14 were 1% lower than Seqwater's proposed amount, as defined in its November NSP. However, if direct electricity costs are excluded, the Authority's estimate was 3% lower.

The Authority's Final Report total operating costs for Pie Creek are relatively unchanged. The increase in electricity and insurance costs is offset by a reduction in non-direct costs.

Table 5.41: Authority's Final Operating Costs – Pie Creek (Nominal \$)

	<i>2013-14</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>
Direct Operations				
Labour	54,049	55,142	56,244	57,354
Contractors, Materials	12,984	13,298	13,616	13,938
Electricity	24,443	25,054	25,680	26,322
Other	0	0	0	0
Repairs and Maintenance				
Planned	57,459	58,847	60,254	61,680
Unplanned	15,274	15,643	16,017	16,396
Dam Safety	0	0	0	0
Rates	0	0	0	0
Consultation	0	0	0	0
Non-Direct Costs				
Non-Direct Operations	67,322	68,319	69,314	70,306
Non-Infrastructure	6,857	6,922	6,985	7,047
Insurance	9,993	10,243	10,499	10,762
Working Capital	0	0	0	0
Total	248,381	253,468	258,609	263,805

Source: QCA (2013).

6. TOTAL COSTS AND FINAL PRICES

6.1 Background

Ministerial Direction

The Ministerial Direction requires the Authority to recommend irrigation prices to apply to Seqwater WSSs and termination fees 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 also to adopt tariff groups as proposed in Seqwater's NSPs 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 such schemes reach 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 (including the Mary Valley WSS). 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 the Mary Valley tariff group, prices over 2006-11 increased by an average of about \$2/ML per annum in real terms (plus CPI), to achieve lower bound costs in 2010-11.

For the Pie Creek tariff group, prices over 2006-11 increased by an average of \$2/ML per annum (on average) in real terms (plus CPI), without reaching lower bound costs.¹²

¹² 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

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 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 offset some 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 is used to reduce the estimate of efficient costs.

Draft Report

Stakeholder Submissions

For the Mary Valley tariff group, examples of revenue offsets include the leasing of land and buildings. There is one revenue offset associated with Pie Creek tariff group; namely, the costs associated with a temporary trade of 1 ML from irrigation.

Seqwater's previously incurred and forecast revenue offsets are outlined in Table 6.1.

Table 6.1: Actual and Forecast Revenue Offsets (Nominal \$'000)

Tariff Group	2009-10 to 2011-12 Average	2012-13 Forecast (April)	2012-13 Forecast (November)	Variance between Average and Forecast (November)	
				\$	%
Mary Valley	9.3	13.5	13.5	4.2	45
Pie Creek	0.0	0.0	0.4	0.4	100

Source: Seqwater (2012aj).

Authority's Analysis

The Authority compared Seqwater's November forecasts against actual revenue offsets received for the past three concluded financial years. Across all WSSs, Seqwater submitted total revenue offsets that were 13% higher than the historical average.

However, for the Mary Valley tariff group, total revenue offsets are about \$4200 (or 45%) higher than the historical average. A small additional offset applies in Pie Creek.

As Seqwater submitted revenues (benefitting irrigators) at a level higher than the historical average of revenue offsets for each tariff group in this WSS, the Authority recommends the acceptance of the revenue offsets submitted by Seqwater in November 2012.

Final Report

The Authority proposes no changes to revenue offsets for the Final Report.

Summary of Total Costs

The Authority's draft and final estimates of prudent and efficient total costs for the Mary Valley WSS for 2013-17 are outlined in Tables 6.2 and 6.3. Total costs for 2012-13 are also provided in these tables including a renewals annuity deflated from 2013-14 (not actual).

The total costs reflect the costs for the specific tariff group (all sectors) and do not include any adjustments for Queensland Government's pricing policies.

For the Mary Valley tariff group, the main source of the increase in costs is an increase in the renewals annuity, due to the change in WACC rate used to determine the annuity. Refer to Volume 1 WACC Appendix and/or Chapter 4 (above) for further details.

In Pie Creek, total costs are little changed since the Draft Report, with higher electricity and insurance costs offset by a lower share of non-direct costs.

Table 6.2: Comparison of Total Costs – Mary Valley (Nominal \$)

	<i>2012-13</i>	<i>2013-14</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>
Seqwater (April NSP)					
Renewals Annuity	634,631	650,496	654,449	662,463	669,062
Direct Operating	854,306	885,253	917,357	977,584	985,215
Non-Direct Operating	660,967	677,491	694,428	711,789	729,584
Less Revenue Offsets	(13,520)	(13,858)	(14,204)	(14,560)	(14,924)
Return on Working Capital	16,483	16,895	17,317	17,750	18,194
Total	2,152,866	2,216,277	2,269,346	2,355,027	2,387,131
Seqwater (November NSP)					
Renewals Annuity	479,959	491,958	492,729	496,529	499,109
Direct Operating	656,234	679,438	703,494	755,356	754,292
Non-Direct Operating	465,189	476,819	488,739	500,958	513,482
Less Revenue Offsets	(13,520)	(13,858)	(14,204)	(14,560)	(14,924)
Return on Working Capital	16,483	16,895	17,317	17,750	18,194
Total	1,604,345	1,651,252	1,688,075	1,756,033	1,770,153
Authority (Draft)					
Renewals Annuity	-	342,990	339,556	340,186	339,255
Direct Operating	-	650,977	663,255	700,058	688,102
Non-Direct Operating	-	464,007	470,061	476,082	482,065
Less Revenue Offsets	-	(13,858)	(14,204)	(14,560)	(14,924)
Return on Working Capital	-	0	0	0	0
Total	-	1,444,116	1,458,668	1,501,767	1,494,498
Authority (Final)					
Renewals Annuity		352,031	348,901	349,693	348,975
Direct Operating		655,351	667,818	704,816	693,062
Non-Direct Operating		467,160	475,134	483,171	491,266
Less Revenue Offsets		(13,858)	(14,204)	(14,560)	(14,924)
Return on Working Capital		0	0	0	0
Total		1,460,683	1,477,648	1,523,120	1,518,379

Source: Seqwater (2012g), Seqwater (2012ap), QCA (2012) and QCA (2013).

Table 6.3: Comparison of Total Costs – Pie Creek (Nominal \$)

	<i>2012-13</i>	<i>2013-14</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>
Seqwater (April NSP)					
Renewals Annuity	44,234	45,340	46,181	46,350	46,525
Direct Operating	95,226	99,035	102,996	107,116	111,401
Non-Direct Operating	69,855	71,602	73,392	75,226	77,107
Less Revenue Offsets	0	0	0	0	0
Return on Working Capital	1,622	1,663	1,704	1,747	1,790
Total	210,937	217,639	224,274	230,440	236,823
Seqwater (November NSP)					
Renewals Annuity	62,609	64,174	64,822	64,943	65,065
Direct Operating	152,306	158,186	164,296	170,646	177,243
Non-Direct Operating	90,376	92,635	94,951	97,325	99,758
Less Revenue Offsets	(360)	(369)	(378)	(388)	(397)
Return on Working Capital	1,622	1,663	1,704	1,747	1,790
Total	306,553	316,290	325,396	334,272	343,459
Authority (Draft)					
Renewals Annuity	-	65,769	65,805	65,142	64,490
Direct Operating	-	156,955	160,549	164,191	167,879
Non-Direct Operating	-	92,709	93,987	95,260	96,527
Less Revenue Offsets	-	(369)	(378)	(388)	(397)
Return on Working Capital	-	0	0	0	0
Total	-	315,064	319,962	324,205	328,499
Authority (Final)					
Renewals Annuity		65,859	65,947	65,360	64,783
Direct Operating		164,209	167,984	171,811	175,690
Non-Direct Operating		84,173	85,484	86,798	88,115
Less Revenue Offsets		(369)	(378)	(388)	(397)
Return on Working Capital		0	0	0	0
Total		313,871	319,036	323,582	328,191

Source: Seqwater (2012g), Seqwater (2012ap), QCA (2012) and QCA (2013).

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

For the 2006-11 price paths:

- (a) the volumetric charge (previously referred to as the variable charge) was not directly linked to variable costs. Rather, it reflected variable costs together with the balance of fixed costs not recovered by the Part A tariff. The proportion of the fixed charge reflected in Part B was determined in consultation with customers; and
- (b) for many schemes (including the Cedar Pocket Dam), a 70% fixed (Part A) and 30% variable (Part B) tariff structure was considered appropriate because it reflected the existing (past) tariff structures.

Draft Report

Stakeholder Submissions

Seqwater

Seqwater (2012s) submitted that all operations, maintenance and renewal costs for both the Mary Valley and Pie Creek tariff groups do not vary with water use (that is, they are 100% fixed costs).

Seqwater subsequently submitted that the only variable costs are electricity pumping costs associated with the Pie Creek tariff group. Accordingly, for Pie Creek, Seqwater propose a separate tariff apply to recover the variable electricity costs associated with pumping.

Other Stakeholders

QFF (2012) submitted that, in contrast to Seqwater's initial submission, variable costs are incurred as Pie Creek distributes water supplied by a bulk scheme.

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.

The Authority noted that SunWater and Seqwater WSSs share similar characteristics. Most of the costs associated with operating a bulk WSS are fixed. The Authority, therefore, applied the Indec findings to Seqwater schemes where appropriate.

In summary, the Authority considered that some costs in both bulk and distribution tariff groups will vary with water use over the regulatory period. Accordingly, the Authority applied to Seqwater tariff groups, the average relevant findings determined for the SunWater Review (Table 6.4 refers).

Table 6.4: Indec’s Estimates of Variable Costs as Applied to Seqwater Tariff Groups

<i>Activity</i>	<i>Variable in Bulk</i>	<i>Variable in Distribution</i>
Labour	20%	25%
Contractors	20%	25%
Repairs and Maintenance	20%	25%
Materials and Other	20%	25%
Dam Safety	0%	n.a.
Rates	0%	n.a.
Electricity (pumping)	0%	100%
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 which (for SunWater distribution systems) ranged from 24-28%, depending on the degree of automation.

Table 6.4 (above) shows that in Pie Creek (Distribution) the electricity costs associated with pumping were considered to be [effectively] 100% variable. Although the Draft Report did provide for a small fixed charge in accordance with Seqwater’s submitted financial model.

Final Report

While the majority of Pie Creek pumping costs are variable, there is a small fixed component, which has been updated in the Authority’s pricing model. The estimated fixed charge is approximately \$400 per year.

6.5 Allocation of Costs According to WAE Priority

Draft Report

In earlier chapters the Authority identified its preferred approach to allocating costs between MP and HP WAE. This approach is summarised in Table 6.5 (below).

Final Report

The allocation approach is unchanged for the Final Report.

Table 6.5: Fixed Cost Allocation Between High and Medium Priority WAE

<i>Cost Component</i>	<i>Fixed Cost Allocation Methodology</i>	
	<i>Bulk WSSs</i>	<i>Distribution Systems</i>
Renewals Annuity	HUF	WAE
Other Operating Costs	50% by HUF, and 50% by WAE	WAE
Repairs and Maintenance	HUF	WAE

Source: QCA (2012).

Given there are several holders of HP WAE associated with the Mary Valley tariff group (approximately 33% of total nominal WAE is HP WAE), applying the HUF methodology was appropriate in this tariff group.

Accordingly, the resulting total fixed revenue requirements for HP and MP WAE are as shown in Table 6.6, along with the irrigation share of the total fixed revenue requirement.

Table 6.6: Allocation of Fixed Revenue Requirement between High and Medium Priority WAE 2013-14 (Nominal \$'000)

<i>Tariff Group</i>	<i>HP Fixed Revenue Requirement</i>	<i>MP Fixed Revenue Requirement</i>	<i>HP Irrigation Share of Fixed Revenue Requirement</i>	<i>MP Irrigation Share of Fixed Revenue Requirement</i>
Draft Report				
Mary Valley	774	544	5	474
Pie Creek	0	263	0	263
Total	774	808	5	737
Final Report				
Mary Valley	784	552	5	481
Pie Creek	0	255	0	255
Total	784	807	5	736

Source: QCA (2012) and QCA (2013).

6.6 Volumetric Charges

Draft Report

On the basis of its analysis of the share of total costs, the Authority estimated total variable costs for each tariff group. To convert this estimate of total variable costs to a volumetric tariff required the Authority to consider how such costs vary with each ML of use.

The Authority noted 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 noted that water use associated with the Mary Valley and Pie Creek tariff groups 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 use as a basis for establishing the per ML volumetric charge. A simple 10-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 adopted a water use estimate based on the average of those years that exceed the 10-year average for each tariff group. A longer term estimate (say the past 15 years) may 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.

Submissions Received from Stakeholders on the Draft Report

During consultation in February (2013), irrigators submitted that water-use has been decreasing over time. When Pie Creek was built there were 45 dairy farms, now there are none. If the Draft Report's recommended prices are implemented, then Pie Creek water use is likely to reduce further. This will further increase volumetric charges in the future.

M. and R. Sims (2013) submitted that the increased development of rural residential lifestyle blocks has put pressure on the water use levels of the Pie Creek tariff group.

Authority's Response to Submissions Received on the Draft Report

In submissions relating to other Seqwater WSSs, irrigators were concerned that typical water use in the Draft Report has been potentially underestimated as the 10-year data period included a series of up to nine drought years followed by 1-2 years of floods, resulting in abnormally low water use over this period.

In those WSSs, the Authority adopted a 15-year data series to determine typical water use. This was justified as it was generally considered, upon further review, that structural adjustment in the dairy industry is continuing and the adoption of the 10-year series has not avoided the impact of ongoing dairy structural adjustment. It was considered that adopting 15 years of water use data (in other WSSs) may result in a better estimate of typical water use, even if this then included some water use resulting from farming activities prior to (any) structural adjustment experienced in agriculture in the earliest five years, that is 1997-98 to 2001-12).

However, in the Mary Valley WSS the Authority was unable to obtain reliable separate data for Cedar Pocket Dam WSS beyond the 10-year period. That is, the 15-year Mary Valley WSS use data (likely) includes Cedar Pocket for the earliest five years.

The Authority therefore had to retain the 10-year data series for Mary Valley WSS and Cedar Pocket Dam WSS. However, it should be noted that the Authority's preliminary estimates of water use for these schemes, using the bundled 15-year data set, did not show a material difference. That is, the Authority's reliance on 10 years of water use data in these WSSs does not appear to disadvantage irrigators in terms of the resulting prices.

Specifically, the Authority found that a typical water use estimate for the Mary Valley (combined with Cedar Pocket) based on 15 years was marginally lower, resulting in only a marginally higher volumetric charge and marginally lower fixed charge. Hence, the Mary Valley WSS irrigators are not disadvantaged by using the 10-year average.

In the case of Pie Creek, separate 15-year water use data were available. While the land use changes in Pie Creek could lead to changes in water use patterns, the Authority is unable to define the extent of any changes. The revised typical water use estimate based on 15 years of water use data for Pie Creek represents 38% of WAE, and is considered reasonable for this tariff group.

Table 6.7 shows total variable costs (all sectors), the typical all sector's average water use assumed by the Authority and the resulting volumetric charge for each tariff group.

Table 6.7: Derivation of Cost Reflective Volumetric Tariffs (2013-14 Nominal \$)

<i>Tariff Group</i>	<i>Total Variable Costs (\$'000)</i>	<i>Authority Estimate of Typical Water Use (ML)</i>	<i>Volumetric Tariff (\$/ML)[#]</i>
Draft			
Mary Valley	125	14,752	8.42
Pie Creek	52	294	180.45
Final			
Mary Valley	124	14,823	8.30
Pie Creek	59	339	178.20

Source: QCA (2012) and QCA (2013). Note: The volumetric charge is derived by taking the NPV of total variable costs divided by the estimate of typical water use.[#] Observable inconsistencies between \$/ML and the costs divided by water use are due to the effects of this NPV approach and rounding (i.e. costs are in \$'000s).

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, which are discussed in the next section.

Table 6.8 presents current tariffs, Seqwater's (April and November 2012) proposed tariffs and the Authority's draft and final cost-reflective tariffs.

Table 6.8: Cost-Reflective Tariffs by Tariff Group (Nominal \$/ML)

Tariff Group	Actual	Seqwater (April)	Seqwater (November)	Cost Reflective (Draft)	Cost Reflective (Final)
	2012-13	2013-14	2013-14	2013-14	2013-14
Mary Valley					
Fixed (Part A)	17.90	39.76	27.77	24.91	25.44
Volumetric (Part B)	11.19	0.0	0.0	8.42	8.30
Fixed (Part A) bulk distribution					23.25*
Pie Creek (Unbundled)					
Fixed (Part C)	22.73	311.34	387.49	326.86	317.67
Volumetric (Part D)	46.84	0.0	55.72	180.45	178.20
Pie Creek (Bundled)					
Fixed (Part A + C)	40.63	351.10	415.26	351.77	340.92
Volumetric (Part B + D)	58.03	0.0	55.72	188.87	186.50

Source: Seqwater (2012), Seqwater (2012g.), Seqwater (2012ap), QCA (2012) and QCA (2013). *Note: The bulk Final cost-reflective Part A charge applicable to Pie Creek is \$23.25/ML (not \$25.44/ML), as it excludes metering costs attributable to the Mary Valley tariff group.

Cost-reflective prices reflect the Authority's estimates of prudent and efficient costs, preferred tariff structures, and the allocation of costs to different priority groups.

6.8 Queensland Government Pricing Policies and Final Prices

Under the Ministerial Direction, where current prices are already above the level required to recover efficient allowable costs, 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, 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. This applies to both Mary Valley tariff group and Pie Creek tariff group.

In addition, for tariff groups where the Authority's calculated tariffs that would otherwise result in a price increase for irrigators higher than the Authority's measure of inflation:

- 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;
- the price path may be longer than one price path period provided the Authority gives its reason for the longer timeframe; and
- the Authority must give its reasons if the recommendation is not to phase in prices.

Revenue Target

The Authority 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 was calculated as:

$$(\text{current fixed charges} \times \text{WAE}) + (\text{current variable charges} \times \text{average water use over the 2006 – 12 period})$$

Table 6.9 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)

<i>Tariff Group</i>	<i>Current Revenue</i>	<i>Revenue Based on QCA Cost Reflective Prices</i>	<i>Revenue Difference</i>	<i>Current Cost Recovery %</i>
Draft				
Mary Valley	375.2	476.0	100.8	79%
Pie Creek	43.3	320.7	277.5	13%
Final				
Mary Valley	392.2	507.2	115.0	77%
Pie Creek	43.3	311.3	268.0	14%

Source: QCA (2012) and QCA (2013).

Current revenue is calculated using variable charge revenues based on average water use during 2006-11.

For the Mary Valley, current revenues are 77% of final cost reflective revenues, so this scheme will reach cost-reflective pricing during 2013-17.

Pie Creek current revenues are 14% of final cost reflective revenues, so this tariff group will not reach cost-reflective levels during 2013-17.

Table 6.10 below summarises the total current revenue maintenance targets consistent with the Government's requirements. That is, it includes provision for an initial \$2/ML real increase in fixed charges for 2013-14.

The split between variable revenues, based on a 10-year average irrigation water use, and the balance to be recouped through fixed charges are also shown in Table 6.10 (below).

Table 6.10: Revenue Maintenance Targets (2013-14 Nominal \$'000)

<i>Tariff Group</i>	<i>Revenue Maintenance Target</i>	<i>Fixed Revenue</i>	<i>Variable Revenue</i>
Draft			
Mary Valley	411.9	366.3	45.7
Pie Creek	44.9	7.0	38.0
Final			
Mary Valley	409.9	364.8	45.0
Pie Creek	44.9	29.1	15.8

Source: QCA (2012) and QCA (2013).

Irrigation Water Prices

Draft Report

Given current revenues for both Mary Valley WSS and Pie Creek distribution system are below the assessed level of efficient costs (that is, charges are below costs), the Authority considered it appropriate to recommend a price path for 2013-17, set at an average pace similar to that applied over 2006-11 (that is, an average of \$2/ML real per year). This level of increase was previously considered as being reasonable.

The Authority also escalated all such charges at CPI (2.5% per annum from July 2013). The \$2/ML increase was applied to fixed charges (Part A).

As noted above, the Authority recommended that the cost-reflective volumetric tariffs apply from 1 July 2013 and that current revenues be maintained by adjusting the fixed charge.

The Authority did not recommend price paths beyond 2013-17 as this is beyond the scope of the Ministerial Direction.

On the basis of the previously described analysis and principles, and the Ministerial Direction to maintain current prices (interpreted to be a requirement to maintain average revenues over 2006-12), the Authority's draft recommended prices as outlined in Table 6.11.

Submissions Received from Stakeholders on the Draft Report

QFF (2013b) was supportive of the tariff recommendations as outlined in the Draft Report pertaining to the Mary Valley tariff group.

QFF (2013b) and stakeholders during consultations (February 2013) commented that it may be more cost effective to build on-farm water infrastructure than to pay the recommended prices for Pie Creek. Irrigators also commented that higher charges would decrease water use in the scheme and discourage trade both within, and out of, Pie Creek.

M. and R. Sims (2013) noted that 10% of the 51 allocation holders in Pie Creek rely on water for 100% of their incomes. Uncertainties remain about the price-path into the future.

J.B. Ellis et al (2013) submitted that Pie Creek draft prices mean that a strategy of irrigating during drier times on their beef cattle property will reach a point where it is no longer

financially feasible. High water prices could lead to lower stocking rates and a reduction in overall revenue from the farm. Ellis *et al* were also concerned about the price path from 2017-18 and beyond, and the potential that prices would reach cost-reflective levels.

QFF (2013b) and P Montgomery (2013) submitted that the cost of water for a Pie Creek irrigator will double in the first year and continue to rise in later years as a result of the Authority's draft recommendation. In the medium-term irrigation farming will become unviable as the irrigator who stops pumping will reduce costs.

QFF (2013b) noted that an irrigator using 20% of their WAE will have a total bill reduced by 14%, while an irrigator using 60% of their WAE will have a bill increased by 57%.

QFF noted that minimum charges will be removed. However, QFF suggested that this be reviewed in Pie Creek on the basis of the low fixed charge proposed in the Draft Report.

Regarding Pie Creek, QFF (2013b) also submitted that if the Authority or Government fails to take action to address the impact of prices, water-use will decrease, further reducing cost-recovery. QFF suggested that the Authority could investigate optimisation of the pumping and distribution infrastructure to determine whether costs should be set at lower levels. QFF also proposed other scheme reform options involving the State Government and Gympie Regional Council which were discussed above in Chapter 2.

Authority's Response to Submissions Received on the Draft Report

The Authority accepts that many Pie Creek irrigators may find it economic to by-pass Seqwater services by using on-farm dams and bores, particularly if the marginal cost of using these sources, including electricity costs, is lower than Seqwater's Part B charge.

Since the Draft Report, the Authority found that typical water use based on 15 years of water use data slightly reduced the cost reflective volumetric charges in Pie Creek. This is offset by an increase in the variable electricity charge due mainly to the Authority's decision on retail electricity prices (see Chapter 5).

The absolute level of the cost reflective volumetric charge for Pie Creek is exceptional. For example:

- (a) in SunWater schemes, the highest bundled variable charges were \$73.04/ML (2012-13) in the Mareeba Dimbulah re-lift channel section and \$60.79/ML (2012-13) in the Lower Mary channel; and
- (b) in other Seqwater schemes, the highest recommended variable charge is around \$36/ML (2013-14).

The cost reflective charge structure disadvantages productive irrigators and benefits inactive water users as noted by Montgomery (2013).

While total revenue is broadly in-line with current levels, the expected bill for a productive high water using irrigator could almost double. The low fixed charge may also discourage temporary and permanent water trading (within or out of the system) by reducing holding costs for non-active holders. (It is also noted that the Draft Report termination fee for Pie Creek would likely to significantly discourage permanent trading out of Pie Creek).

There are also a number of particular circumstances relevant to determining an appropriate charge for Pie Creek – namely:

- (c) it is understood that Pie Creek was established to support up to 45 dairy farms, none of which currently remain. Essentially, anticipated demand has not materialised and the characteristics of demand have changed. Pie Creek has evolved from being dominated by the dairy industry to a combination of beef cattle, specialised cropping/horticulture and now increasingly to rural residential and hobby farm uses;
- (d) the scheme faces long-term uncertainties as the development of rural residential blocks is likely to continue; and
- (e) if Pie Creek tariff group infrastructure were to be built as a green-fields project today, it would likely take a different and lower cost form, given the above (a) and (b) change in land-use patterns.

However, it is not practical in the timeframes (nor provided for under the Ministerial Direction) for the Authority to determine an optimised asset configuration for pumping and distribution infrastructure and the associated operating costs that would apply to such a configuration. Further, the Ministerial Direction specifically requires the Authority to establish prices which renew and rehabilitate existing assets.

Moreover, under the Ministerial Direction, the Authority is required to consider moderating the price impact on irrigators (of real price increases) while having regard to Seqwater's legitimate commercial interests.

The Authority proposes a more moderate volumetric charge, in recognition of the transitional issues faced by this scheme. For this purpose, the Authority recommends a bundled volumetric charge that recovers only the variable electricity pumping cost of diverting water to Pie Creek from Mary River plus the cost-reflective bulk volumetric charge (Part B); and a bundled fixed charge that reflects the balance of variable costs.

In the Mary Valley WSS, cost reflective volumetric charges for 2013-14 are lower when compared to 2012-13. To maintain revenues, the balance not recouped by volumetric charges is recovered by fixed charges which are slightly higher compared to 2012-13. In Pie Creek, the volumetric charge is higher and the fixed charge lower when compared to 2012-13. As current revenues are below cost-reflective revenues, the Authority recommends price paths where fixed charges increase annually by \$2 per ML (plus CPI) until cost-reflective levels are reached. Volumetric charges are increased at CPI over the balance of the regulatory period.

Given Pie Creek is below cost-reflectivity, the annual \$2/ML in real terms is to be applied to the bundled fixed charge (in initial years, through the Mary Valley WSS bulk charge).

For Pie Creek, due to the evident structural changes (such as increased urban encroachment and the decline of dairy production), the Authority has recommended that Government and Seqwater review service delivery arrangements. While recommended prices for Pie Creek should apply for 2013-17 during the recommended review, they are considered to be transitional.

This approach likely implies a higher CSO from Government to offset the cost impact on remaining users (i.e. the difference between cost-reflective and recommended termination fees). This is a matter for Government and Seqwater. The Authority has concluded that customers remaining in Pie Creek (after an exit) should not pay any outstanding fixed costs.

The Authority's final recommended price paths for Mary Valley and Pie Creek during 2013-17 are shown in Table 6.11.

Table 6.11: Past and Recommended Irrigation 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
Mary Valley - Draft											
Fixed (Part A)	10.44	10.76	12.68	14.84	17.06	17.67	17.90	19.95	22.49	25.16	26.83
Volumetric (Part B)	6.53	6.72	7.92	9.27	10.66	11.04	11.19	8.42	8.63	8.84	9.06
Pie Creek (Unbundled) - Draft											
Fixed (Part C)	-	-	-	-	-	-	-	0.00	0.00	0.00	0.00
Volumetric (Part D)	-	-	-	-	-	-	-	180.45	184.96	189.58	194.32
Pie Creek (Bundled) - Draft											
Fixed (Part A + C)	29.64	31.60	34.28	36.52	38.71	40.10	40.63	8.37	10.63	12.99	15.47
Volumetric (Part B + D)	42.36	45.15	48.96	52.18	55.30	57.29	58.03	188.87	193.59	198.43	203.39
Mary Valley - Final											
Fixed (Part A)								20.81	23.38	26.07	27.40
Volumetric (Part B)								8.30	8.51	8.72	8.94
Pie Creek (Unbundled) - Final											
Fixed (Part C)								14.01	14.36	14.72	16.57
Volumetric (Part D)								70.66	72.43	74.24	76.09
Pie Creek (Bundled) - Final											
Fixed (Part A + C)								34.82	37.75	40.79	43.96
Volumetric (Part B + D)								78.96	80.94	82.96	85.03

Source: Seqwater (2012), QCA (2012) and QCA (2013).

Termination Fees

Draft Report

The Authority considered that a termination fee should apply to Pie Creek.

The Authority recommended termination fees for 2013-17 be based on the cost-reflective fixed tariff and not the recommended fixed tariff. The recommended price was not used because the published recommended price may not be cost reflective for a number of years. However, termination fees need to recover fixed costs from 1 July 2013 and avoid any perverse incentive for customers to exit tariff groups early during 2013-17.

Stakeholder Submissions on the Draft Report

During February consultations (QCA, 2013) stakeholders commented that the Pie Creek termination fee is too high and should be reduced as it acts as a disincentive to trade and will decrease property values.

M. and R. Sims (2013) submitted that the termination fee will mean that irrigators cannot afford to terminate.

J.B. Ellis *et al* (2013) submitted that with the high draft termination fee, it is unlikely that new or existing irrigators will purchase WAE from Pie Creek and transfer them to the Mary Valley. The termination fee represents a liability to Pie Creek WAE holders. Ellis *et al* suggested that the termination fee should be funded by the Queensland Government in the same way as the 'gap to the cost-reflective price' is met by Government.

P. Montgomery (2013) submitted that the high termination fee will trap farmers and prevent sales of farms as ongoing businesses. It will only take another of the larger water users to stop irrigating to create issues for the whole channel.

QFF (2013b) submitted that the termination fee will discourage any [permanent] trading out of the Pie Creek scheme.

Authority's Response to Submissions Received on the Draft Report

The Authority accepts that the high draft termination fee would be a barrier to trade and acknowledges that, in absolute terms, it is higher than any fee recommended as part of the SunWater review. The highest termination fees recommended for SunWater were \$1,116/ML (2012-13) in the Lower Mary Distribution Systems and \$721/ML in the Theodore Distribution System.

Given the unique circumstances of Pie Creek, and in recognition of concerns raised by stakeholders (including M. and R. Sims, J.B. Ellis *et al* and P. Montgomery) the Authority proposes an alternative transitional termination fee – based on the recommended Part C charge rather than the cost-reflective Part C charge for Pie Creek. This is a transitional measure for 2013-17, while Government and Seqwater consider future options for Pie Creek, in consultation with customers.

This approach represents a divergence from the Authority's principles, but is justified on the grounds of price moderation and given the circumstances of the scheme, which faces structural changes.

The Authority reiterates its view that remaining customers (of Pie Creek) after a permanent exit of WAE occurs, are not to bear the cost of foregone future fixed revenues resulting from an exit from a tariff group.

The Authority's draft and final recommended termination fees are presented in Table 6.12 (below). Termination fees are presented in nominal terms. This approach is consistent with SunWater and was approved by Government.

Table 6.12: Termination Fees for Pie Creek (Nominal \$/ML)

	<i>Termination Fee</i>			
	<i>2013-14</i>	<i>2014-15</i>	<i>2015-16</i>	<i>2016-17</i>
Draft	3,595.46	3,685.33	3,777.51	3,871.89
Final	154.11	157.96	161.92	182.27

Source: QCA (2012) and QCA (2013).

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 use and nominal WAE (see Volume 1).

Draft Report

Stakeholder Submissions

D. Burnett (2012) submitted that the dairy industry is a significant customer of this scheme and any large increase will make some of these businesses unviable.

Authority's Analysis

In response to stakeholders' concerns regarding the impact of recommended prices, the Authority noted that the Ministerial Direction requires prices to increase in real terms at a pace consistent with 2006-11 prices until such time as the Mary Valley WSS reaches efficient costs.

The Authority also noted 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 was considered to apply to the Seqwater irrigation review.

Stakeholder Submissions on the Draft Report

During consultation in February (2013), irrigators submitted that:

- (a) the Authority has undertaken a one-dimensional review and has not considered broader issues such as the consequences to water demand in the future resulting from an increase in Gympie's population; and
- (b) it would be more economical to build on-farm infrastructure than to pay the Authority's recommended prices.

During consultation in February (2013), irrigators also questioned whether Pie Creek prices would substantially increase towards cost-reflective prices after 2013-17.

M. and R. Sims (2013) submitted that the current and future price path cannot be absorbed by farming businesses. Since 1992, when they joined the scheme, it has always been subsidised. They now feel trapped due to increased costs, pressure from local government

to develop the scheme into residential lifestyle blocks, high termination fees and the water loss inefficiency of the scheme.

Authority's Response to Submissions Received on the Draft Report

The Authority recognises the broader issues associated with Pie Creek and its unique characteristics. Due to the evident structural changes (such as increased urban encroachment and the decline of dairy production), the Authority has recommended that Government and Seqwater review service delivery arrangements. While recommended prices for Pie Creek should apply for 2013-17 during the recommended review, they are considered to be transitional.

REFERENCES

- Andrew, A.R. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Andrew, V.J. (2012) . Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Aurecon. (2011). Review of SunWater's Network Service Plans Bundaberg Cluster Draft Report. A Consultancy Report Prepared for the Queensland Competition Authority, August.
- Australian Bureau of Statistics (ABS). (2012a). *Engineering Construction Activity, Australia., cat. no. 8762*. Canberra: Australian Bureau of Statistics.
- Australian Bureau of Statistics (ABS). (2012b). *Labour Price Index, cat. no. 6345*. Canberra: Australian Bureau of Statistics.
- Australian Bureau of Statistics (ABS). (2012c). *Producer Price Index, cat. no. 6427*. Canberra: Australian Bureau of Statistics.
- Australian Competition and Consumer Commission (ACCC). (2008a). Water Charge (Termination Fees) Rules Final Advice. Canberra: Commonwealth of Australia.
- Australian Competition and Consumer Commission (ACCC). (2008b). Water Market Rules. Canberra: Commonwealth of Australia.
- Australian Competition and Consumer Commission (ACCC). (2011). Pricing Principles for Price Approvals and Determinations Under the Water Charge (Infrastructure) Rules 2010. Canberra: Commonwealth of Australia.
- Australian Competition Tribunal (ACompT). (2011). *Application by Energex Limited (Gamma)*, No5. ACompT 9, May.
- Australian Energy Regulator (AER). (2009). Electricity Transmission and Distribution Network Service Providers - Review of the Weighted Average Cost of Capital (WACC) Parameters Final Decision, May.
- Australian Energy Regulator (AER). (2011). Investra Ltd - Access Arrangement for Qld Gas Network: 1 July 2011 - 30 June 2016, February
- Australian Energy Regulator (AER). (2012). *Powerlink Transmission Determination 2012-13 to 2016-17: Final Report*, April.
- Bailey, J. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Battersby, J.B. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Beard, G.C. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Begg, J. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

-
- Bell, G.N. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Bernitt, B. and Summerville, C. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Brealey, R., Myers, S., and Allen, F. (2005). Principles of Corporate Finance, McGraw-Hill, New York. McGraw-Hill, New-York, NY.
- Brimblecombe, L. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Lockyer Valley Water Supply Scheme), July.
- Brooks, R. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Brown, G.K. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Brown, S.J. and Sibley, D.S. (1986). *The Theory of Public Utility Pricing*. Cambridge University Press.
- Brown Salt Pty Ltd. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Burnett, D. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Mary Valley Water Supply Scheme), July.
- Cardno-Atkins. (2009). Strategic Management Overview and Review of Operating and Capital Expenditure of State Water Corporation 2009: Final. A Consultancy Report Prepared for the Independent Pricing and Regulatory Tribunal of New South Wales (IPART), November.
- Central Lockyer Valley Water Supply Scheme (WSS) Representatives. (2013). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Lockyer Valley WSS), March.
- Chalmers, A. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Chalmers, A.C. and D.K. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Collier, D. and Collier, J. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Cooper, I. (2012). Comment on the Split Cost of Capital Proposal of Professor Helm, submitted by BA. Available at <http://www.caa.co.uk/docs/5/BAASplitCoC.pdf>.
- Council of Australian Governments (COAG). (1994). Report of the Working Group on Water Resource Policy: Communique. Canberra: Council of Australian Governments.
- Council of Australian Governments (COAG). (2004). Intergovernmental Agreement on a National Water Initiative. Canberra: Council of Australian Governments.
- Council of Australian Governments (COAG). (2010). National Water Initiative Principles. Canberra: Council of Australian Governments.

-
- Craigie, J.M. (2012a). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Craigie, J.M. (2012b). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), August.
- Crockett, S. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Cunningham, T. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Da Silva, A. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- De Lange, J.H. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Deloitte. (2011a). SunWater Administration Cost Review Phase 2. A Consultancy Report Prepared for the Queensland Competition Authority, August.
- Deloitte. (2011b). SunWater Working Capital Allowance. A Consultancy Report Prepared for the Queensland Competition Authority, August.
- Department of Environment and Resource Management (DERM). (2008a). Interim Resource Operations Licence for Central Lockyer Valley Water Supply Schemes, July.
- Department of Environment and Resource Management (DERM). (2008b). Interim Resource Operations Licence for Lower Lockyer Valley Water Supply Schemes, July.
- Department of Environment and Resource Management (DERM). (2009a). Moreton Resource Operation Plan, December.
- Department of Environment and Resource Management (DERM). (2009b). Logan Basin Resource Operations Plan, December.
- Department of Environment and Resource Management (DERM). (2011). Mary Basin Resource Operations Plan, September.
- Department of Natural Resources and Mines (DNRM). (2009). Permanent Water Trading Report.
- Department of Natural Resources and Mines (DNRM). (2010). Permanent Water Trading Report.
- Department of Natural Resources and Mines (DNRM). (2011). Permanent Water Trading Report.
- Department of Natural Resources and Mines (DNRM). (2012). Permanent Water Trading Report.
- Department of Natural Resources and Mines (DNRM). (2013a). Submission re: Seqwater 2013-17 Irrigation Price Review Draft Report, February.
- Department of Natural Resources and Mines (DNRM). (2013b). Department of Natural Resources and Mines (7 March 2013) Submission/Response to QCA Information/Data Request of 27 February 2013.
- Department of Natural Resources and Mines (DNRM). (2013c). Department of Natural Resources and Mines (8 March 2013) Submission/Response to QCA Information/Data Request of 8 March 2013.
-

Department of Natural Resources and Mines (DNRM). (2013d). Department of Natural Resources and Mines (22 March 2013) Submission/Response to QCA Information/Data Request of 14 March 2013.

Department of Sustainability, Environment, Water, Population and Communities. (2010). *National Water Initiative Pricing Principles*. Steering Group on Water Charges. Canberra: Australian Government.

DeRuiter, A. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Drynan, G. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Logan River Water Supply Scheme), July.

Economic Regulation Authority (ERA). (2007). Inquiry on Harvey Water Bulk Water Pricing, April.

Economic Regulation Authority (ERA). (2009). Inquiry into Tariffs of the Water Corporation, Aqwest and Busselton Water, August.

Economic Regulation Authority (ERA). (2011). Final Decision on Proposed Revisions to the Access Arrangement for the Dampier to Bunbury Natural Gas Pipeline, October.

Ellis, J.B., Ellis, A.M., Ellis, D.K., Ellis, L.M. and Ellis, W.F. (2013). Submission re: Seqwater 2013-17 Irrigation Price Review (Pie Creek), March.

Ernst and Young. (1997). SCARM Water Industry Asset Valuation Study - Draft Guidelines on Determining Full Cost Recovery, August.

Essential Services Commission (ESC). (2008). 2008 Water Price Review: Regional and Rural Businesses' Water Plans 2008-13 and Melbourne Water's Drainage and Waterways Water Plan 2008-13, June.

Essential Services Commission (ESC). (2009). *Metropolitan Melbourne Water Price Review 2008-09: Final Decision*, June.

Essential Services Commission (ESC). (2011). *2013 Water Price Review: Guidance on Water Plans*, October.

Essential Services Commission of South Australia (ESCOSA). (2010). Inquiry into the 2010-11 Metropolitan and Regional Potable Water and Sewerage Pricing Process: Final Report, October.

Evans and Peck. (2012). Seqwater Price Review. A Consultancy Report Prepared for the Queensland Competition Authority, November.

Farnsea Pty Ltd. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Frontier Economics. (2005). Review of Pricing Policies: A Report Prepared for Goulburn Murray Water, March.

Frontier Economics. (2008). Termination Fees and Landholder Considerations. A Consultancy Report Prepared for the Australian Competition and Consumers Association, October.

Geiger, A. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

-
- GHD. (2011). Review of SunWater's Network Service Plans: Toowoomba Cluster - Operational and Capital Expenditure - Final Report. A Consultancy Report Prepared for the Queensland Competition Authority, August.
- Gilbert and Sutherland. (2011). Quality Assurance Assessment of a Review of SunWater's Headworks Utilisation Factors Methodology. A Consultancy Report Prepared for the Queensland Competition Authority, March.
- Glamorgan Vale Water Board (GVWB). (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Goulburn-Murray Water (GMW). (2009). Goulburn-Murray Water: Water Services Committee Charter, September.
- Government Prices Oversight Commission (GPOC). (2007). Investigation into the Pricing Policies of Hobart Regional Water Authority, Esk Water Authority and Cardle Coast Water.
- GRASSCO Pty Ltd. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Grinblatt, M. and Titman, S. (2002). Financial Markets and Corporate Strategy. McGraw-Hill, New-York, NY.
- Halcrow. (2005). 2005 Review of Rural Water Prices Assessment of Expenditure Forecasts: Goulburn-Murray Water. A Consultancy Report Prepared for the Essential Services Commission, December.
- Harris, J. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Harsant, I. (2013). Submission re: Seqwater 2013-17 Irrigation Price Review (Warrill Valley Water Supply Scheme), January.
- Hay, B.L. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Hayes, K. (2013). Submission re: Seqwater 2013-17 Irrigation Price Review (Lower Lockyer Valley Water Supply Scheme), January.
- Heck, S. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Hill, C. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Hill, N. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Hinrichsen, R. (2013). Submission re: Seqwater 2013-17 Irrigation Price Review (Warrill Valley Water Supply Scheme), January.
- INDEC. (2011). SunWater Water Supply Schemes 2011-16 Price Paths: Qualitative Framework and Assessment of Fixed and Variable Cost Drivers. A Consultancy Report Prepared for the Queensland Competition Authority, October.

INDEC. (2012). Seqwater Water Supply Schemes Asset Restoration Reserve Balances. A Consultancy Report Prepared for Seqwater, July.

Independent Competition and Regulatory Commission (ICRC). (2008). Waste and Wastewater Price Review: Final Report and Price Determination, April.

Independent Pricing and Regulatory Tribunal (IPART). (2004). Bulk Water Prices 2005-06 - Issues Paper, September.

Independent Pricing and Regulatory Tribunal (IPART). (2009a). Review of Prices for the Sydney Catchment Authority From 1 July 2009 to 20 June 2012; Water - Determination and Final Report, June.

Independent Pricing and Regulatory Tribunal (IPART). (2009b). Review of Prices for Water, Sewerage and Other Services for Hunter Water Corporation: Determination and Final Report, July.

Independent Pricing and Regulatory Tribunal (IPART). (2010). Review of Bulk Water Charges for State Water Corporation: Water - Final, June.

Independent Pricing and Regulatory Tribunal (IPART). (2011). Review of Prices for the Water Administration Ministerial Corporation: Water - Determination, February.

Independent Pricing and Regulatory Tribunal (IPART). (2012a): Review of Imputation Credits (Gamma): Research - Final Decision, March.

Independent Pricing and Regulatory Tribunal (IPART). (2012b): Review of Rural Water Charging Systems: Water - Final Report, August.

Jackson, N.C. and Jackson, L.R. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

James, D.R. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

James, R.W. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Jendra, M. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Lower Lockyer Valley Water Supply Scheme), July.

Jendra, M. (2013). Submission re: Seqwater 2013-17 Irrigation Price Review (Lower Lockyer Valley Water Supply Scheme), January.

Jensen, B.A. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Jensen, M.W. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Johnson, L.G. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Keable, B. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

-
- Keable, R. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Keller, J.B. and Keller, B.L. (2012a). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Keller, J.B. and Keller, B.L. (2012b). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Keller, K. and Keller, N.J. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Keller, P.J. Keller, J.M. and Keller, N.J. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Keller, P.J. Keller, J.M., Keller, N.J. and Keller, N. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Keller, P.J. Keller, J.M. and Keller, W.A. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Keller, W.A. and Keller, L.M. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Kelly, B.J. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Keyes, G.J. and Keyes, M. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Kirby, M. and Kirby, B. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- KPMG. (2007). Valuation of SEQ Councils' Bulk Water Assets: Approach and Process. Report to the Queensland Treasury. December.
- Kruger, P., Landier, A. and Thesmar, D. (2011). The WACC Fallacy: The Real Effects of Using a Unique Discount Rate, AFA 2012 Chicago Meetings Paper, February.
- Ladbrook, R.G. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Larsen, C.V. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Larsen, K.E. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Lee, W.J. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Long, D. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Lowood and District Golf Club Inc. (LDGCI). (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

-
- Lyne, I. (2013). Submission re: Seqwater 2013-17 Irrigation Price Review (Morton Vale Pipeline), January.
- MacDonald, K. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Mahon, B. and Mahon, L. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Mahon, W.M. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- McCarthy, D.T. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- McInnes, L. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Mid Brisbane River Irrigators Inc (MBRI). (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Mid Brisbane River Irrigators Inc (MBRI). (2013a). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), February.
- Mid Brisbane River Irrigators Inc (MBRI). (2013b). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), February.
- Mid Brisbane River Irrigators Inc (MBRI). (2013c). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), February.
- Mid Brisbane River Irrigators Inc (MBRI). (2013d). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), March.
- Mid Brisbane River Irrigators Inc (MBRI). (2013e). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), April.
- Montgomery, P. (2013). Submission re: Seqwater 2013-17 Irrigation Price Review (Pie Creek), January.
- Morgan, P.G. and Morgan, M.N. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- National Water Commission (NWC). (2008). *National Performance Report 2006-07: Rural Water Service Providers*. Canberra: Australian Government.
- National Water Commission (NWC). (2009). *Australian Water Reform: Second Biennial Assessment of Progress in Implementation of the National Water Initiative*. Canberra: Australian Government.
- NERA Economic Consulting (NERA). (2010a). Form of Price Control: SunWater Water Supply Schemes. Issues Paper Prepared for the Queensland Competition Authority, August.
- NERA Economic Consulting (NERA). (2010b). Single or Multiple Rate of Return: SunWater. A Consultancy Report Prepared for the Queensland Competition Authority, August.
- NERA Economic Consulting (NERA). (2011). Cost of Capital for Water Infrastructure Company. A Consultancy Report Prepared for the Queensland Competition Authority, March.
-

-
- NERA Economic Consulting (NERA). (2012a). SunWater's Electricity Cost Model. A Consultancy Report Prepared for the Queensland Competition Authority, April.
- NERA Economic Consulting (NERA). (2012b). Cost of Debt for Seqwater. A Consultancy Report Prepared for the Queensland Competition Authority, November.
- NERA Economic Consulting (NERA). (2013). Cost of Debt for Seqwater, A Consultancy Report for the Queensland Competition Authority, March.
- Nunn, G. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Ofcom. (2005). Ofcom's approach to risk in the assessment of the cost of capital - Final Statement. Available from http://stakeholders.ofcom.org.uk/consultations/cost_capital2/statement/
- Office for Water Security. (2010). Water for Good. Adelaide: Government of South Australia.
- Officer, R. R. (1994). "The Cost of Capital of a Company Under an Imputation Tax System", Accounting and Finance, May.
- Olive, P. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Parsons Brinckerhoff (PB). (2012). Hydrologic Assessment of Headworks Utilisation Factors (HUFs), A Consultancy Report Prepared for Seqwater, March.
- PricewaterhouseCoopers (PwC). (2010a). Pricing Principles and Tariff Structures for SunWater's Water Supply Schemes. Issues Paper Prepared for the Queensland Competition Authority, September.
- PricewaterhouseCoopers (PwC). (2012). Estimating the Benchmark Debt Risk Premium. A Report Prepared for SP AusNet, MultiNet, Envestra and APA Group, March.
- Queensland Competition Authority (QCA). (2000). Statement of Regulatory Pricing Principles for the Water Sector, December.
- Queensland Competition Authority (QCA). (2002). Gladstone Area Water Board: Investigation of Pricing Practices, September.
- Queensland Competition Authority (QCA). (2005). Gladstone Area Water Board: Investigation of Pricing Practices - Final Report, March.
- Queensland Competition Authority (QCA). (2010a). Gladstone Area Water Board: Investigation of Pricing Practices, July.
- Queensland Competition Authority (QCA) (2010b). QR Network's 2010 DAU: Final Decision, September.
- Queensland Competition Authority (QCA). (2012a). SunWater Irrigation Price Review: 2011-17, Volume 1: Final Report, May.
- Queensland Competition Authority (QCA). (2012b). SEQ Grid Service Charges 2012-13: Final Report, July.
- Queensland Competition Authority (QCA). (2012c). Issues Arising from Round 1 Stakeholder Consultations, June.

Queensland Competition Authority (QCA). (2013a). Issues Arising from Round 2 Stakeholder Consultations, February.

Queensland Farmers' Federation (QFF). (2012). Submission re: Seqwater 2013-17 Irrigation Price Review, July.

Queensland Farmers' Federation (QFF). (2013a). Submission re: Seqwater 2013-17 Irrigation Price Review, February.

Queensland Farmers' Federation (QFF). (2013b). Submission re: Seqwater 2013-17 Irrigation Price Review, March.

Queensland Treasury (QT). (2006). Government Owned Corporations – Cost of Capital Principles. February.

Reck, B. (2013). Submission re: Seqwater 2013-17 Irrigation Price Review (Lower Lockyer Valley Water Supply Scheme), January.

Reid, F. and Reid E. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Rieck, M. and Rieck, T. (2013). Submission re: Seqwater 2013-17 Irrigation Price Review (Warrill Valley Water Supply Scheme), January.

Rivermead Pty Ltd. (RPL). (2012a). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Rivermead Pty Ltd. (RPL). (2012b). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Riverside Farming Pty Ltd.(RFPL). (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Riverside Farming Pty Ltd.(RFPL). (2013). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Round, D.I. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Rozynski, G. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Mary Valley Water Supply Scheme including Pie Creek), July.

Rozynski, G. (2013). Submission re: Seqwater 2013-17 Irrigation Price Review (Mary Valley Water Supply Scheme including Pie Creek), January.

Russell, M.T. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Ryder, R. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Sentinella, N. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Seqwater. (undated). SM Project Outline: Clarendon Diversion Access Road,

-
- Seqwater. (undated). Updated SM Project Outline: Clarendon Diversion Access Road,
- Seqwater. (1995). Agreement between Primary Industries Corporation and the Proprietor, March.
- Seqwater (2010). System leakage Management Plan. A Plan Submitted to the Department of Environment and Resource Management, February.
- Seqwater (2012). Fees and Schedules for Various Schemes (2006-07 to 2011-12).
- Seqwater. (2012a). 2013-14 Irrigation Pricing – Submission to the Queensland Competition Authority, April.
- Seqwater. (2012b). Cedar Pocket Dam Water Supply Scheme Network Service Plan, April.
- Seqwater. (2012c). Central Brisbane River Water Supply Scheme Network Service Plan, April.
- Seqwater. (2012d). Central Lockyer Valley Water Supply Scheme Network Service Plan, April.
- Seqwater. (2012e). Logan River Water Supply Scheme Network Service Plan, April.
- Seqwater. (2012f). Lower Lockyer Valley Water Supply Scheme Network Service Plan, April.
- Seqwater. (2012g). Mary Valley Water Supply Scheme Network Service Plan, April.
- Seqwater. (2012h). Warrill Valley Water Supply Scheme Network Service Plan, April.
- Seqwater. (2012i). Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47: Cedar Pocket Tariff Group, April.
- Seqwater. (2012j). Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47: Central Brisbane River Tariff Group, April.
- Seqwater. (2012k). Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47: Central Lockyer Tariff Group, April.
- Seqwater. (2012l). Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47: Logan River Tariff Group, April.
- Seqwater. (2012m). Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47: Lower Lockyer Tariff Group, April.
- Seqwater. (2012n). Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47: Mary Valley Tariff Group, April.
- Seqwater. (2012o). Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47: Morton Vale Pipeline Tariff Group, April.
- Seqwater. (2012p). Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47: Pie Creek Tariff Group, April.
- Seqwater. (2012q). Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47: Warrill Valley Tariff Group, April.
- Seqwater. (2012r). Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47: Report on Methodology, April.
-

Seqwater. (2012s). Seqwater's Response (29 June 2012, 6 July 2012, 11 July 2012 and 16 July 2012) to QCA Information/Data Request of June 14 2012 Re: Various Matters, June and July.

Seqwater. (2012t). Seqwater Irrigation Price Model, July.

Seqwater. (2012u). Seqwater's Response (10 July 2012) to QCA Information/Data Request of 29 June 2012 Re: Interim Water Allocations (IWA), July.

Seqwater. (2012v). Seqwater's Response (10 July 2012) to QCA Information/Data Request of 10 July 2012 Re: Morton Vale Pipeline Contract Matters, July.

Seqwater. (2012w). Seqwater's Response (27 July 2012) to QCA Information/Data Request of 23 July Re: Various Matters, July.

Seqwater. (2012x). Seqwater's Response (1 August 2012) to QCA Information/Data Request of 1 August 2012 Re: Pie Creek Losses, August.

Seqwater. (2012y). Seqwater's Response (6 August 2012) to QCA Information/Data Request of 30 July 2012 Re: Indec Report, August.

Seqwater. (2012z). Seqwater's Response (10 August 2012) to QCA Information/Data Request of 3 August 2012 Re: Various Matters, August.

Seqwater. (2012aa). Seqwater's Response (17 August 2012) to QCA Information/Data Request of 10 August 2012 Re: Various Matters, August.

Seqwater. (2012ab). Seqwater's Response (23 August 2012) to QCA Information/Data Request of 14 August 2012 Re: Various Matters, August.

Seqwater. (2012ac). Seqwater's Response (28 August 2012) to QCA Information/Data Request of 28 August 2012 Re: Cost Categories in the Asset Delivery Group, August.

Seqwater. (2012ad). Seqwater's Response (31 August 2012) to QCA Information/Data Request of 24 August 2012 Re: Various Matters, August.

Seqwater. (2012ae). Seqwater's Response (3 September 2012) to QCA Information/Data Request of 24 August 2012 Re: Various Matters, August.

Seqwater. (2012af). Seqwater's Response (3 September 2012) to QCA Information/Data Request of 31 August 2012 Re: Various Matters, September.

Seqwater. (2012ag). Seqwater's Response (10 September 2012) to QCA Information/Data Request of 5 September 2012 Re: Various Matters, September.

Seqwater. (2012ah). Reconciliation of Seqwater's Baseline Expenditures, September.

Seqwater. (2012ai). Seqwater's Response (22 October 2012) to QCA Information/Data Request of 12 October 2012 Re: Various Matters, October.

Seqwater. (2012aj). 2013-14 Irrigation Pricing – Submission to the Queensland Competition Authority, November.

Seqwater. (2012ak). Cedar Pocket Dam Water Supply Scheme Network Service Plan, November.

Seqwater. (2012al). Central Brisbane River Water Supply Scheme Network Service Plan, November.

-
- Seqwater. (2012am). Central Lockyer Valley Water Supply Scheme Network Service Plan, November.
- Seqwater. (2012an). Logan River Water Supply Scheme Network Service Plan, November.
- Seqwater. (2012ao). Lower Lockyer Valley Water Supply Scheme Network Service Plan, November.
- Seqwater. (2012ap). Mary Valley Water Supply Scheme Network Service Plan, November.
- Seqwater. (2012aq). Warrill Valley Water Supply Scheme Network Service Plan, November.
- Seqwater. (2012ar). Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47: Cedar Pocket Tariff Group, September.
- Seqwater. (2012as). Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47: Central Brisbane River Tariff Group, September.
- Seqwater. (2012at). Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47: Central Lockyer Tariff Group, September.
- Seqwater. (2012au). Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47: Logan River Tariff Group, September.
- Seqwater. (2012av). Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47: Lower Lockyer Tariff Group, September.
- Seqwater. (2012aw). Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47: Mary Valley Tariff Group, September.
- Seqwater. (2012ax). Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47: Morton Vale Pipeline Tariff Group, September.
- Seqwater. (2012ay). Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47: Pie Creek Tariff Group, September.
- Seqwater. (2012az). Irrigation Infrastructure Renewal Projections – 2013-14 to 2046-47: Warrill Valley Tariff Group, September.
- Seqwater. (2012ba). Seqwater's Response (9 November 2012) to QCA Information/Data Request of 7 November 2012 Re: Various Matters, November.
- Seqwater. (2012bb). Seqwater Irrigation Price Model, November.
- Seqwater. (2013a). Submission re: Seqwater 2013-17 Irrigation Price Review Draft Report, February.
- Seqwater. (2013b). Seqwater's Response (1 March 2013) to QCA Information/Data Request of 25 February 2013, March.
- Seqwater. (2013c). Seqwater's Response (11 March 2013) to QCA Information/Data Request, March.
- Seqwater. (2013d). Seqwater's Response (11 March 2013) to QCA Information/Data Request of 25 February 2013, March.
- Seqwater. (2013e). Seqwater's Response (18 March 2013) to QCA Information/Data Request of 13 March 2013, March.
-

-
- Seqwater. (2013f). Seqwater's Response (19 March 2013) to QCA Information/Data Request of 12 March 2013, March.
- Seqwater. (2013g). Seqwater's Response (21 March 2013) to QCA Information/Data Request of 19 March 2013, March.
- Seqwater. (2013h). Seqwater's Response (26 March 2013) to QCA Information/Data Request of 22 March 2013, March.
- Seqwater. (2013i). Seqwater's Submission (2 April 2013) on Pie Creek Electricity, April.
- Seqwater. (2013j). Seqwater's Submission (5 April 2013) on Labour Costs Escalation, April.
- Seqwater. (2013k). Seqwater's Submission (8 April 2013) on Electricity Price Queries, April.
- Seqwater. (2013l). Seqwater's Submission (17 April 2013) on Pie Creek Electricity, April.
- Seqwater. (2013m). Seqwater's Submission (16 April 2013) on [Statement of Obligations for Queensland Bulk Water Supply Authority Issued by Treasurer and Minister for Trade and Minister for Energy and Water Supply 2013](#), April.
- Shard, B.. (2013). Submission re: Seqwater 2013-17 Irrigation Price Review (Warrill Valley Water Supply Scheme), January.
- Sims, M. and Sims, R. (2013). Submission re: Seqwater 2013-17 Irrigation Price Review (Pie Creek), March.
- Sinclair, S. and Sinclair, H. (2012a). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Sinclair, S. and Sinclair, H. (2012b). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Sinclair Knight Merz (SKM). (2012). Seqwater Irrigation Price Review - Assessment of Capital and Operating Expenditure: Final. A Consultancy Report Prepared for the Queensland Competition Authority, September.
- Sinclair Knight Merz (SKM). (2013). Letter re: Seqwater Irrigation Price Review - Assessment of Capital and Operating Expenditure, February.
- Sippel, L. (2013). Submission re: Seqwater 2013-17 Irrigation Price Review (Morton Vale Pipeline), January.
- Sippel, L. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Skerman, R.G.M. and Skerman, H.M. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Smith, A.P.W. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Smith, K.J. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

-
- Smith, S.A. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Southern Rural Water (SRW). (2007a). Customer-Charter: Water Supply, Version 5, August..
- Southern Rural Water (SRW). (2007b). Southern Rural Water: Water Plan 2008-13.
- Stallmann, D. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- State Water. (2008). 2008-12 Customer Service Charter Terms of Reference.
- Strong, D. and Strong, L. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- SunWater. (2006a). Statewide Irrigation Pricing Working Group: Tier 1 Report. Brisbane: SunWater Limited, April.
- SunWater. (2006b). SunWater Irrigation Price Paths 2006-07 to 2010-11: Final Report. Brisbane: SunWater Limited, September.
- SunWater. (2011a). QCA Review of Irrigation Prices: Pricing Principles and Tariff Structures January.
- SunWater. (2011b). QCA Review of Irrigation Prices: Water Distribution Entitlements Supplementary Information, February.
- SunWater. (2011c). QCA Review of Irrigation Prices: Pricing of Distribution Losses, March.
- SunWater. (2011d). QCA Review of Irrigation Prices: Pricing Principles and Tariff Structures January.
- Thefs, R.J. and Thefs, E.R. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Cedar Pocket Dam Water Supply Scheme), July.
- Thomson, B. and Thomson, E. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Toft, D. and Toft, L. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Toft, J. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Tramacchi, S. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Cedar Pocket Dam Water Supply Scheme), July.
- Tudge, R. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- Turner, W.A. and Turner, C.M. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.
- United Kingdom (UK) Civil Aviation Authority. (2008). Economic Regulation of Heathrow and Gatwick Airports 2008-2013, March.

Van der Est, G. (2013). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Valley Water Supply Scheme), July.

Vogler, D. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Vogler, R.F. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Walther, M. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Wendt, J.R. and Wendt, L.A. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Westaway, B.W. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Wilkinson, T. and Wilkinson, A. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Winson, M., Brown, V., Cumming, M. and Cumming, S. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

Zanow, B. (2012). Submission re: Seqwater 2013-17 Irrigation Price Review (Central Brisbane River Water Supply Scheme), July.

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.

Mary Valley WSS

<i>Asset</i>	<i>Year</i>	<i>Description</i>	<i>Total (\$,000)</i>
Borumba Dam	2013/14	Refurbish Embankment	230
	2014/15	Refurbish Control Structure	60
		Refurbish Discharge Channel	50
		Refurbish Spillway	100
		Refurbish Telemetry	50
		Refurbish Water Level Recorder	10
		2015/16	Refurbish Valve House
	2016/17	Refurbish Outlet Valve	100
	2034/35	Replace Trash-racks	111
	2035/36	Replace Cables & Cableways	40
Replace Control		14	
Replace Switchboard		10	
Gauging Stations	2022/23	Replace Gauging Stations-Mary River	70
	2032/33	Replace Gauging Stations-Mary River	
Water Flow-meters	2025/26	Replace Water Meter	28
	2026/27	Replace Water Meter	28
	2027/28	Replace Water Meter	28
	2028/29	Replace Water Meter	28
	2029/30	Replace Water Meter	28
	2030/31	Replace Water Meter	28
	2031/32	Replace Water Meter	28
	2032/33	Replace Water Meter	28
	2033/34	Replace Water Meter	28
	2034/35	Replace Water Meter	28
	2035/36	Replace Water Meter	28
Total			1,253

Pie Creek

<i>Asset</i>	<i>Year</i>	<i>Description</i>	<i>Total (\$,000)</i>
Calico Creek Channel	2022/23	Replace Air Valve 1036.32M	12
		Replace Air Valve 1310.64M	12
		Replace Air Valve 1383.79M	12
		Replace Air Valve 152.40M	12
		Replace Air Valve 2133.60M	12
		Replace Air Valve 2196.39M	6
		Replace Air Valve 2338.43M	6
		Replace Air Valve 2436.57M	6

<i>Asset</i>	<i>Year</i>	<i>Description</i>	<i>Total (\$,000)</i>
		Replace Air Valve 518.25M	12
		Replace Air Valve 60.96M	12
		Replace Isolating Valve 0.00M	9
		Replace Isolating Valve 2459.74M	9
		Replace Scour Outlet 1327.71M	14
		Replace Scour Outlet 1396.59M	14
		Replace Scour Outlet 185.62M	14
		Replace Scour Outlet 2289.05M	14
		Replace Scour Outlet 2364.03M	14
		Replace Scour Outlet 577.90M	14
McIntosh Channel	2022/23	Replace Air Valve 304.80M	6
		Replace Air Valves	5
		Replace Air Vent 12.80M	2
		Replace Air Vent 158.28M	2
		Replace Isolating Valve At 0.00M	27
		Replace Isolating Valve At 420.62M	9
		Replace Scour 217.93M	12
Pie Creek Main Channel	2013/14	Refurbish Boundary Fence	53
	2013/14	Replace Earth Channel	20
	2023/24	Replace Earth Channel	20
	2033/34	Replace Earth Channel	20
	2022/23	Replace Air Valve 10021.82M	12
		Replace Air Valve 1006.45M	9
		Replace Air Valve 10203.18	12
		Replace Air Valve 10407.07M	12
		Replace Air Valve 10591.80M	12
		Replace Air Valve 10812.78M	12
		Replace Air Valve 11606.78	12
		Replace Air Valve 1178.05M	9
		Replace Air Valve 11911.58	12
		Replace Air Valve 12094.46M	12
		Replace Air Valve 12825.98	12
		Replace Air Valve 2743.20M	12
		Replace Air Valve 307.67M	9
		Replace Air Valve 441.02M	9
		Replace Air Vent 6683.65M	3
		Replace Scour Outlet 10099.24M	14
		Replace Scour Outlet 10311.69M	14
		Replace Scour Outlet 10539.07	14
		Replace Scour Outlet 1064.15M	27
		Replace Scour Outlet 10660.99M	14
		Replace Scour Outlet 11077.35M	14
		Replace Scour Outlet 11668.05M	14
		Replace Scour Outlet 11978.34M	14
		Replace Scour Outlet 1229.87M	27

<i>Asset</i>	<i>Year</i>	<i>Description</i>	<i>Total (\$,000)</i>
		Replace Scour Outlet 2584.09M	27
		Replace Scour Outlet 3135.78M	27
		Replace Scour Outlet 352.31M	27
		Replace Scour Outlet 4817.06M	27
		Replace Scour Outlet 6533.08M	27
		Replace Scour Outlet 9818.52M	14
Pie Creek Pump Station	2013/14	Replace Cable	63
		Replace Control Equipment	123
	2032/33	Replace Access Road	81
		Replace Control Building	68
Water Flow-meters	2025/26	Replace Water Meters	70
Total			1,245