QUEENSLAND COMPETITION AUTHORITY

Draft Report

Seqwater Irrigation Price Review: 2013-17

Volume 2

Central Brisbane River Water Supply Scheme

December 2012

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SUBMISSIONS

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

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

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

Confidentiality

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

While the Authority will endeavour to identify and protect material claimed as confidential as well as exempt information and information disclosure of which would be contrary to the public interest (within the meaning of the *Right to Information Act 2009 (RTI)*), it cannot guarantee that submissions will not be made publicly available. As stated in s187 of the *Queensland Competition Authority Act 1997* (the QCA Act), the Authority must take all reasonable steps to ensure the information is not disclosed without the person's consent, provided the Authority is satisfied that the person's belief is justified and that the disclosure of the information would not be in the public interest. Notwithstanding this, there is a possibility that the Authority may be required to reveal confidential information as a result of a RTI request.

Public access to submissions

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

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

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GLOSSARY

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

EXECUTIVE SUMMARY

Ministerial Direction

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

Summary of Price Recommendations

The Authority's recommended irrigation prices to apply to the Central Brisbane River WSS for the 2013-17 regulatory period are outlined in **Table 1**. Irrigation customers in this scheme have not previously been charged.

Table 1: Recommended Prices for the Central Brisbane River WSS (Nominal $/ML)

	Recommended Prices			
	2013-14	*2014-15*	*2015-16*	*2017-18*
Fixed (Part A)	22.66	25.28	28.01	30.86
Volumetric (Part B)	12.31	12.62	12.94	13.26

Source: QCA (2012).

Draft Report

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

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

Consultation

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

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

1. CENTRAL BRISBANE RIVER WATER SUPPLY SCHEME

1.1 Scheme Description

The Central Brisbane River WSS is located between the Wivenhoe Dam and Mt Crosby Weir. The scheme was established in 1980 to enable irrigation of up to 1,000ha (7,000 ML).

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

Table 1.1: Key Scheme Information for the Central Brisbane River WSS

	Central Brisbane River WSS
Business Centres	Esk, Fernvale, Karalee
Irrigation uses	131 irrigators (horticulture, fodder crops, turf, grazing), and Lowood and District Golf Club
Urban water supplies	South East Queensland Water Grid Manager, Ipswich City Council, Somerset Regional Council
Other	Glamorgan Vale Water Board and Seqwater

Source: Seqwater (2012al).

The Central Brisbane River WSS has 136 bulk customers in total, including 131 irrigators holding 6,771Ml of medium priority water access entitlements (WAE). Other holders of medium priority WAE are Ipswich City Council (65ML), Somerset Regional Council (15ML), Lowood and District Golf Club (40ML) and Seqwater (150ML).

The South East Queensland (SEQ) Water Grid Manager (WGM) holds 278,725 of High Class A Priority WAE. The Glamorgan Vale Water Board holds 250ML and Seqwater a further 25ML.

An overview of the medium and high priority WAE of this WSS is provided in Table 1.2.

Table 1.2: Water Access Entitlements

Customer Group	***Irrigation WAE (ML)***	***Total WAE (ML)***
Medium Priority	6,771	7,041
High Class A Priority	0	279,000
Total	**13,552**	**286,041**

Source: Seqwater (2012al).

1.2 Bulk Water Infrastructure

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

The scheme includes approximately 132.9 km of regulated watercourse.

The Moreton Resource Operations Plan (ROP) combines the Central Brisbane River WSS (including Wivenhoe Dam) with the Stanley River WSS (including Somerset Dam) for the purpose of defining water sharing rules.

As part of this, despite being in a separate WSS, Somerset Dam contributes to the water supply reliability of the Central Brisbane WSS. Somerset Dam's costs are, therefore, included in this review of the Central Brisbane WSS.

Details of the bulk water infrastructure are presented in **Table 1.3**.

Table 1.3: Bulk Water Infrastructure in the Central Brisbane River WSS

Storage Infrastructure	*Full Supply Volume (ML)*	*Age (years)*
Wivenhoe Dam	1,165,200	28
Somerset Dam	379,850	53
Mount Crosby Weir*	2,200	87

Source: Seqwater (2012al). Note: For irrigation pricing purposes, Mount Crosby Weir is not included.

The characteristics of the bulk water assets are:

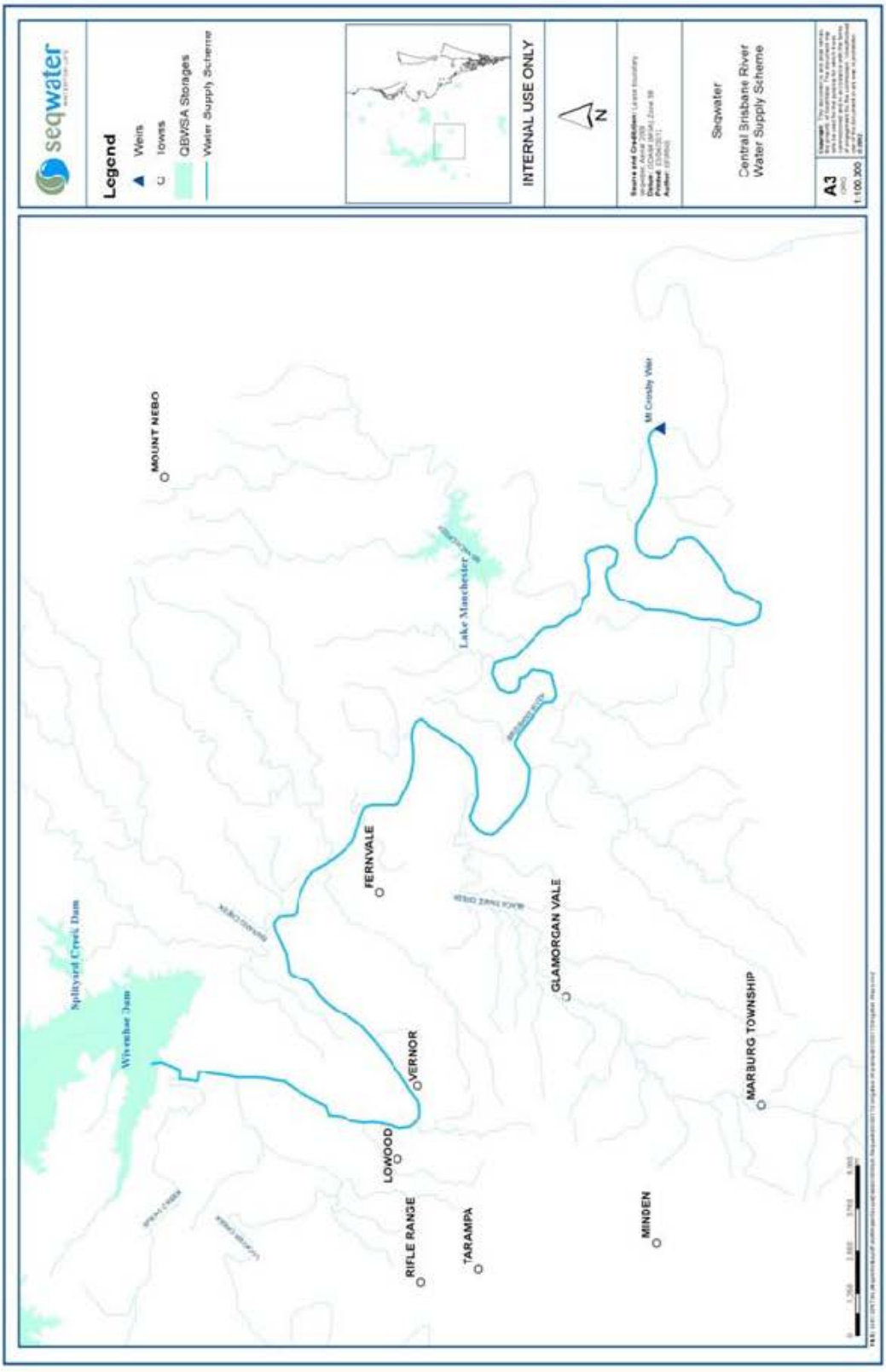
(a) Wivenhoe Dam – zoned earth fill and rock fill saddle dam, primary spillway 72 metre wide with five radial gates. Secondary spillway consists of a 164 metre wide chute with 3 metre ogee crest and three fuse plug embankments;

(b) Somerset dam – concrete gravity dam, with eight radial gates and eight sluice gates; and

(c) Mount Crosby Weir – concrete weir with ogee spillway.

The location of Central Brisbane River WSS and key infrastructure is shown in **Figure 1.1**.

Figure 1.1: Central Brisbane River WSS Locality Map



Source: Seqwater (2012al).

1.3 Network Service Plans

The Central Brisbane River WSS network service plan (NSP) presents Seqwater's:

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

(b) risks relevant to the NSP;

(c) proposed methodology to allocate scheme costs to irrigation customers; and

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

No customer service targets have been documented for this scheme.

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

1.4 Consultation

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

(a) invited submissions from interested parties;

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

(c) published notes on issues arising from consultation;

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

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

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

The Ministerial Direction forms Appendix A to Volume 1.

2. REGULATORY FRAMEWORK

2.1 Introduction

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

In the 2006-11 irrigation price review, the Central Brisbane River WSS was not one of the schemes reviewed, and hence there is no current regulatory framework in place.

2.2 Stakeholder Submissions

Seqwater

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

In summary, Seqwater considered that volume risk should be borne by customers through a tariff structure where the fixed charge recovers fixed costs and where the volumetric charge recovers costs that vary with demand. In the context of cost risk, Seqwater considered that it should not bear the risk associated with costs it is not able to control, such as unforeseen events and costs that are difficult to forecast. Accordingly, Seqwater considers that an end-of-period adjustment for such costs is appropriate (Seqwater 2012a).

Other Stakeholders

The Queensland Farmers' Federation (QFF 2012) submitted that dam operating conditions would be governed by urban requirements for high reliability supply under all seasonal conditions. Under varied conditions, supply for irrigation customers would not be met 100% of the time from the dam. If irrigators receive a benefit from the dam, it is for only short periods.

Stakeholders (J. Craigie, J.B. & B.L. Keller, and S. & H. Sinclair, 2012) also submitted that the catchments behind Wivenhoe Dam do not control 100% of the water available to irrigators. Tributaries downstream of Wivenhoe also provide inflows into the Central Brisbane River that are available for irrigation and they are also part of the regulated supplies available.

During Round 1 consultation in June 2012, irrigators questioned whether paying for water (particularly higher Part A fixed water charges) would ensure water availability or increased reliability associated with WAE. Irrigators also argued that as they do not have access to ground water, this makes it more difficult for irrigators in this scheme to manage water availability and ensure on-farm supply.

Stakeholders (Riverside Farming, 2012 and J.M. Craigie, 2012) argued that as the Central Brisbane River area has a small number of licence holders, irrigators may not be able to trade their allocation. Currently, even though there are a number of allocation holders not actually using their allocation (in whole or in part), there has been a lack of temporary and permanent transactions to date. Small allocation holders and those that have no intention of using their full allocation may be motivated to dispose of their allocation when the time comes to avoid paying installation costs of a meter.

Some stakeholders (Lowood and District Golf Club, 2012) consider their allocation an asset, and therefore have no wish to permanently trade this asset. However, they are open to temporary trades (even part of their allocation) in dry times.

J.B. & B.L. Keller (2012) submitted that people had moved to this region and paid substantially more for their land all because they have greater access to the Brisbane River. However, now that water allocations have been separated from land, a landowner would never be able to recoup their total initial investment purchase pre introduction of the ROP.

2.3 Authority's Analysis

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

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

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

Source: QCA (2012).

As noted in Volume 1, the Authority recommends 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.

In response to QFF, the Authority accepts that irrigators' supply reliability is lower than for urban users, and this is reflected in the allocation of costs between user groups (see Authority's analysis in Chapter 5).

In response to stakeholders (J. Craigie, J.B. & B.L. Keller and S. & H. Sinclair, 2012), the Authority notes that tributary flows downstream of storages are typically part of the assessed system supply and are, in effect, taken into account in defining WAE. The Authority considers 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 medium and high priority users.

The Authority accepts that there is volume-related risk borne by irrigators and that revenues can be cyclic. As noted above, the Authority considers that irrigators are best placed to manage this risk, particularly given that trading of water allocations is an option. Charges for water take into account the supply reliability in the scheme, and it is accepted that groundwater options are generally not available. However, the scheme has a high inherent level of supply reliability when compared to other schemes.

The introduction of a water charge including a fixed component could be expected to lead to an increase in trading activity. While some WAE holders may choose to trade their allocation to other users, this could be expected to lead to more productive use of available supplies over time. The combined asset value of land and water allocation should not be affected – irrigators can gain by trading water to better match their needs. Any change to the total value will likely reflect market factors rather than the separation of water and land assets.

There were no permanent trades of irrigation WAE over the period 2008-09 to 2011-12. The volumes of temporary water traded for the Central Brisbane River WSS are identified in Table 2.2.

Table 2.2: Volume of Water Traded in Central Brisbane River WSS (ML)

	2008-09	***2009-10***	***2010-11***	***2011-12***
Temporary	0	0	40	210

Source: Seqwater (2012al) and. DNRM (2009, 2010, 2011, 2012).

3. PRICING FRAMEWORK

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

3.1 Tariff Groups

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

Currently there is no tariff group for the river segment of the Central Brisbane River WSS.

Seqwater proposed in its NSP that a single bulk tariff group apply.

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

3.2 Tariff Structure

Introduction

Historically, scheme irrigators in the Central Brisbane River WSS have not been required to pay water charges. However, under the Ministerial Direction, the Authority is to recommend irrigation prices to apply to the Central Brisbane River WSS from 1 July 2013 to 30 June 2017.

Stakeholder Submissions

Seqwater

Seqwater (2012aj) submitted that the Central Brisbane River WSS does not currently have irrigation prices, but that prices are to be introduced to the scheme subsequent to the Authority's review. Seqwater contends that with the introduction of the Moreton ROP a deemed contract (under the *Water Act 2000*) that requires irrigators to pay water charges, now applies to the scheme's irrigators. Seqwater considers that this therefore provides them a legal mechanism to set charges, or for a regulatory decision to be applied, assuming there is no continuing legal obligation to provide water free of charge (Seqwater 2012c).

Seqwater (2012al) also considered that all costs associated with the provision of irrigation services in the Central Brisbane River WSS are fixed. Accordingly, Seqwater proposes to apply a single fixed tariff to Central Brisbane River irrigation customers.

Other Stakeholders

A number of stakeholders (Round 1 Consultation 2012, GRASSCO (2012), J.B. & B.L. Keller (2012), R. Ryder and S. Crockett, 2012) submitted objections to Seqwater's proposed tariff structure of a 100% fixed charge regardless of use. These stakeholders consider this tariff structure will cause financial hardship, particularly in periods of low water availability or drought. In addition, J.B. & B.L. Keller (2012) submitted that the split should alternatively be either 60:40 or 50:50.

Additionally, it is claimed that some irrigators already pay a water licence fee on an annual basis to the Department of Natural Resources and Mines (DNRM) (Ryder 2012).

Authority's Analysis

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

The Authority considers that, in general, aligning the tariff structure with fixed and variable costs will manage volume risk over the regulatory period and send efficient price signals. To signal the efficient level of water use, the Authority recommends that all, and only, variable costs be recovered through a volumetric charge, with fixed charges covering the balance of costs.

While noting stakeholders 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).

In response to stakeholder concerns that DNRM levies an annual water licence fee, the Authority has confirmed that no such fees apply for water allocations.

The Authority also recognises that tariff structures are only part of a mix of institutional arrangements in Queensland designed to direct water to its highest and best use from the overall community perspective. In addition to these institutional arrangements, normal commercial profit motives and water trading are relevant to ensuring water is directed to its highest and best use.

3.3 Water Use Forecasts

Previous Review 2006-11

Since water charges are not currently applied to the scheme irrigators in the Central Brisbane River WSS, water use forecasts were not required in the previous price period.

Stakeholder Submissions

Seqwater

Seqwater (2012al) submitted that no usage information is available as no water meters have been installed in this scheme. Additionally forecast water usage for the period 2013-17 has not been provided for the Central Brisbane River WSS.

Seqwater indicated that announced allocations have been 100% in the last two years.

Other Stakeholders

Ryder (2012) submitted that permitted usage was reduced to 25% during drought times as occurred towards the end of the year 2000 and during the 2007 drought.

Authority's Analysis

The application of two-part tariffs removes the need for water use forecasts, where the fixed tariff reflects fixed costs and the volumetric tariff reflects variable costs. Water use data is, however, required for the Seqwater irrigation review to address Government's requirement that current prices (that is, revenues) be maintained and to estimate the cost-reflective volumetric tariffs. Refer Chapter 6: Draft Prices of this report.

However, unlike other Seqwater WSSs, the Central Brisbane River WSS does not have a recorded history of irrigation water use and associated revenues that can be used for determining a baseline revenue amount.

3.4 Free Water Allocations

Introduction

Historically, irrigators in the Central Brisbane River WSS have not been required to pay water charges. However, under the Ministerial Direction, the Authority is to recommend irrigation prices to apply to the Central Brisbane River WSS from 1 July 2013 to 30 June 2017.

Stakeholder Submissions

Seqwater

Seqwater (2012a) submitted that irrigation customers in the Central Brisbane River WSS currently pay no charges and that this situation has existed for some years prior to Seqwater being established. The customers currently paying no water charges in Central Brisbane River WSS (2012c) include 131 irrigators holding 6,771 ML of medium priority WAE.

Seqwater also submitted that the arrangement to provide up to 7,000 ML of water per year free of charge for the purpose of irrigation, as outlined in the regulation made under the *Water Act 2000* – i.e. the *Water (Transitional) Amendment Regulation (No.1) 2002* reflected Government policy at the time.

Seqwater submitted that the requirement for Seqwater to provide water free of charge to Central Brisbane River WSS irrigators expired on 7 December 2009, being the day that the Moreton ROP commenced. At that time, Seqwater became the holder of the Resource Operations Licence (ROL) for the Central Brisbane River WSS.

Upon commencement of the ROP, irrigators' historical entitlements were converted to water allocations (or other entitlements) as stated in the ROP. The provisions of the *Water Act 2000* then took effect so that the conditions of supply were provided for under the Standard Supply Contract – Central Brisbane River WSS (supply contract).

The supply contract sets out the terms under which a customer is to pay water charges levied by Seqwater as the ROL holder and requires water charges to be set by Seqwater, having regard to the criteria that would be applied by the economic regulator.

Although Seqwater has levied no charges since 7 December 2009, Seqwater has proposed that charges should apply to irrigation customers in the Central Brisbane River WSS from 1 July 2013.

Other Stakeholders

The Authority received a total of 92 submissions from customers of the Central Brisbane River WSS[1], of which the majority stated that no charges should be levied for irrigation customers in the scheme.

Stakeholders submitted that no irrigation water charges should apply on the basis that:

[1] All stakeholder submissions have been placed on the Authority's website. The summary below identifies the issues raised in submissions and expanded upon by specific stakeholders).

(a) Seqwater has no right to levy irrigation charges (W. Keller 2012);

(b) the obligation on Seqwater in accordance with the *Water (Transitional) Amendment Regulation (No.1) 2002* to provide water for the purpose of irrigation free of charge, was not extinguished by establishing the supply contract (J.M. Craigie 2012a,b);

(c) this would be unjust or unreasonable (R. Ryder, J. Begg, D.W. & L.N. Strong, B. Lee, L. Sippel, F.J. & E.A. Reid, R. Tudge, D.F. & J.L. Collier, A. Chambers, G. Beard, J.H. Delange, A. Geiger, J.M. Craigie (2012a,b), M.S. & B.A. Kirby and QFF (2012);

(d) the purpose of Somerset Dam and Wivenhoe Dam has been only to provide domestic water and for flood mitigation, not to provide water for irrigation (R. Ryder et al, Craigie 2012a,b);

(e) the construction of Somerset Dam has not improved, nor was it ever intended to improve, irrigation reliability (J.M. Craigie, 2012a);

(f) irrigators' water access has always been from natural [not supplemented] river flows and that the riparian water rights existed prior to Wivenhoe Dam being constructed (R. Ryder et al, Craigie 2012a,b);

(g) this would lead to financial hardship (B. Bernitt, C. Summerville and J. Harris 2012);

(h) no costs are incurred by Seqwater in delivering water for irrigation and there is a substantial history of irrigators not paying with successive decisions or proposals to introduce metering being rescinded or not proceeding) (R. Ryder et. al. 2012, Craigie 2012a); and

(i) annual fees are paid already (for water licences) to DNRM (R. Ryder et. al. 2012).

In a more detailed submission, J.M. Craigie (2012b) submitted that Seqwater cannot levy charges on the basis that:

(a) no formal levels of service exist and, as a consequence, it is impossible for the Authority to determine the prudent and efficient costs to be allocated to irrigators;

(b) the *Legislative Standards Act 1992* requires that any intention to adversely affect certain rights (such as the rights of irrigators to receive free water through the levying of charges) is to be mentioned in the explanatory memorandum to the *Water Act 2000*. However, the explanatory memorandum is silent in this regard;

(c) the effect of the *Acts Interpretation Act 1954* (when read in conjunction with the *Statutory Instruments Act 1992*) is that regardless of the *Water (Transitional) Amendment Regulation (No.1) 2002* expiring, the right of irrigators to receive water free of charge is not extinguished. That is, the expiry does not affect a right or privilege acquired by that regulation and that right or privilege may be enforced as if the expiry had not happened. Craigie cited a 1999 consultation document 'Converting the South East Queensland Water Board into a Joint State/Local Government Owned Company' which stated that the riparian rights would continue under the new structure;

(d) a letter from DNRM to irrigators in 2005 confirms that the *Water Amendment Act 2005* (which introduces the supply contract) does not affect Seqwater's obligation to supply, free of charge, up to 7,000 ML for irrigation;

(e) the supply contract itself does not have effect as -

(i) it is generic and does not specifically meet the needs of irrigators;

(ii) the requirement (as outlined in S122A of the *Water Act 2000*) that the supply contract be reviewed 1 year after taking effect, has lapsed; and

(iii) although the supply contract provides for release services, no release services are provided by Seqwater as the 6,771 ML is unsupplemented supply.

Further, J.M. Craigie (2012a) also submitted that, according to the Moreton ROP, the permitted distributions out of Wivenhoe Dam are exclusively reserved for high priority (urban and industrial) water allocations and not medium priority irrigation water allocations.

J.B. and B.L. Keller (2012a) submitted that Seqwater can have its irrigation customers take water free of charge and the foregone potential revenue of $393,400 could be absorbed either by Seqwater or the WGM, or Government. This will benefit irrigators until water usage, timings of peak demand and losses in the delivery system of the Brisbane River are better understood and substantiated. J.B. and B.L. Keller (2012a) also submitted that during consultation to finalise the Water Resource (Moreton) Plan 2007 and the Moreton ROP, irrigators sought unsuccessfully to obtain a response to their input regarding the treatment of free water.

S. and H. Sinclair (2012a) proposed that, if the Authority found agreement with Seqwater's approach to apply charges, a price path should apply with a starting price of $21.52/ML to commence in 2013-14, escalated by the consumer price index (CPI) plus $5 per annum over seven years, split 70-30 to promote water conservation. This will allow a full cost of recovery pricing structure over time and allow inactive WAE holders to commence water trading, thereby directing water to viable commercial enterprises (best and highest use) and also encourage local economic activity. In other submissions (for example, Craigie 2012a), has submitted that fixed charges should not be introduced in the absence of a properly established water trading market.

Glamorgan Vale Water Board (GVWB 2012) submitted that historically 250ML of water [classified in the Moreton ROP as High Priority A] has been received free of charge by GVWB and that the purpose of this allocation is for stock and domestic use.

Authority's Analysis

In Volume 1, the Authority recommends that pre-existing rights to free water should be maintained where they continue as part of an existing agreement or as a part of current legislation or Government policy. Neither Seqwater nor customers with a pre-existing right to free water should bear these costs.

With respect to Seqwater's proposed treatment of water currently being provided free of charge, the Authority considers that, as a general principle, were such arrangements to exist, Seqwater should:

(a) continue to meet legacy arrangements as these represent commercially agreed arrangements. In these circumstances, the costs are to be borne by Seqwater in the form of a diminished revenues; and

(b) for compensation arrangements maintain the pre-existing rights to free water where they are the result of an existing agreement or as part of a current legislative or Government policy.

However, in the context of Seqwater irrigation WSSs, the Authority notes that neither of the circumstances outlined in (a) or (b) above are currently known to apply.

With respect to claims that Seqwater cannot levy charges, the Authority notes that, under the Ministerial Direction issued under section 23 of the *Queensland Competition Authority Act 1997* (the QCA Act), the Authority has been directed to recommend irrigation prices to apply for the Central Brisbane River WSS.

The Authority has not been asked to determine whether Seqwater is legally entitled to impose and recover irrigation charges on the Central Brisbane River WSS. This is a contractual matter between Seqwater and the irrigators, in the event that the Government determines such charges should apply.

That said, the Authority's understanding of the relevant issues is outlined below:

(a) the provisions of the *Legislative Standards Act 1992* requiring any intention to adversely affect certain rights to be mentioned in explanatory notes do not invalidate any legislation if this requirement is not observed;

(b) the saving provision in the *Acts Interpretation Act 1954* that provides for the maintenance of rights or privileges that existed under legislation on the repeal or expiry of that legislation does not preserve the requirement on Seqwater to provide free water allocations – the rights of irrigators were limited to a one year duration;

(c) the 2005 letter from DNRM confirms the continuance of the practice of providing free water allocations at the time it was written. The views in that letter do not establish a legal basis for continuing free water allocations;

(d) the generic nature of the standard supply contract does not mean that the supply contract is invalid;

(e) the failure (if such failure occurred) of the parties to review the standard supply contract is an issue of non-compliance with the *Water Act 2000* and does not invalidate the standard supply contract; and

(f) as the Moreton ROP associates the reliability of the 6,771 ML of WAE with Somerset Dam, Wivenhoe Dam and related infrastructure (not natural flows), the irrigation WAE in the Central Brisbane River WSS is supplemented (that is, benefits from the water storage infrastructure).

    Costs are therefore incurred by Seqwater in maintaining the capacity and operational services to deliver the required level of reliability associated with that WAE (see further discussion of cost issues in chapters 4 and 5). In the absence of detailed levels of service, Seqwater's proposed costs are assessed against currently available information. The Authority understands that Seqwater intends to consult with irrigators to establish levels of service for this WSS.

However, it is stressed that, even if the Authority's understanding of the legal issues as to Seqwater's contractual entitlement to recover irrigation water charges is not correct, the Authority has a statutory responsibility to recommend irrigation water charges for the Central Brisbane River WSS as required by the Ministerial Direction and the preceding issues do not alter that obligation.

In response to stakeholder concerns that DNRM levies an annual water licence fee, the Authority has confirmed that no such fees apply for water allocations. However, past (and current unsupplemented) water licences may incur charges.

The suggestion by J.B. & B.L. Keller (2012a) for the Government to absorb the foregone revenue pending further review of water usage, timings of peak demand and losses in the delivery system of the Brisbane River is a matter for Seqwater and Government. The Authority proposes to proceed as directed on the basis of currently available information. The Authority also notes comment about the ROP process. This is beyond the scope of the Authority's Ministerial Direction.

The Authority notes and supports S. & H. Sinclair's submission that should irrigation water charges be applied, they should transition to [lower bound] full cost recovery over time to promote water trading and its benefits, including directing water to viable commercial enterprises and higher value uses, resulting in greater local (and regional) economic activity. The lack of a current market should not preclude its future development.

The Authority's recommended charges, including the proposed price path, from which the financial impact on individual irrigators can be discerned, are detailed in Chapter 6 below.

In response to the GVWB submission, the Authority notes that the 250ML per annum of historically free water is classified in the Moreton ROP as High Priority Class A. Given the nature of the customer base (reticulation to rural residential blocks) and the high reliability of this water, the Authority considers it is not relevant to irrigation water charges. That is, the Authority's price recommendations do not apply to this group.

In conclusion, the Authority has a statutory responsibility to recommend irrigation water charges, with any dispute over the legal right for Seqwater to impose and recover those charges being a matter for Government not the Authority.

The 6,771 ML of medium priority WAE in this WSS is supplemented by scheme infrastructure. Certain costs not related to these irrigation services have been excluded from the cost base by the Authority before the remaining costs have been allocated according to reliability of services provided. These matters are addressed in subsequent chapters.

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

In 2000-06 and 2006-13, a renewals annuity approach was used to fund asset replacement, although this did not apply to Central Brisbane River WSS where irrigation customers were not charged for water use.

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

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

(b) an asset restoration reserve (ARR) to manage the balance of the unspent (or overspent) renewals annuity (including interest). In Central Brisbane, the opening balance of the ARR is zero.

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

For WSSs, other than Central Brisbane River WSS, 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 includes direct, indirect and overhead costs (unless otherwise specified).

In the Central Brisbane River WSS, there is no carry-over ARR, and consequently, the ARR commences at 1 July 2013 with a zero balance. The key issues for the 2013-17 regulatory period for Central Brisbane WSS are:

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

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

(c) the methodology to calculate the renewals annuity.

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

The Authority notes that Seqwater has estimated that it has under management about 74 bulk water storage assets relevant to entitlement holders in the SEQ, including irrigators, local governments, industrial users and the SEQ WGM. Seqwater (2012al) submitted that asset management practices within Seqwater do 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.

Seqwater proposes to renew some of Central Brisbane WSS's assets over the 2013-17 regulatory period. Depending on their asset life, some are renewed a few times during the Authority's recommended 20-year planning period.

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

The Authority has relied on its consultant 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. These are set out in more detail in this, and other, scheme reports.

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

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

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

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

Previous Review

The previous review did not apply to the Central Brisbane River WSS and consequently there is no ARR balance to review.

Submissions

Seqwater

Seqwater (2012al) submitted that the scheme does not have a renewals expenditure history because irrigation prices have not previously been levied. Seqwater indicated that the renewals opening ARR balance as at 1 July 2013 was zero for the Central Brisbane River WSS.

Other Stakeholders

No others stakeholders made submissions regarding this topic.

Authority's Analysis

The Authority concludes that because there is no historical renewals expenditure, a comparison of forecast and actual direct renewals expenditure is not applicable for the Central Brisbane River WSS.

The Authority notes that there is currently no renewals account for Central Brisbane River WSS. Accordingly, the Authority concludes that the balance as at 1 July 2013 will, therefore, be zero as proposed by Seqwater.

4.3 Forecast Renewals Expenditure

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

Prudency and Efficiency of Forecast Renewals Expenditure

Stakeholder Submissions

Seqwater

Seqwater submitted a summary of the significant proposed renewals expenditure items for the Central Brisbane River WSS as presented in **Table 4.1**.

Table 4.1: Forecast Renewals Expenditure 2013-17 (Real $'000)

Facility	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Wivenhoe Dam	0	120	195	35
Somerset Dam	170	120	60	140
Total	**170**	**240**	**255**	**175**

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

Significant items in the 2013-17 period are:

(a) Wivenhoe Dam – replacement of baulk seals on electrical winches - $100,000 in 2014-15;

(b) Wivenhoe Dam – repainting of trash screens - $80,000 in 2015-16;

(c) Wivenhoe Dam – refurbishment and replacement of cone valve seals - $100,000 in 2015-16;

(d) Somerset Dam – repainting of spillway crest gates, $75,000 in 2013-14 and $50,000 in 2014-15;

(e) Somerset Dam – replacement of electric winch motor and brake – spillway crest gates - $60,000 in 2016-17;

(f) Somerset Dam – repainting of spillway sluice gates - $75,000 in 2013-14 and $50,000 in 2014-15 ; and

(g) Somerset Dam – replacement of electric winch motor and brake – spillway sluice gates - $60,000 in 2016-17.

Additional major expenditure items from 2016-17 onwards are:

(a) refurbishment of gantry crane at Somerset Dam costing $3,000,000 in 2025-26; and

(b) refurbishment of structural walls, columns and beams of outlet works at Somerset Dam costing $3,250,000 in 2025-26.

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

Other Stakeholders

QFF (2012) questioned whether any renewals projects at Wivenhoe and Somerset dams in 2012-13 and 2013-14 included flood related costs.

Stakeholders variously submitted that:

(a) planned renewals expenditure associated with Somerset and Wivenhoe dams does not relate to irrigation but rather flood control and domestic supply (J. Craigie, Riverside Farming and MBRI, 2012); and

(b) the inclusion of both Wivenhoe and Somerset Dam renewals is incorrect as water volumes cannot be stored twice. Removal of Somerset Dam would make no difference to supply reliability for irrigators (Rivermead Pty Ltd., 2012).

J. Craigie (2012a) submitted that Somerset Dam is infrastructure associated with the Stanley River WSS, not the Central Brisbane River WSS.

Authority's Analysis

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

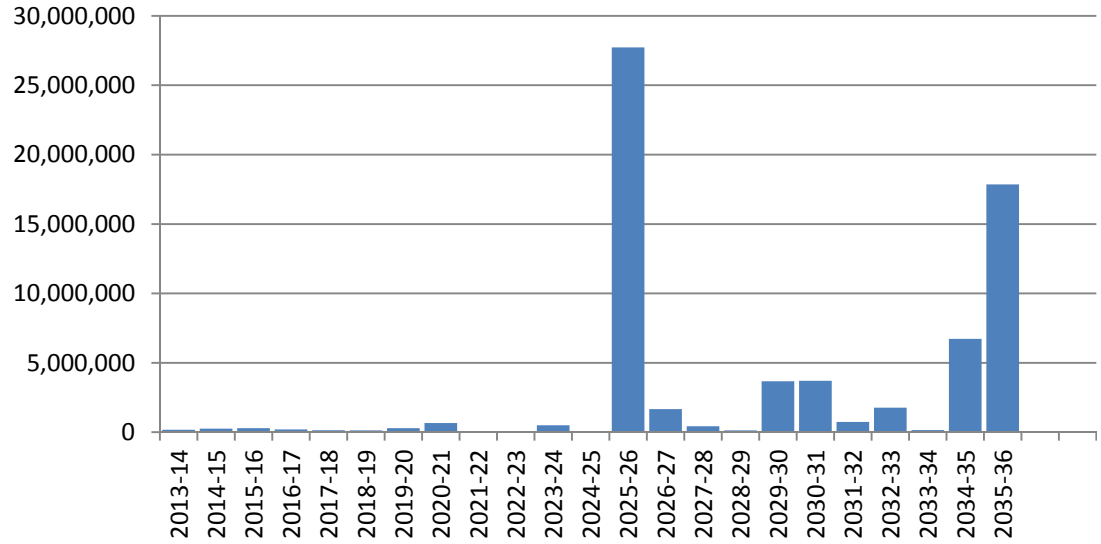
SKM concluded that although Seqwater may not currently have good asset condition information due to the lack of condition information transferred from previous operators, the policies and procedures Seqwater has adopted to assess the condition of its assets will rectify this situation over time. Accordingly, SKM 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 Central Brisbane River WSS is shown in **Figure 4.1**. The Authority has identified the direct cost component of this expenditure, which is reviewed below. The indirect and overheads component of expenditure relating to these items is reviewed in Chapter 5 – Operating Costs.

Figure 4.1: Forecast Renewals (Direct) Expenditure 2013-36 (Nominal $)



Source: Seqwater (2012as).

In response to the QFF's (2012a) query whether flood related costs were included in forecast renewals expenditure, Seqwater has confirmed (and the Authority has verified) that irrigation renewals forecasts exclude any expenditure arising from the January 2011 floods. Seqwater also submit that costs associated with any flood related damage are to be recovered, not from customers, but from Seqwater's insurer.

In response to stakeholders' submission regarding renewals expenditure relating exclusively to non-irrigation activities (and that Somerset Dam in particular contributes nothing to irrigator's reliability), the Authority notes the provisions of the Moreton ROP. Specifically, the Moreton ROP describes announced allocations for the Central Brisbane River irrigation (that is, MP WAE) being conditional on the combined useable volumes of Somerset and Wivenhoe dams. This provision confirms that the headworks of Somerset and Wivenhoe dams are required in supplementing water for the purpose of irrigation.

In response to J. Craigie's (2012a) submission that the assets of Stanley River WSS are not to be included in Central Brisbane River WSS, as discussed previously in section 1.2 the Authority accepts that the Moreton ROP combines the Central Brisbane River WSS (which include Wivenhoe Dam) with the Stanley River WSS (which includes Somerset Dam) for the purpose of defining water sharing rules and underpin the water supply reliability (and associated costs) of the Central Brisbane River WSS). Therefore, consistent with the Ministerial Direction, for the purpose of pricing, these costs are included in the Central Brisbane WSS.

Item Reviews

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

Items reviewed included:

(a) a specific item sampled in the Central Brisbane River WSS (Item 1); and

(b) items reviewed in other WSSs where the conclusions were considered by SKM to be appropriate for application to the Central Brisbane WSS (Items 2 to 4).

Item 1: Somerset Dam - Inlet and Outlet Works

Seqwater

Seqwater submitted that this renewals item is scheduled to occur in 2025-26 and involves the refurbishment of structural walls, columns and beams at Somerset Dam at a cost of $3,250,000.

Other Stakeholders

No other stakeholders made comment regarding this item.

Consultant's Review

Project Description

The Somerset Dam inlet screen structures comprise two reinforced concrete structures that are approximately 35 metres high, 16 metres wide and eight metres proud of the upstream face of the dam. They are located in front of the cone valve inlets. The structures are fully submerged when the dam is at full capacity.

The scope of refurbishment will depend on the nature of the deterioration when the project is carried out and could range from refurbishment of the concrete surfaces through to replacement of the structure. Refurbishment will require detailed options analysis conducted due to the complex nature of the work. Methodology options may include timing the work to coincide with low dam levels, draining the dam to provide dry access, undertaking the work using industrial divers or constructing coffer structures.

SKM is not aware of any component of the costs being attributed to damage from the 2010-11 floods.

Project Status

Expenditure is scheduled for 2025-26. In the Seqwater Asset Delivery Framework, the Concept and Feasibility stage is classified as pre-implementation, meaning prior to the preliminary design. SKM considered the current position of the project in the Seqwater Asset Delivery Framework as appropriate given the value and timing of this renewals project.

Documentation available included asset valuation and condition assessments undertaken by consultants Cardno in 2010. SKM considered the level of documentation available to be consistent with the current position of the project.

Provided Documentation

The documents used for this review are:

(a) Information Request Response – QCA Irrigation Price Review 2013-17: RFI010 Somerset Dam – Trash Screen Structures, Seqwater, 10 August 2012; and

(b) Valuation of Dams & Weirs as at June 2010, Cardno, July 2010.

Prudency

Seqwater identified the inlet screen structures as essential to the safe operation of Somerset Dam as they house the trash screens which protect the outlet structures from fouling with debris. The upkeep of the inlet screen structures is relevant to obligations with respect to dam safety regulatory requirements given Somerset Dam is a reportable dam in accordance with the provisions of the *Water Safety (Safety and Reliability) Act 2008*.

As the project is not due to be implemented until 2025-26, it is currently at the concept phase. Seqwater has indicated that a formal condition assessment and detailed options analysis is scheduled to be completed more contemporaneously with the expected end of the asset life in the Validation and Planning phase of Seqwater's Asset Delivery Framework. SKM considered that the replacement of an asset based on the results of an adequate condition assessment and options analysis represent good industry practice.

SKM recommended that Seqwater undertakes a condition assessment and options analysis, prior to the implementation of the project as proposed.

Timing of asset replacement or refurbishment

The Somerset Dam, including the inlet screen structure was constructed in 1955, and hence is currently 57 years old. The renewal of the inlet structure is based on a 70 year asset life, which aligns to the planned renewal in 2026-27.

Seqwater's standard useful asset life for dam civil infrastructure is 200 years. However, within the Valuation of Dams & Weirs report (Cardno, 2010) a specific asset life of 70 years has been used for the Somerset Dam Inlet Structure.

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

The inlet structure is below the water line on the upstream face of the dam. Hence, the structure is not readily accessible for inspection and condition assessment. Seqwater noted in its response to SKM's requests for information that condition assessment will be undertaken prior to the proposed construction works.

SKM understood the timing for the works is largely determined by the remaining asset life. Seqwater advised that the timing of the works would coincide with the date of regulated upgrade of the dam, set for 2025. The regulatory upgrade is likely to require major upgrade to the downstream protection works of the dam. Combining the refurbishment of inlet structure and the regulated upgrade is likely to provide cost efficiencies for the construction works.

In SKM's opinion, relying on a specified asset life to program refurbishment is cursory. The asset life of a concrete structure predominantly submerged in water will depend on a range of factors including concrete mix design, the depth of cover to reinforcement (how far from the surface of the concrete the reinforcing bars are), wetting and drying cycles, and the salinity of the water. SKM's recommended approach, generally, is to use prescribed condition assessments and risk of failure of a particular asset to inform the need and timing of asset refurbishment.

SKM noted that whilst the exact scope of work is yet to be fully defined, if replacement of the inlet is required, dry working conditions is highly preferable. Using divers or submersibles for construction could prove impracticable and would increase costs. Hence, taking the opportunity to complete the work at the same time as the regulatory upgrade, (when water levels are likely to be lower) would lead to cost savings.

Efficiency

The minimum practical requirements for the inlet screen structure include the capability to prevent debris from entering the dam inlet under all conditions. If debris were to become lodged in the inlet structure this may prevent Seqwater from opening and closing the cone valves, which are the primary means of conveying water downstream. The specific standards will depend on the exact scope of works (e.g. refurbishment versus replacement).

The project cost is based on the replacement of the asset as noted in Valuation of Dams & Weirs report (Cardno, 2010). A breakdown of this cost was not available. However, the Cardno report states that the valuation methodology was based on numerous factors including asset registers, drawings, data books, condition reports, site inspections and recent contract and estimation data.

SKM prepared a comparative cost estimate as shown in **Table 4.2**.

Table 4.2: SKM's Comparative Cost Estimate

	Item	***Cost***
Direct Costs[2]	Design (Civil)	320,000
	Contractor Preliminaries and Site Establishment	60,000
	Supply and Construct (coffer dam around each inlet structure)	1,248,000
	Demolition	42,000
	Supply and Construct (new concrete inlet structure)	144,000
	Supply and Construct (allowance for modification/fitting of inlet screens)	130,000
Indirect Costs	Approvals and Procurement (20%)	389,000
	Risk (20%)	389,000
	Supervision	150,000
	Project Management Costs	50,000
	Total	**$2,922,000**

Source: SKM (2012).

SKM's comparative cost estimate includes a contingency allowance that reflects the unknown items at this stage of the project. The SKM cost estimate has an allowance for risk of 20%. Undertaking construction works on the upstream face of a dam attracts significant risks, specifically: latent conditions, potential flooding and geotechnical issues.

SKM noted that risk and contingency have not been included within other comparative cost estimates. In SKM's opinion it is good engineering practice (as represented by the Association of Advancement of Cost Engineering International) for these items to be included in cost estimates given that the level of project definition is very low at this stage. As further studies, optioneering and investigations are completed by Seqwater it is expected that risk and contingency sums will reduce.

[2] A contingency allowance of approximately 30% has been built into direct costs.

As previously stated, cost savings could be achieved if the works are undertaken at the same time as the regulated upgrade of the dam, when the lake level is lower. However, these works will be undertaken on the upstream side of the dam and it would be necessary to protect the works with a coffer dam (temporary earth dam) around each inlet, in the event of flooding.

The Seqwater estimate for the project is within 30% of the SKM's estimates and is therefore considered efficient.

Conclusion

The operation of Somerset Dam is required to operate the Central Brisbane River WSS and fulfil legal requirements. SKM considered the timing of works is accurate and scope of works is reasonable for this level of project definition.

In addition, the standards of work and project costs are considered accurate.

Accordingly, SKM considered that Seqwater's revised cost estimate of $3,251,000 is prudent and efficient.

Authority's Analysis

The Authority accepts SKM's recommendation that the proposed expenditure is prudent and efficient.

Item 2: Telemetry – Wivenhoe Dam

Seqwater

Seqwater submitted that this renewals item is scheduled to occur in 2031-32 at a cost of $282,000.

Other Stakeholders

No other stakeholders made comment regarding this item.

Consultant's Review

SKM reviewed directly two similar proposed telemetry projects – namely, telemetry at Cedar Pocket Dam (of the Cedar Pocket Dam WSS) and at Bromelton Weir (of the Logan River WSS). In both reviews, SKM considered the proposed expenditure to be prudent and efficient.

SKM was requested to indicate whether the conclusions for the reviewed telemetry items could be applied to the Wivenhoe Dam example. However, SKM reported that the Central Brisbane River WSS project relates to Wivenhoe Dam and Seqwater's estimated cost ($282,000) indicates the work is on a scale not comparable to that at Cedar Pocket Dam ($34,000) or Bromelton Weir ($35,000).

Therefore, SKM considered it impractical to consider the application of the results of the two directly reviewed telemetry projects to that proposed at Wivenhoe Dam.

Authority's Analysis

The Authority notes the outcome of the SKM review that the results of the two directly reviewed telemetry projects cannot be considered for application to the Central Brisbane River WSS.

Item 3: Trash Screen Projects

Seqwater

Seqwater submitted that these renewals items are for:

(a) refurbishing the trash rack at Wivenhoe Dam in 2015-16 at a cost of $80,000;

(b) replacing spares in a sand blasting shed at Somerset Dam in 2025-26 at a cost of $175,000; and

(c) replacing trash screens at Somerset Dam in 2025-26 at a cost of $1,399,000.

Other Stakeholders

No other stakeholders provided comment regarding these items.

Consultant's Review

SKM reviewed in detail a similar trash screen refurbishment project in the Clarendon Diversion (of the Central Lockyer WSS). Given project similarities, SKM considered applying the results of this review to other trash screen projects proposed by Seqwater (including those at Somerset Dam and Wivenhoe Dam).

Prudency and Efficiency

SKM concluded that the proposed periodic refurbishment of corrosion protection on the Clarendon Diversion trash screens to be prudent and efficient.

However, SKM noted that the trash screen projects proposed by Seqwater range significantly in cost. As an example, trash screens at Clarendon Diversion are forecast to be $45,000 while for Somerset Dam the total cost is $1,574,000. In addition, there are a number of variables including design, size, location (that is, pump station, weir, dam), site

specific conditions (such as flow of creek/river/dam) and whether the renewals expenditure is for replacement or refurbishment.

Therefore, SKM considered it impractical to apply the findings of the Clarendon Diversion trash screens review to determine the prudency and efficiency of the proposed trash screen expenditure associated with the Central Brisbane River WSS.

Authority's Analysis

The Authority notes the outcome of the SKM review that the proposed expenditure associated with Item 3, cannot be considered prudent or efficient on the information provided by Seqwater.

Item 4: Metering

Seqwater

It is the Authority's understanding that Seqwater consider that there are four issues associated with metering Central Brisbane River WSS irrigators – namely:

(a) where meters are currently in place, ensuring that meters meet an acceptable standard and installation has been undertaken in an appropriate manner (such as consistent with manufacturers' instructions and in accordance with Seqwater's Workplace Health & Safety obligations). Costs associated with -

  (i) checking existing meters, constitute direct (repairs and maintenance) operating costs and are reflected in Seqwater's proposed tariffs outlined in the NSP; and

  (ii) replacing meters to meet an acceptable standard, are *not* recovered by tariffs outlined in the NSP;

(b) where meters are currently not in place, installing new (first time) meters in an appropriate manner. Seqwater have submitted that these costs are not recovered by the tariffs outlined in the NSP;

(c) the practicalities (and relative benefits and costs) of installing (and regularly reading) meters where irrigators have relatively modest nominal WAE; and

(d) the replacement of meters at the end of their 10 year economic lives.

Other Stakeholders

QFF (2012) submitted that if costs to meet national metering standards are eventually to be introduced and recovered as an end of period adjustment, what steps will be taken to assess the relative costs and benefits of implementing these standards?

Irrigators variously submitted that:

(a) the costs incurred by irrigators to address damage caused by the 2011 floods has made them reluctant to accept any cost increases relating to the installation/replacement of water meters (IA Central Brisbane River and Lowood and District Golf Club, 2012);

(b) irrigators are concerned that metering costs (up to $9,000 to install a new meter to meet new national metering standards) may not be justified given the relatively modest WAE (in some instances 10 ML) held by some irrigators (IA Central Brisbane River and District Golf Club 2012);

(c) having a modest variable (Part B) tariff leads to the dilemma of justifying expenditure associated with installing/replacing meters (particularly a meter that complies with the national metering standard) (IA Central Brisbane River 2012); and

(d) irrigators are seeking Government and/or Seqwater policy regarding (IA Central Brisbane River 2012) -

(i) what standard of meter will be implemented (equivalent to the current standard or the higher national meter standard);

(ii) what is the timeframe for meter installation; and

(iii) what alternative funding arrangements are available.

In addition, J.B. & B.L. Keller (2012) submitted that the only costs irrigators should be responsible for are meter reading and billing, subsequent to them being installed. Installation should not be a cost borne by irrigators.

Consultant's Review

SKM reviewed in detail metering associated with other schemes. The results of this review were considered for application to the Central Brisbane River WSS. However, because Seqwater had not developed a metering business case specific to Central Brisbane River WSS, the results could not be applied.

Authority's Analysis

Seqwater has not submitted an estimate of replacing meters that have been assessed as not being of an acceptable standard. Seqwater's new (first time) metering costs in the Central Brisbane River WSS have also not been submitted to the Authority. The Authority understands that a business case specific to Central Brisbane River WSS (identifying how many meters to install and the associated costs to be recovered) has not yet been finalised by Seqwater.

As a consequence, the Authority's consultant SKM could not review new or replacement meters.

In response to Seqwater:

(a) the Authority notes that costs will be incurred in checking existing meters to ensure installation is appropriate. The Authority considers these to be genuine direct operating costs recovered through tariffs. Where existing meters are to be replaced due to not meeting an acceptable standard, the Authority notes that these costs are not reflected in the NSP and that Seqwater is considering options for their recovery. The Authority considers that if existing meter replacement costs were to be passed on to irrigators, then this should be done through the renewals annuity program, consistent with other WSSs;

(b) as Seqwater currently has no metering business case for Central Brisbane River WSS that identifies the number of existing meters to be replaced (due to not meeting an acceptable standard) and the installation of new (first-time) meters, the Authority has, at this stage, allowed zero costs for replacement/new meters (this impacts proposed metering costs – refer (d) below);

(c) the Authority notes that Queensland is signatory to the National Water Initiative (NWI), which seeks metering to be undertaken in circumstances that include:

(i) for entitlements identified in a water planning process as requiring metering; and

(ii) where WAE are traded.

As the Moreton ROP allows for WAE in the Central Brisbane River WSS to be traded, a case can be made that where individual irrigators are buying (no necessarily selling) WAE then the buyer should be metered. Currently, for this reason, Seqwater may not approve a trade where the buyer is not metered. In general the Authority supports such an approach (in relation to the WAE buyer).

However, the Authority is also mindful of the need for expenditure to be warranted (prudent and efficient). The Authority, therefore, considers that Seqwater should develop and provide for consultation a policy on which customers require new meters. This policy should include consideration of the relative costs and benefits (along with the practicalities of installing and reading meters), particularly where irrigators have modest nominal WAE[3] and/or no pumping infrastructure. The Authority notes from issues arsing from Round 1 consultation that certain irrigators lost such infrastructure during the 2010-11 floods and (for various reasons) have not re-established the capacity to take water. Such irrigators should not, in the Authority's view, be required to install meters until irrigation (pumping) recommences (if ever);

(d) in addition, the Authority notes in Seqwater's irrigation pricing model (but not the NSPs), that Seqwater has assumed up to 85 meters (at $1600 per meter) will be replaced at a cost of $136,000 (real) from 2022-23 to 2036-37. This high number of replacements reveals Seqwater's current (implicit) assumption about the number of meters currently in place and, particularly, new meters it will have installed prior to 2022-23. However, for the reasons outlined above, the Authority recommends that this cost be reduced to zero as no consideration has been given to how many meters currently, or will ultimately, exist. To allow replacement costs of this extent at this time would pre-empt any such review by the Authority.

If Seqwater were to submit a metering business case specific to Central Brisbane River WSS as part of comments provided on the Authority's Draft Report, it may be in Seqwater's interests to note that the Authority has accepted SKM's recommendation that the economic life of a meter is not 10 years (as proposed by Seqwater) but rather 15 years.

In response to the stakeholder submissions, the Authority notes that:

(a) any costs being proposed by Seqwater to comply with national metering standards are *not* to be included in prices; and

(b) given that expenditure associated with metering needs to be prudent and efficient, a policy associated with the installation of new (first time) meters and the replacement of existing meters (to meet an acceptable standard), is to be established by Seqwater in consultation with customers. This policy is to address those issues of concern to irrigators which includes:

[3] Several irrigators have nominal WAE of one and two ML.

(i) establishing a rationale (potentially based on the relative costs and benefits) for installing meters where there is modest WAE;

(ii) establishing an appropriate timeframe for meter installation/replacement; and

(iii) considering funding options (including the practicalities of Government providing a CSO).

Conclusion

Sampled Items

In summary, one item was sampled for detailed review (that is, the inlet and outlet works at Somerset Dam) and found to be prudent and efficient.

Three other reviews undertaken by SKM in other schemes were considered for application to the Central Brisbane River WSS.

While proposed expenditure on telemetry at Cedar Pocket Dam (of the Cedar Pocket Dam WSS) and at Bromelton Weir (of the Logan River WSS) were found by SKM to be prudent and efficient, SKM's conclusions could not be translated to Central Brisbane WSS.

In addition, while proposed expenditure on refurbishment of corrosion protection on the Clarendon Diversion trash screens (of the Central Lockyer WSS) was found by SKM to be prudent and efficient, SKM's conclusions could not be translated to Central Brisbane WSS.

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

Non-Sampled Forecast Renewals Expenditure

As discussion in Volume 1, due to time limitations, the Authority was unable to comprehensively review all past or forecast renewals expenditure for prudency and efficiency. Accordingly, the Authority drew on the results of consultant reviews, as detailed below.

The direct (non-metering) forecast renewals cost savings identified by SKM are summarised in Table 4.3.

Table 4.3: Summary of SKM Findings on Forecast (Non-Metering) Renewals

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

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

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

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

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

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

In total, the Authority recommends the direct renewals expenditure be adjusted as shown in **Table 4.4**.

Table 4.4: Review of Forecast (Direct) Renewals Expenditure 2013-37 (Real $'000)

	Item	*Year*	*Seqwater*	*Authority's Findings*	*Recommended*
Sampled Items					
1.	Inlet and Outlet Works	2025-26	3,251	Prudent and efficient	3,251
Results Applied from Other Reviews					
2.	Wivenhoe Dam - Telemetry	2031-32	282	Results could not be applied to assess prudency or efficiency	245
3.	Trash Screens Projects	2015-16	80	Results could not be applied to assess prudency or efficiency	70
		2025-26	175	Results could not be applied to assess prudency or efficiency	152
		2025-26	1,399	Results could not be applied to assess prudency or efficiency	1,217
4.	Metering	various	136	Not prudent.	0
Non-Sampled Items					13% saving applied

Source: QCA (2012).

4.4 Seqwater's Consultation with Customers and Reporting

Submissions

Seqwater

Seqwater made no submission regarding this topic.

Other Stakeholders

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

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

(a) Seqwater's current consultation agenda;

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

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

Authority's Analysis

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

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

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

4.5 Allocation of Headworks Renewals Costs

Previous Review

Because no charges applied to the 6,771 ML of medium priority WAE made available for irrigation during the 2006-11 price path, there was no need to apportion renewals costs between medium priority and high priority WAE.

However, given Seqwater intends to levy tariffs as of 1 July 2013, there is now a requirement that a methodology be established.

Stakeholder Submissions

Seqwater

For the 2013-17 regulatory period Seqwater proposed that renewals and maintenance costs for bulk water infrastructure be apportioned in accordance with the headworks utilisation factor (HUF), which is a hydrological assessment of the percentage of utilisable storage dedicated to each entitlement/priority group. Specifically, the HUF methodology takes into account water sharing rules, critical water sharing arrangements (CWSAs) and other operational requirements that typically give high priority entitlement holders exclusive access to water stored in the lower levels of storage infrastructure.

This methodology, discussed in detail Volume 1, can be summarised as follows:

Step 1: Identify the water entitlement groupings for each scheme and establish which groups are to be considered as high priority (HP) and medium priority (MP).

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

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 high priority; the middle layer, which is effectively reserved for medium priority; and the top layer, which is shared between the medium and high priority groups.

Step 4: Assess the hydrological performance of each headworks' storage using Integrated Quantity and Quality Models to determine the probabilities of each component of headworks storage being accessible to 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. The calculations have been based on 10, 15 and 20 year drought periods for comparative analysis.

The results of applying this methodology are outlined below in **Table 4.5**.

Table 4.5: Summary of HUF Methodology

Drought Period	*Drought Period With Minimum Inflows*		*Drought Period Without Minimum Inflows*	
	Medium Priority (%)	*High Priority (%)*	*Medium Priority (%)*	*High Priority (%)*
10 year	67	33	71	29
15 year	69	31	71	29
20 year	69	31	69	31

Source: Parsons Brinckerhoff (2012).

However, engineering consultants Parsons Brinckerhoff (PB), commissioned by Seqwater to calculate a HUF percentage for each scheme, found that a strict application of this methodology resulted in a perverse outcome for the Central Brisbane River WSS. As an example, as outlined above in **Table 4.5**, the HUF for medium priority represents 69% even though urban supply accounts for approximately 98% of WAE.

As a result, PB suggested an alternative, "adjusted HUF" calculation methodology which takes into account the ratio between medium priority customers (equivalent to 7,041 ML of WAE) and high priority customers (equivalent to 279,000 ML of WAE) adjusted for the level of useable volume where MP announced allocations are zero. Accordingly, PB proposed the following:

$$\left(\frac{7{,}041}{279{,}000}\right) \times (100 - 14.9) = 2.1$$

Accordingly, Seqwater's proposed allocation of renewals and maintenance costs to MP customers in the Central Brisbane River WSS is the "adjusted HUF" of 2.1%.

Other Stakeholders

QFF (2012) submitted that the HUF assessment to allocate renewals for Central Brisbane needs urgent peer review, particularly the interpretation of the application of water allocation security objectives (WASOs).

Authority's Analysis

The Authority notes Seqwater's submission that the initial HUF calculated by PB has resulted in a perverse outcome for the Central Brisbane River WSS.

The Authority has also reviewed Seqwater's alternative "adjusted HUF" methodology provided by PB which is based on the single trigger of 14.9% of useable volume corresponding with MP allocations being reduced to zero. The Authority notes, however, that the Moreton ROP prescribes a range of triggers which represent a progressive reduction in MP allocations once the useable volumes in Somerset and Wivenhoe dams reach less than 50% (**Table 4.6** refers).

Table 4.6: Useable Volume Scenarios & Corresponding Announced Allocations

Useable Volume in Storage of Wivenhoe and Somerset dams (%)	*Announced Allocation for MP WAE (%)*
0 to 14.9	0
15 to 24.9	15
25 to 29.9	25
30 to 34.9	40
35 to 39.9	55
40 to 44.9	70
45 to 49.9	85
50 to 100	100

Source: DERM (2009a).

The Authority notes that, as outlined in **Table 4.6**, announced allocations associated with MP are reduced progressively over a range of useable volume scenarios and not just when the less than 15% trigger is met.

Accordingly, the Authority considers that a more appropriate approach would be to include reference in the HUF calculation to this range of scenarios (i.e. the announced allocations for irrigation users can be reduced progressively once storage levels fall below 50%).

Therefore, the Authority has adopted an amended factor of 35% which represents the median restrictions category between the 50% (which triggers the commencement of reducing MP announced allocations) and the 14.9% (which triggers zero MP announced allocations). Applying PB's "adjusted HUF" methodology with the Authority's median, the following is proposed:

$$\left(\frac{7{,}041}{279{,}000}\right) \times (1.00 - 0.35) = 1.6$$

Accordingly, the Authority considers that if the more detailed water sharing rules outlined in the Moreton ROP are taken into account, the allocation to irrigators would be 1.6%.

The Authority notes submissions by stakeholders:

(a) seeking peer review of the HUF methodology (including the application of WASOs) being proposed by Seqwater; and

(b) questioning whether Seqwater has a genuine methodology that identifies costs incurred by irrigators.

In response, the Authority has reviewed the results of Seqwater's initial HUF and "adjusted HUF" approaches and has concluded that both of these approaches are deficient. The Authority considers that its recommended approach is sound (from theoretical and practical perspectives) and takes into account announced allocation reductions and cut-offs detailed in the ROP.

4.6 Calculating the Renewals Annuity

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

For the Central Brisbane River WSS the recommended renewals annuity for the 2013-17 regulatory period is shown in **Table 4.7**. Seqwater's proposed annuity for 2013-17 is also presented for comparison.

Table 4.7: Central Brisbane River WSS Renewals Annuity (Nominal $)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Seqwater (April)	**-**	**1,188,593**	**1,191,679**	**1,292,517**	**1,559,178**
Seqwater (November)	**-**	**1,030,900**	**1,031,781**	**1,107,854**	**1,459,661**
Authority					
High Priority	-	1,047,802	1,035,870	1,121,900	1,565,521
Medium Priority	-	17,037	16,843	18,242	25,456
Authority Total	**-**	**1,064,840**	**1,052,713**	**1,140,142**	**1,590,977**
Irrigation		16,384	16,198	17,543	24,479

Source: Seqwater (2012c), Seqwater(2012al) and QCA (2012).

5. OPERATING COSTS

5.1 Background

Ministerial Direction

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

Issues

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

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

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

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

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

(e) the most suitable cost escalation rates; and

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

5.2 Historical Operating Costs

Previous Review 2006-11

The 2006-11 price paths were recommended by SunWater after consultation with irrigators during 2005-06. The Queensland Government subsequently approved those prices. The price paths however, did not apply to the Central Brisbane River WSS.

Submissions

Seqwater

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

Authority's Analysis

The Authority notes that as the scheme was not part of the 2006-11 price path review, there are no previously anticipated cost savings to be taken into account. However, the Authority noted the efficiency targets imposed by the Minister for Energy and Water Supply for the 2012-13 Grid Service Charges and these have been taken into account in the ensuing analysis. Details are in Volume 1.

5.3 Forecast Total Operating Costs

Operating Cost Characteristics

Operating activities

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

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

(b) customer service and account management;

(c) operating and maintaining recreational facilities; and

(d) complying with

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

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

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

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

Operating cost classifications

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

Direct Costs

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

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

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

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

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

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

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

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

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

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

(c) other (direct) costs including:

(i) local government rates payable on Seqwater's land including storages; and

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

Seqwater also disaggregates 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 activities[4];

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

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

Non-Direct Costs

Non-direct costs are classified by type of expenditure:

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

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

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

[4] 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).

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

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

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

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

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

Forecast Operating Costs

Seqwater

Seqwater submitted forecast total operating costs by activity in Central Brisbane River WSS (all sectors).

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

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

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

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

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

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

(a) an original version in April 2012; and

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

This comparison shows that the total costs for the scheme are about 4.6% lower than originally proposed.

Table 5.1: Seqwater's Forecast Operating Costs for the 2012-13 Base Year (Nominal $)

	April NSP	*November NSP*	*Variance*
Direct Operating Costs			
Operations			
Labour	3,022,176	2,967,000	(55,176)
Contractors	751,000	726,000	(25,000)
Materials	381,012	400,498	19,486
Electricity	262,500	271,426	8,926
Other	842,247	834,867	(7,380)
Sub-Total	**5,258,936**	**5,199,791**	**(59,145)**
Repairs and Maintenance			
Planned	1,361,678	1,516,082	154,404
Unplanned	556,178	619,245	63,067
Sub-Total	**1,917,856**	**2,135,327**	**217,471**
Dam Safety	0	0	0
Rates	689,204	689,204	-
Total Direct Operating Costs	**7,865,997**	**8,024,322**	**158,325**
Non Direct Operating Costs			
Operations			
Water Delivery	768,718	754,809	(13,910)
Asset Delivery	343,191	371,802	28,611
Corporate	2,746,483	2,330,751	(415,732)
Other	2,865,097	2,444,654	(420,444)
Sub-Total	**6,723,490**	**5,902,015**	**(821,475)**
Non-Infrastructure Asset	341,969	361,404	19,435
Insurance	781,253	691,425	(89,828)
Working Capital	128,926	128,926	0
Total Non-Direct Operating Costs	**7,975,638**	**7,083,770**	**(891,868)**
Total Operating Costs	**15,841,634**	**15,108,092**	**(733,542)**

Source: Seqwater (2012c) and Seqwater (2012al).

Details submitted by Seqwater of the direct and non-direct operating expenditure forecasts for the Central Brisbane River WSS by activity are provided in Table 5.2, based on the November NSP.

Table 5.2: Seqwater's Operating Expenditure by Activity – Central Brisbane River (Nominal $'000)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Direct					
Operations	5,199.8	5,391.2	5,589.8	5,796.0	6,010.0
Repairs and Maintenance	2,135.3	2,220.7	2,309.6	2,402.0	2,498.0
Dam safety	0	0	0	53.8	0
Rates	689.2	706.4	724.1	742.2	760.8
Non-Direct					
Operations	5,902.0	6,049.6	6,200.8	6,355.8	6,514.7
Non-Infrastructure	361.4	370.4	379.7	389.2	398.9
Insurance	691.4	708.7	726.4	744.6	763.2
Working Capital	128.9	132.1	135.5	138.8	142.3
Total	**15,108.1**	**15,579.2**	**16,065.9**	**16,622.4**	**17,087.9**

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

The total operating costs by type are detailed in Table 5.3 for the Central Brisbane River WSS.

Table 5.3: Seqwater's Operating Costs by Type, Central Brisbane River WSS (Nominal $'000)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Labour	2967.0	3085.7	3209.1	3337.5	3471.0
Contractors and Materials	1126.5	1171.6	1218.4	1267.2	1317.8
Electricity	271.4	278.2	285.2	292.3	299.6
Others	834.9	855.7	877.1	899.1	921.5
Planned Repairs and Maintenance	1,516.1	1,576.7	1,639.9	1,705.4	1,773.6
Unplanned Repairs and Maintenance	619.2	644.0	669.8	696.6	724.4
Dam Safety	0	0	0	53.8	0
Rates	689.2	706.4	724.1	742.2	760.8
Non-Direct	7083.8	7260.9	7442.4	7628.4	7819.2
Total	**15,108.1**	**15,579.2**	**16,065.9**	**16,622.4**	**17,087.9**

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

Other Stakeholders

Other stakeholders submitted as follows:

(a) irrigators provide benefit to riparian areas through spraying noxious weeds, cleaning river banks and general maintenance of waterways. This improves and maintains the quality of water and therefore reduces Seqwater's costs (B.M. Bernitt 2012 and C.D. Summerville 2012, J. Harris 2012, GRASSCO 2012);

(b) Seqwater cannot identify any costs of any service that they supply to irrigators, and irrigators have no need for the infrastructure or higher water quality. Seqwater cannot measure irrigation use as it is lost in environmental flow estimations (S. & H. Sinclair 2012b, J.B. & B.L. Keller, GRASSCO, Riverside Farming Pty Ltd (RFPL) and MBRII, 2012);

(c) costs attributed to irrigators should be limited to the provision, maintenance and monitoring of water meters and minimal bookkeeping costs associated with the rendering of accounts. Irrigators can save Seqwater money by reading meters themselves and reporting the volume taken each quarter (J.B. & B.L. Keller 2012a, S & H. Sinclair 2012b, Rivermead Pty Ltd (RPL) 2012a). Meters that conform to proposed new national standards are not warranted due to the cost difference involved (Lowood Golf Club 2012); and

(d) Seqwater has provided insufficient data on water use and costs for the Authority to conduct adequate analysis, and a benchmarking analysis against other rural schemes should be carried out (J.B. & B.L. Keller 2012).

Stakeholders had a number of specific comments on operating costs which are detailed in the following sections.

Authority's Analysis

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

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

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

The key issue in reviewing irrigator's costs in the Central Brisbane River WSS is the method of cost allocation between irrigation and other sectors. Given the dominance of the non-irrigation sector, the cost sharing is very sensitive to changes in cost allocation methods. This is further reviewed below.

In response to concerns raised by other irrigators, the Authority:

(a) recognises the contribution of irrigators in reducing the operating costs that would otherwise be incurred in operating and maintaining irrigation schemes, particularly in regard to stream bank management. However, such activities are generally performed by irrigators as part of their on-farm management in any case, and it is not feasible to quantify this as a cost offset;

(b) does not agree that the infrastructure provided by Seqwater is of no benefit to irrigators. As noted previously, the Moreton ROP describes announced allocations for the Central Brisbane River irrigation (that is, MP WAE) being conditional on the combined useable volumes of Somerset and Wivenhoe dams. This provision confirms that the headworks of Somerset and Wivenhoe dams are required in supplementing water for the purpose of irrigation;

(c) the cost to irrigators is related to the priority of supply which in some cases results in a relatively small share of the total costs involved;

(d) notes that Seqwater is required by regulation to carry out meter reading. Moreover, the costs associated with any proposed national metering standard is excluded from this review by the Ministerial Direction; and

(e) recognises that a number of data issues have arisen during the investigation. The Authority notes that while separate irrigation cost data are not easily available for the 2006-11 period (the equivalent of the previous price path), irrigators have not been charged for their use of water in this period. The Authority has proceeded on the basis of readily available information and water use assumptions as detailed further below.

The Authority agrees that a more effective consultation process between Seqwater and irrigators should be established, and has recommended accordingly.

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

5.4 Prudency and Efficiency of Direct Operating Costs

Introduction

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

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

Stakeholder Submissions

Seqwater

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

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

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

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

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

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

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

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

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

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

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

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

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

Seqwater presented direct operations costs for the above activities in terms of the type of cost: labour; contractors and materials; and "other".

(a) labour costs are derived on the basis of budgeted work in the scheme for 2012-13 and the related salary costs for routine activities. The costs represent all costs budgeted as employee costs for the scheme. In practice, a small proportion of this labour will be used for maintenance activities. Consistent with the current Enterprise Bargaining Agreement for Seqwater and the recommendation of the QCA in its draft SunWater report, Seqwater has escalated internal labour costs at 4% per annum for the regulatory period 2013-14 to 2016-17;

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

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

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

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

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

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

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

In addition, more thorough periodic dam safety inspections are carried out on a 5 yearly basis. Costs associated with these inspections have been added to forecast direct operating expenditure in the year in which the expenditure is expected to be incurred. Seqwater has allowed for inspection of Wivenhoe and Somerset Dams in 2015-16.

Seqwater incurs rates in relation to its land portfolio, including storages. Seqwater has forecast rates expenses for the Central Brisbane River scheme based on 2011-12 actual rates, and has forecast these to increase annually by CPI for the regulatory period.

Seqwater's proposed direct operating costs by activity as submitted in the November 2012 NSPs are detailed in Table 5.4.

Table 5.4: Seqwater Direct Operating Costs by Activity, Central Brisbane River WSS (Nominal $'000)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Operations	5,199.8	5,391.2	5,589.8	5,796.0	6010.0
Repairs and Maintenance	2,135.3	2,220.7	2,309.6	2,402.0	2,498.0
Dam Safety	0	0	0	53.8	0
Rates	689.2	706.4	724.1	742.2	760.8
Total	**8,024.3**	**8,318.4**	**8,623.5**	**8,994.0**	**9,268.7**

Source: Seqwater (2012al).

Direct operating costs by type are outlined in Table 5.5.

Table 5.5: Seqwater Direct Operating Costs by Type, Central Brisbane River WSS (Nominal $'000)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Labour	2,967.0	3,085.7	3,209.1	3,337.5	3,471.0
Contractors and Materials	1,126.5	1,171.6	1,218.4	1,267.2	1,317.8
Electricity	271.4	278.2	285.2	292.3	299.6
Other	834.9	855.7	877.1	899.1	921.5
Planned Repairs and Maintenance	1,516.1	1,576.7	1,639.8	1,705.4	1,773.6
Unplanned Repairs and Maintenance	619.2	644.0	669.8	696.6	724.4
Dam Safety	0	0	0	53.8	0
Rates	689.2	706.4	724.1	742.2	760.8
Total	**8,024.3**	**8,318.4**	**8,623.5**	**8,994.0**	**9,268.7**

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

Other Stakeholders

QFF (2012) submitted that operations costs for materials and other operating costs are high and must be reviewed. Additionally, QFF (2012a) queried the very high costs of dam operations allocated to Central Brisbane.

During Round 1 consultation (IA 2012) irrigators advised that as irrigators generally do not order water, this may reduce operating costs incurred by Seqwater.

Stakeholders (Riverside Farming 2012, MBRII 2012 and S. & H. Sinclair 2012b) submitted that Seqwater cannot identify any costs of any service that it supplies to irrigators, and that irrigators have no need for the infrastructure or higher water quality. Additionally, irrigators

assist in improving and maintaining the quality of water and therefore reduce Seqwater's costs.

Stakeholders (S. & H. Sinclair 2012b and Rivermead Pty Ltd 2012) also submitted that costs attributed to irrigators should only be limited to provision, maintenance and monitoring of water meters and minimal bookkeeping costs associated with the rendering of accounts.

B.M. Bernitt, C.D. Summerville, J. Harris and GRASSCO (2012) submitted that irrigators incur costs in undertaking activities that provide benefit to riparian areas, such as spraying noxious weeds, cleaning river banks and general maintenance of waterways.

Authority's Analysis

The Authority engaged SKM to review the prudency and efficiency of Seqwater's proposed direct operating expenditure for this scheme. Operations materials costs were selected for review based on QFF concerns.

The Authority's responses to other stakeholder submissions are as follows:

(a) in response to the view that as irrigators do not need to order water in the scheme operating costs should be lower, operating costs already take into account the absence of such services;

(b) in regard to comments that irrigators do not benefit from the infrastructure, the Moreton ROP indicates that irrigators (and all users) benefit from the improved reliability offered by infrastructure and should contribute to an appropriate share of costs. Catchment management and water quality activities specific to urban users have been excluded from irrigation costs; and

(c) consistent with (b), costs should not be limited to metering and minimal book-keeping costs. The allocation of operating costs between different priority holders is a relevant issue and is reviewed below.

In response to stakeholders who have submitted that irrigators provide benefit to riparian areas, the Authority acknowledges that irrigators can assist with stream-bank management and maintenance of water-ways. Such management is in the best interests of irrigators themselves and is normal practice in comparable schemes around the State. While there is no specific operating cost offset proposed for this contribution, it is noted that irrigators are not required to meet full recovery of a share of capital costs - that is, irrigation prices are targeted to lower bound levels.

SKM reviewed a sample of items, taking account of comments received from stakeholders in regard to specific costs. SKM also reviewed the relevance of certain costs to irrigators and made adjustments SKM considered appropriate.

Item 1: Operations – Materials and Other Costs

Stakeholder Submissions

Seqwater

Seqwater's original NSP estimated a cost of $1.529 million for materials and other costs in 2013-14. This estimate was the basis for SKM's review.

Seqwater's final November 2012 estimate was slightly lower at $1.507 million.

Contractors costs for 2012-13 were estimated at $751,000 in April 2012, revised to $726,000 in November 2012.

The total cost for 'materials and contractors and other' was $2.31 million.

Other Stakeholders

QFF (2012) submitted that materials and other costs in the Central Brisbane River WSS are high and should be reviewed by the Authority.

Consultant's Review

SKM noted that the costs provided in the Authority's Terms of Reference are drawn from Seqwater's original NSP but are not consistent with the values in the NSP. This is because NSP listed costs for activities classed as 'other' only whereas the Authority included costs for materials associated with the Central Brisbane River Water Supply Scheme. As such Seqwater advised that expenditure items stated in the Authority's Terms of Reference cannot be directly related back to Seqwater's NSP submission making direct comparison difficult. SKM has endeavoured to reconcile theses differences as discussed below.

The alternative estimates considered initially by SKM are detailed in Table 5.6.

Table 5.6: Materials and Other Costs – Central Brisbane River WSS, Cost Estimates (Nominal $'000)

Source	*Actual Costs 2011-12*	*Forecast Costs 2012-13*	*Forecast Costs 2013-14*
Terms of reference drawn from Seqwater's original NSP		1,486.0	1,529.0
'Other' costs component only – November NSP		1,104.7	1,132.4
Opex – Irrigation Updated YTD 'Materials and Contractors' only		1,137.2	
Opex – Irrigation Updated YTD 'Materials and Contractors' plus 'Other'	1,693.4	2,387.1	

Source: SKM (2012). Note: *NSP value does not include costs of materials, only 'other' whereas the QCA Terms of Reference value includes expenditure on materials as well as 'other'*

In the document 'Opex – Irrigation Updated YTD', there are two potential methods for determining the total costs listed including either considering the costs listed under the heading 'Materials and Contractors', or consolidating both the costs listed under the 'Materials and Contractors' and 'Other'. Neither method produced costs consistent with

those listed in the terms of reference. Further, year to date costs for 2011-12 at 30 June 2012 were listed in 'Opex – Irrigation Updated' at $583,819, compared to a budget of $1,137,195.

SKM noted there is inconsistency between costs listed in the documents provided - that is, the terms of reference, the revised opex summary and 'Opex - Irrigation Updated YTD'

Item description

Materials and other expenses are required for dam operations, recreational water treatment plant operation, group support and catchment services in addition to water quality monitoring. Definitions for these activities relevant to irrigation operation and maintenance are:

(a) Dam Operations: Dam Operations must meet the regulatory requirements under various Acts including those relating to dam safety, flood management, resource operating plans, and providing sufficient water to meet standards of service. Key outputs are management of dams to ensure safe operation during normal water releases and flood releases, monitoring and ensuring dam safety compliance, maintaining releases from dams to meet demand, meeting resource operation plan compliance, delivering water to irrigation customers, and ensuring water related data is recorded and stored;

(b) Recreational water treatment plant operations: With respect to irrigation services specifically, limited to managing the recreation water treatment plants which service visitors to the recreation sites located at the dams or water storages;

(c) Group support and catchment services: Group support ensures that asset management plans, processes, systems and practices are implemented in accordance with relevant regulatory requirements including environmental protection laws and land ownership laws. This team also contributes to the effective development, implementation and management of the reporting systems within Seqwater's Water Delivery Group, as well as the management of third party access and event approval at Seqwater sites and locations; and

(d) Water quality monitoring: The central role of the Water Quality team is to manage Seqwater's risk in relation to water quality. The core functions and activities of the Water Quality Team are Catchment and Water Treatment Plant monitoring, Laboratory and data management services and Drinking Water Quality Management.

Provided documentation

The documents used for this review are:

(a) Information Request Response, RFI013,Materials and Other Central Brisbane River WSS, Seqwater, 14/08/2012;

(b) Operational Cost Report for 2012-13, Seqwater;

(c) Opex – Irrigation Updated YTD.xls, Seqwater;

(d) Opex – Irrigation Queries;

(e) Seqwater Irrigation Opex Methodology – Brief, Seqwater, 04/09/2012; and

(f) Opex summary (461146_1).xlsx, Seqwater, 04/09/2012.

Initial information provided by Seqwater outlined costs associated with materials and other, and the method for budget calculation. Discussions with Seqwater staff during project interviews provided further information, and resulted in identification of a number of additional information sources that were subsequently requested.

Additional information requested from Seqwater for this review included:

(a) Breakdown of water quality monitoring costs, including a breakdown of contractor sampling charges and monitoring program;

(b) DERM water quality sampling and reporting guidelines ;

(c) Business Case for returning water quality sampling in-house;

(d) HACCP Plan for a recreational water treatment plant; and

(e) Method for calculating the fleet allocation budget.

All requested information was provided by Seqwater and utilised in this review.

Prudency

The materials and supplies required to operate the Central Brisbane River Water Supply Scheme predominantly relate to the operation of assets such as Somerset and Wivenhoe Dams (including the catchment and the recreation areas associated with the dams) and the Wivenhoe recreation water treatment plant.

Seqwater is subject to numerous regulatory obligations, including under legislation and the relevant Resource Operating Plan. Both Wivenhoe and Somerset Dams are referable dams under the Water Supply (Safety and Reliability) Act 2008. The precise regulatory obligations providing a requirement for labour resources vary according to the operational team in question. Compliance requirements driving expenditure on materials and other include:

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

(b) Catchment Services: environmental protection legislation, recreation responsibilities, catchment management responsibilities, land ownership legislation;

(c) Water Treatment Operations: Market Rules requirements, recreation responsibilities. Materials and consumables are required to operate the dams; and

(d) Water Quality – WQ Monitoring Expenses: Under the resource operating plans and licences subordinate to the Water Act, Seqwater is required to monitor water quality in storages, releases and recreational areas. At recreation sites Seqwater incurs expenses for fulfilling water quality monitoring requirements. At the Wivenhoe recreational water treatment plant water quality monitoring requirements are defined in the Hazard Analysis and Critical Control Point (HACCP) Plan for the plant. The HACCP plan is subordinate to the Drinking Water Quality Management Plan which is a requirement under the Water Supply (Safety and Reliability) Act.

SKM noted that following a risk assessment, Seqwater has determined that all water that it provides for human consumption should be of potable water standards. SKM considered

that Seqwater's policy in this area is reasonable taking into account the impact on reputation arising from not adopting this policy.

Consequently the operating expenditure item has been assessed as prudent.

Efficiency

SKM sought additional details of the breakdown of costs, as summarised in Table 5.7.

Table 5.7: Materials and Other Costs - Breakdown

Expense	*Breakdown*	*2012-13 forecast costs*	*2013-14 forecast costs*
Dam Operations – Materials & Consumables – Somerset Dam	Minor equipment and consumables	$15,000	$15,600
	Clean up and housekeeping - Somerset Hydro	$10,000	$10,400
Dam Operations – Materials & Consumables – Wivenhoe Dam	Safety Surveillance - minor materials	$10,000	$10,400
	Dam Safety - equipment	$2,000	$2,080
	Minor equipment and consumables for emergent works and operational repairs	$30,000	$31,200
	Fish Mngt project mgr	$10,000	$10,400
	Provision for minor expenses	$10,000	$10,400
	ROP Compliance - Admin & support	$1,000	$1,040
	Irrigation Admin & Support	$50,000	$52,000
	Monitoring equipment for water quality and meters	$35,000	$36,400
	ROP compliance - Nerang ROP	$100	$104
	Stanwell hydro contract billing	$2,000	$2,080
	Licences for software	$50,000	$52,000
Dam Operations – Equipment Hire – Wivenhoe Dam	Hire of equipment for operational work	$15,000	$15,600
Dam Operations – Energy Fixed – Somerset Dam	Nil	$20,000	$20,500
Dam Operations – Energy Fixed – Wivenhoe Dam	Nil	$230,000	$235,750
Dam Operations – Plant & Fleet Hire Internal – Somerset Dam		$29,741	$30,931
Dam Operations – Plant & Fleet Hire Internal – Wivenhoe Dam		$49,980	$51,979
Dam Operations – WQ Monitoring Expenses – Wivenhoe Dam	Water samples	$38,000	$39,520
	Routine testing	$3,000	$3,120
	Unscheduled testing	$200	$208
Dam Operations – Property Management – Wivenhoe Dam	Security	$10,000	$10,400
	Security during flood releases to manage visitors and traffic control	$65,000	$67,600
	Security during flood releases to manage visitors and traffic control	$50,000	$52,000

Expense	*Breakdown*	*2012-13 forecast costs*	*2013-14 forecast costs*
Dam Operations – Portable Equipment – Wivenhoe Dam	Minor maintenance	$20,000	$20,800
Group Support – Materials & Consumables – Somerset Dam	Rec Maintenance	$20,000	$20,800
	Ground Maintenance	$10,000	$10,400
Group Support – Materials & Consumables – Wivenhoe Dam	Minor material and consumables for repairs and maintenance	$30,000	$31,200
	Consumables and materials for onsite workshop	$10,000	$10,400
Group Support – Energy Fixed – Wivenhoe Dam	Energy costs for rec grounds	$10,000	$10,250
Group Support – Property Management – Somerset Dam	Recreation Maintenance - Security Patrols	$20,000	$20,800
Group Support – Property Management – Wivenhoe Dam	Security	$30,000	$31,200
Group Support – Cleaning – Wivenhoe Dam	Cleaning	$10,000	$10,400
Group Support – Other Chemicals – Somerset Dam	Weed control chemicals	$20,000	$20,800
Group Support – Plant & Fleet Hire Internal – Somerset Dam		$105,887	$110,122
Group Support – Plant & Fleet Hire Internal – Wivenhoe Dam		$128,132	$133,257
Water Quality – WQ Monitoring Expenses – Somerset Dam	Water samples	$18,680	$19,427
	Routine Testing	$52,000	$54,080
	Unscheduled testing	$6,240	$6,490
	Event Testing	$14,560	$15,142
Water Quality – WQ Monitoring Expenses – Wivenhoe Dam	Water samples	$17,060	$17,742
	Routine testing	$56,368	$58,623
	Unscheduled testing	$2,080	$2,163
	Event Testing	$14,560	$15,142
Water Quality – WQ Monitoring Expenses – Wivenhoe Rec WTP	Routine testing	$46,500	$48,360
	Unscheduled Testing	$3,500	$3,640
	Events testing	$4,000	$4,160
Infrastructure Maintenance –	Somerset Dam Scheduled Maintenance	$13,443	$13,981

Expense	*Breakdown*	*2012-13 forecast costs*	*2013-14 forecast costs*
Materials & Consumables – Somerset Dam	Somerset Dam Reactive Maintenance	$7,716	$8,025
	Somerset Dam Planned Maintenance	$7,361	$7,655
Infrastructure Maintenance – Materials & Consumables – Wivenhoe Dam	Wivenhoe Dam Scheduled Maintenance	$15,051	$15,653
	Wivenhoe Dam Reactive Maintenance	$641	$667
	Raw WPS Esk Reactive Maintenance	$50	$52
	Wivenhoe Dam Planned Maintenance	$718	$747
	Total		**1,438,891**

Source: SKM (2012).

The breakdown of costs provided in response to SKM's request for further information (RFI013) total to $1,438,891 for 2013-14, which is approximately 6.3% less than the $1,529,000 listed in the terms of reference. However, the difference between the two is acknowledged by Seqwater as being due to the exclusion of items that did not exceed $10,000 at any given asset location on the grounds of fast-tracking the information request and also for the purposes of materiality.

Given that costs in excess of $10,000 and in some cases below $10,000 have been explained, and that the costs detailed account for approximately 93.7% of the budget for materials and other, SKM considered that the breakdown of costs included in the terms of reference are appropriate.

The breakdown of costs included in Seqwater's response to SKM's request for information (RFI013) included a number of costs that SKM does not consider as belonging within the materials and other category. These costs are for infrastructure maintenance and security contractors, as shown in Table 5.8.

SKM therefore considered these costs to be not applicable to materials and other, and has removed them from the materials and other budget for the Central Brisbane River WSS. These exclusions totalled $228,790 for 2013-14.

Table 5.8: Costs Considered by SKM to not be Applicable

Expense	*Description*	*Further detail supplied by Seqwater*	*2012-13*	*2013-14*
Dam Operations – Property Management – Wivenhoe Dam	Security	During flood releases security is required for managing public safety including traffic control, site security, fish management, etc. Expected to decrease as years go by	$10,000	$10,400
	Security during flood releases to manage visitors and traffic control		$65,000	$67,600
	Security during flood releases to manage visitors and traffic control		$50,000	$52,000
Group Support – Property Management – Wivenhoe Dam	Security	Somerset and Wivenhoe recreation areas are gated for security and public safety. Security providers are contracted to patrol the areas and open and-or close the gates at each site.	$30,000	$31,200
Property Management – Somerset Dam	Recreation Maintenance - Security Patrols	The budgets were based on 2011-12 actuals and YTD trend for the 2011-12 year.	$20,000	$20,800
Infrastructure Maintenance – Materials & Consumables – Somerset Dam	Somerset Dam Scheduled Maintenance	Budget based on past 3 years expenditure	$13,443	$13,981
	Somerset Dam Reactive Maintenance	Based on prior year actual expenditure	$7,716	$8,025
	Somerset Dam Planned Maintenance	Based on prior year actual expenditure	$7,361	$7,655
Infrastructure Maintenance – Materials & Consumables – Wivenhoe Dam	Wivenhoe Dam Scheduled Maintenance	Based on past 3 years expenditure	$15,051	$15,653
	Wivenhoe Dam Reactive Maintenance	Based on prior year actual expenditure	$641	$667
	Raw WPS Esk Reactive Maintenance		$50	$52
	Wivenhoe Dam Planned Maintenance	Based on prior year actual expenditure	$718	$747
	Total			**$228,780**

Source: SKM (2012).

Dam Operations

The expenditure for dam operations consists of equipment and consumables utilised in emergency dam safety works and operational repairs, energy costs, and plant and fleet costs associated with dam operations.

Materials and consumables are purchased on an as needed basis for operational repairs and emergency works, while some equipment is hired. The budget for materials and

consumables purchase and equipment hire has been calculated by escalating historical expenditure at 4%.

Electricity is supplied externally. The budget for 2013-14 was determined by escalating the 2010-11 historical spend. During the 2012-13 Grid Service Charges review SKM assessed electricity costs as prudent and efficient. Providing that the method of obtaining electricity has not changed since the 2012-13 Grid Service Charges review, SKM considered electricity costs efficient. It is noted that the electricity prices may be underestimated in the 2013-14 budget, given the circa 10% increase in energy costs arising from the implementation of the Carbon Energy Pricing Mechanism. Seqwater personnel have confirmed that the electricity budget does not include costs associated with the purchase of green energy, and further that material carbon pricing issues relate to Grid assets only, as the consumption of irrigation assets is small.

Plant and fleet hire internal costs for dam operations were further broken down, as included in Table 5.9. The fleet allocation budget is determined by calculating a representative annual lease charge, which is calculated on whole of life costs excluding fuel, oil and tyres, assuming an average vehicle life of 120,000km or five years. The budget for fuel is calculated based on historical expenditure.

Table 5.9: Plant and Fleet Costs – Dam Operations

Location	*Fleet / Plant Type*	*Description*	*Fleet Allocation Budget ($)*	*Fuel Allocation Budget ($)*
Somerset Dam	Vehicle	Ford Ranger 4x4 Utility	9,900	4,189
	Vehicle	Ford Ranger Space Cab	9,900	5,371
Wivenhoe Dam	Vehicle	Ford Range EL 4x4 Utility	12,400	2,049
	Vehicle	Ford Ranger XL 4x4 Space Cab	12,900	4,207
	Vehicle	Ford Ranger XL 4x4 Utility	12,400	2,016
	Vehicle	Toyota Aurion	8,760	5,708

Source: SKM (2012).

Wivenhoe Dam has approximately 12.5 FTEs operational staff assigned to the dam while Somerset has two. When considering the number of personnel across both Dam Operations and Group Support, SKM considered the number of vehicles allocated to be reasonable.

With regards to fuel allocation, utilising a fuel efficiency of 10km/L for all vehicles and fuel cost of 155 cents per litre (cpl), the fuel allocation budget provides for between 13,000 km and 37,000 km per annum. During site visits, Seqwater operational personnel confirmed that they drove approximately 30,000 km per year. SKM considered the fuel allocation budget for vehicles to be reasonable.

Costs for the fleet and plant aspects of materials and other for the Central Brisbane River Water Supply Scheme have been calculated by the Seqwater Fleet Manager. In calculating the costs associated with the operation of plant and fleet, Seqwater has applied a cost of 155 cents per litre (cpl) for fuel. In comparison, the RACQ lists the retail Brisbane unleaded fuel price for April 2012 as 148.8cpl for unleaded and 153.8 cpl for diesel. While the Seqwater unit fuel cost is higher than retail costs for both unleaded and diesel, this is not unreasonable and may potentially be a result of an applied safety factor or inefficiencies of supply of the small volume of fuel required by Seqwater. In calculating the fleet allocation budget,

Seqwater has adopted an average vehicle life of 120,000 km or five years. This adopted life is similar to that utilised by the South East Queensland Distribution Retailer Entities, and is therefore considered to be reasonable.

Group Support

Group support costs are broken into a number of categories including materials and consumables, energy fixed, cleaning, other chemicals in addition to plant and fleet hire as shown in Table 5.10.

Table 5.10: Group Support Costs – Additional Details

Expense	*Description*	*Further detail supplied by Seqwater*	*2013-14 forecast*
Materials & Consumables – Somerset Dam	Rec Maintenance	The budgets were based on 2011-12 actuals and YTD trend for the 2011-12 year.	$20,800
	Ground Maintenance	Somerset has a workshop on site. Costs relate to consumables and materials associated with the ongoing operation of the workshop and its equipment.	$10,400
Materials & Consumables – Wivenhoe Dam	Minor material and consumables for repairs and maintenance	The budgets were based on 2011-12 actuals and YTD trend for the 2011-12 year.	$31,200
	Consumables and materials for onsite workshop	Wivenhoe Dam has a workshop on site. Costs relate to consumables and materials associated with the ongoing operation of the workshop and its equipment.	$10,400
Energy Fixed – Wivenhoe Dam	Energy costs for rec grounds	The budgets were based on 2011-12 actuals and YTD trend for the 2011-12 year.	$10,250
Cleaning – Wivenhoe Dam	Cleaning rec facilities	The budgets were based on 2011-12 actuals and YTD trend for the 2011-12 year.	$10,400
Other Chemicals – Somerset Dam	Weed control chemicals	The budgets were based on 2011-12 actuals adjusted for known differences in the weed control program	$20,800
Plant & Fleet Hire Internal – Somerset Dam		Budget Calculated by Fleet Manager based on vehicle estimated costs and fuel used	$110,122
Plant & Fleet Hire Internal – Wivenhoe Dam		Budget Calculated by Fleet Manager based on vehicle estimated costs and fuel used	$133,257

Source: SKM (2012).

Equipment and consumables and chemicals are also purchased on an as needed basis for operational repairs and emergency works. The budget for equipment and consumables, cleaning and chemicals has been calculated by escalating historical expenditure at 4%.

The budget for 2013-14 electricity was determined by escalating the 2010-11 historical spend. SKM noted that providing that the method of obtaining electricity has not changed since the 2012-13 Grid Service Charges review, electricity costs are considered efficient. It

is noted that the electricity prices may be underestimated in the 2013-14 budget, given the circa 10% increase in energy costs arising from the implementation of the Carbon Energy Pricing Mechanism.

No information regarding the quantity of electricity to be utilised or the unit rates for its supply was available for this review. However, energy costs have been developed by escalating historical cost information. In the 2012-13 Grid Service Charges review SKM found the energy unit prices paid by Seqwater to be reflective of current market prices and hence efficient. SKM consequently finds the energy costs for the Central Brisbane River WSS to be efficient

Plant and fleet hire internal costs were further broken down, as included in Table 5.11.

Table 5.11: Group Support – Plant and Fleet Costs

Location	*Fleet / Plant Type*	*Description*	*Fleet Allocation Budget*	*Fuel Allocation Budget*
Somerset Dam	Vehicle	Toyota Landcruiser 4x4 Utility	$12,720	$6,545
	Tractor / Mower	David Brown 1210	$2,400	$920
	Tractor / Mower	Kubota Tractor	$2,400	$1,195
	Watercraft	Polycraft	$7,680	$3,469
	Watercraft	Polycraft centre console	$7,680	$3,604
	Watercraft	Noosa Cat Australia 2300	$22,800	$2,400
	Vehicle	Toyota Hilux 4x4 Dual Cab	$9,720	$5,917
	Tractor / Mower	Kubota Tractor	$2,400	$1,268
	Vehicle	Ford Ranger Space Cab	$9,800	$5,379
Wivenhoe Dam	Vehicle	Toyota Landcruiser Workmate	$12,720	$4,479
	Vehicle	Toyota Landcruiser LC Workmate	$8,400	$7,922
	Vehicle	Nissan Patrol ST 4x4 Utility	$10,440	$5,051
	Truck	Isuzu FRR550	$15,800	$3,019
	Tractor / Mower	Kubota Tractor	$2,400	$749
	Tractor / Mower	New HollandTC35	$2,400	$730
	Tractor / Mower	Kubota Tractor	$2,400	$400
	Tractor / Mower	Kubota Tractor	$2,400	$1,837
	Tractor / Mower	John Deere 8120	$10,200	$6,875
	Watercraft	Yamaha Waverunner Jetski	$2,400	$1,026
	Watercraft	Stessco Bass Boat	$7,500	$750
	Forklift	2005 Toyota 450K8-H	$5,500	$1,787
	Vehicle	Ford Ranger 4x4 Utility	$9,900	$3,280

Source: SKM (2012).

With regards to fleet and plant types and numbers, SKM assessed the use of vehicles, tractor/mowers, forklift and watercraft to be reasonable, particularly considering the utilisation inferred from the fuel allocations.

SKM has insufficient information to assess the fleet allocation budget.

Water Quality Monitoring

Water quality monitoring costs for the Central Brisbane River Water Supply Scheme are associated with water quality monitoring of Wivenhoe and Somerset Dams in addition to the Wivenhoe Dam recreational water treatment plant.

While under the Water Act there is no requirement for Seqwater to provide water of a certain quality to irrigation users, under the resource operating plans and licenses subordinate to the Act Seqwater is required to monitor water quality in storages, releases and recreational areas according to the state government procedures.

In regard to water quality monitoring costs, more details are provided in Table 5.12.

Table 5.12: Water Quality Monitoring Costs

Item	*2012-13*	*2013-14*
Somerset Dam		
Water sampling	$18,680	$19,427
Routine testing	$52,000	$54,080
Unscheduled testing	$6,240	$6,490
Event testing	$14,560	$15,142
Wivenhoe Dam		
Water sampling	$17,060	$17,742
Routine testing	$56,368	$58,623
Unscheduled testing	$2,080	$2,163
Event testing	$14,560	$15,142
Wivenhoe Dam Recreational WTP		
Routine testing	$46,500	$48,360
Unscheduled Testing	$3,500	$3,640
Events testing	$4,000	$4,160

Source: SKM (2012).

Water quality sampling comprises collection and analysis of water samples. Currently routine sampling and analysis for both the Wivenhoe and Somerset Dams and the Wivenhoe recreational water treatment plant is undertaken by an external contractor selected by public tender.

The contract for water quality sampling was awarded in accordance with the State Procurement Policy by an open tender process. Further, the water sampling program has been developed in accordance with resource operating plans, licenses and for the recreational water treatment plant, in accordance with the plant's HACCP Plan. SKM therefore considered the costs associated with the water sampling programs as reasonable.

Conclusion

The operating expenditure item is assessed as prudent as the need for the expenditure has been demonstrated.

The operating expenditure is assessed efficient as the scope is appropriate, the operating expenditure in support of regulated service delivery is consistent with industry practice and the costs are consistent with prevailing market conditions.

However, SKM queried the inclusion of a number of items to the materials and other the cost group as they were considered as potentially belonging to alternative cost groups of direct labour and contractor in addition to repairs and maintenance. These items were identified above.

In response, Seqwater stated that "the groups of costs reported in the NSP are Labour, Contractors and Materials and Other, with security contractors being classed under 'other' in the NSP". This is different to the classification adopted by the Authority in its Terms of Reference, where it has separated expenditure under materials and other and expenditure under labour and contractors. SKM considered that it may be appropriate for further reviews for Seqwater and the Authority to discuss and agree upon appropriate budget categories for allocating expenditure items.

Nevertheless, SKM considers the costs detailed in Table 5.13 to be necessary for the operation of the Central Brisbane River WSS, and therefore are assessed as reasonable.

Table 5.13: Summary of Recommended Costs

Project	**Costs ($'000)** ***2012-13***	**Costs ($'000)** ***2013-14***
Seqwater's April NSP materials and other		1,529.0
SKM's proposed budget for materials and other		1,529.0
Seqwater's November NSP materials and other		1.507.0
Authority's final proposed budget for materials and other		1.507.0

Source: SKM (2012).

Authority's Analysis

Seqwater's November 2012 estimate revised the total to $1.507 million ($1.106 million in 'other' and $0.4 million in materials).

Since the revised amount is lower and not substantially different from that assessed by SKM, the Authority accepts the revised amount of $1.507 million in 2012-13 be accepted.

Item 2: Direct Labour

Stakeholder Submissions

Seqwater

Seqwater submitted a forecast direct labour cost for 2012-13 of $3.022 million ($3.143 million in 2013-14) (April 2012 submission). However, at the time of SKM's analysis

Seqwater slightly revised the estimates to $3.089 million (2012-13) and $3.213 million (2013-14).

The November 2012 revision estimated a lower direct labour cost of $2.967 million for 2012-13 for the Central Brisbane River WSS.

Other Stakeholders

QFF (2012) noted that operating costs in Central Brisbane River WSS appear high.

Consultant's Review

SKM indicated that actual costs were $2.7673 million in 2011-12 and budgeted costs were $3.022 million for 2012-13. The 2012-13 base forecast was built up from a zero base (ie using a bottom up method). This category of costs relates to direct labour and contractors only.

Item Description

The labour resources required to operate the Central Brisbane Water Supply Scheme mainly relate to the operation of assets such as the Somerset and Wivenhoe Dams (including the catchment and the recreation areas associated with the dam) and the Kirkleigh and Wivenhoe (Recreation) Water Treatment Plant. The proposed 2013-14 costs for these operating expenditure items include:

(a) Somerset Dam, Operations - $219,000;

(b) Wivenhoe Dam, Operations - $1,479,000;

(c) Somerset Dam, Catchment Services - $582,000;

(d) Wivenhoe Dam, Catchment Services - $447,000;

(e) Wivenhoe Dam, Incident & Emergency - $263,000;

(f) Kirkleigh (Rec), WTP Ops - $72,000; and

(g) Wivenhoe (Rec), WTP Ops - $80,000.

The above items total to $3.143 million, equivalent to Seqwater's April 2012 estimate.

Seqwater has not provided any costs for contractors as the sample was made up of Seqwater direct labour costs only. Consequently there are no contractor costs to disclose.

Provided documentation

The documents used for this review are:

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

(b) Seqwater, Central Brisbane Water Supply Scheme, Network Supply Scheme;

(c) Seqwater, Information Request Response – QCA Irrigation Price Review 2013-17, RFI 014, Central Brisbane WSS, Operations – Direct Labour and Contractors, 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; and

(g) Seqwater Enterprise Bargaining Certified Agreement 2009 – 2012.

Prudency

Wivenhoe and Somerset Dams are referable dams under the Water Supply (Safety and Reliability) Act 2008. To adequately satisfy Seqwater's regulatory obligations at these and other relevant assets, 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) Incident & Emergency: to comply with dam safety and reliability legislation;

(c) Catchment Services: to meet environmental protection legislation, recreation responsibilities, catchment management responsibilities, land ownership legislation; and

(d) Water Treatment Operations: to meet Market Rules requirements and recreation responsibilities.

Consequently the operating expenditure item is seen as prudent.

Efficiency

Seqwater's operating cost projections of labour are not based on any water demand cost drivers but are rather based on the 2012-13 budget. Seqwater does not view demand as a driver of labour costs. In SKM's view, basing the labour forecast cost on a previous budget is not satisfactory as actual costs may vary significantly from budget. SKM recommends that forecast costs be based on actual incurred costs taking into account trends exhibited by recent actual expenditure, changes in working practices and changes in assets being operated. Accordingly, additional information relating to actual historical expenditure was sought by SKM.

Seqwater also informed SKM that the costs being examined do not include any maintenance labour costs as these costs have been factored into the labour budgets for maintenance. The costs reviewed in this sample relate only to operations costs.

In response to SKM's request for information, Seqwater provided historical and budgeted costs covering the period between 2009-10 and 2012-13 (Table 5.14).

Table 5.14: Central Brisbane WSS Labour Costs ($)

	2009-10 Actual	*2010-11 Actual*	*2011-12 Actual*	*2011-12 Budget*	*2012-13 Budget*
Employee Costs	1,054,256	2,428,227	2,767,302	2,625,316	3,089,128

Source: SKM (2012).

SKM noted that the budget information provided in Table 5.15 is not consistent with other information supplied by Seqwater in its response to SKM's RFIs although the difference is small. SKM understood that this apparent information inconsistency is due to the fact that Seqwater has updated their original submission and that the 2012-13 budget figure is consistent with the revised cost forecast. SKM confirmed that this is indeed the case. Seqwater informed SKM that the difference amounting to $67,000 relates to maintenance staff labour costs.

These were not included in the RFI because the Authority sample referred to "Operations" which does not include maintenance in the Seqwater model. However, no further details have been provided and SKM's detailed review below is limited to the available information provided by Seqwater which is consistent with their original cost forecast and excludes the additional amount related to maintenance costs.

SKM sought from Seqwater information regarding the estimated quantity of FTEs assigned to the assets. The information provided by Seqwater is shown below in Table 5.16 (see below). The information provided in this case is consistent with the information submitted to the Authority. Overall, the proposed budget of $3,143,000 for labour cost for 2013-14 represents a growth rate of 6.5% pa since 2011-12. This is less than the 14% growth rate seen between 2010-11 and 2011-12.

Dam operations are the largest contributor to direct operating costs. Dam operations are responsible for operating, maintaining and monitoring Seqwater's water source infrastructure.

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

Dam operations are relatively labour intensive and the expenditure is required to:

(a) deliver services to irrigation customers in terms of information and management and delivery of irrigation service;

(b) develop systems to monitor water flows to manage water sources, floods and regulations;

(c) develop flood operations centre;

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

(e) ensure security and safety at water sources in meeting regulatory and community standards; and

(f) develop system operating plans for the operation of dams, weirs, bores and other water sources.

Group support (and catchment management) has responsibility 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 recreation sites associated with the dams.

While the use of Seqwater assets for recreational purposes is not a core Seqwater function, these facilities, which are a planning and operating licence condition of the assets, must be managed in a sustainable and environmentally responsible manner to ensure that Seqwater's core responsibilities and accountabilities are not adversely impacted. Under Seqwater's operating model, these maintenance activities have been separated from dam operations and Group Support has been made responsible for provision of these services.

The dams of Central Brisbane River WSS are the largest dams in Seqwater's system and thus play a critical role in the water supply system for SE Queensland. They also play a critical role in flood control. Given the significance of these assets for Brisbane and SE Queensland, it is seen as a core activity and thus unlikely to be able to outsource the labour requirements. The services provided by the operators of the recreational water treatment plant and irrigation scheme are also likely to be difficult to contract to third party operators given that they are small and the operators are required to know their assets intimately.

Benchmarking

SKM considered the pay rates to be consistent with other operators and rangers employed by Seqwater and are considered to be reasonable for such employees. They are also consistent with the Seqwater EBA. SKM has compared these labour costs with our internal database and find that the rates provided by Seqwater falls within the applicable benchmark range. In addition to the base salary, dam operators and rangers are paid an allowance to compensate the staff for being on-call when not on duty. This allowance can be substantial given the remoteness of many of these assets.

In the 2012-13 budget Seqwater has allocated 12.5 FTEs to operate the Wivenhoe Dam. This is considered reasonable given the size of the dam. The smaller Somerset Dam is operated by 2 FTEs. This is consistent with the other dams operated by Seqwater although Somerset Dam is larger than most of the other dams in Seqwater's system.

About 12 FTE (including overtime) Catchment Services staff have been allocated to the Central Brisbane WSS. These staff operate between both Wivenhoe and Somerset Dams and given the large areas that these assets cover, SKM recognised that a relatively large number of staff (compared to other Seqwater water supply schemes) may be required.

Rangers are responsible for a number of tasks including the control of feral weeds and animals, safety and security of the public when they access the area and the maintenance of the recreational sites. They are also trained to supplement dam operators during peak events as would occur during a flood.

SKM noted that the estimate for overtime budgeted for Wivenhoe which accounts for over 20% of the normal time estimates is significantly greater than the overtime estimate for Somerset (13%). SKM recommended that the overtime allocated at Wivenhoe be reduced to the same proportion of normal time as at Somerset. SKM also queried the inclusion of the cost of the camp manager at Somerset. Instead of allocating the cost of the camp manager to irrigators, SKM recommended that the cost of the camp manager be recovered from users of the campsite which would be consistent with normal commercial campsite operations.

SKM noted that the Ministerial Direction notice requires all recreation costs to be included in the scheme's cost and the revenue received from users of the campsites is offset against the scheme costs. This arrangement however is inefficient and would potentially cross subsidise campsite users.

In contrast with other water supply schemes, where most of the effort for maintaining the recreational area is performed by contractors and the rangers' responsibility is to manage the contract and to ensure that the work in carried out, the rangers at Somerset and Wivenhoe do most of this work with little out sourced to contractors. The duties are also wider than the recreation areas and include the whole catchment where they also undertake mowing, slashing and controlled burns. Such activities at Central Brisbane Water Supply Scheme are not outsourced to contractors.

SKM also considered that the overall numbers of dam operators is appropriate given that some excess capacity may be necessary during normal operations to address peak requirements. This excess may thus be utilised in non-core activity like mowing and minor maintenance work when such peak events are not present. However, the current operating model does not take advantage of this capacity but rather incurs extra maintenance contracting costs, in SKM's view, unnecessarily and thus inefficiently.

SKM also noted that Seqwater has employed a number of other staff at Wivenhoe including a dam safety engineer, a seismic officer, compliance coordinator, business centre officer, and an operations analyst. Given the centrality of Wivenhoe to the SE Queensland water supply system and the existence of a visitor's centre to cater to the large number of visitors to the Wivenhoe Dam, SKM has accepted the need for these additional staff.

SKM has a concern with the dam operations overtime budget at Somerset Dam. It amounts to approximately 30% of normal time cost. An overtime allocation of over $42,000 for dam operations has been provided in Seqwater's submission. SKM recognises that Somerset Dam is, while smaller than Wivenhoe, still relatively large in comparison with all the other dams in Seqwater's system and thus there may be a greater need for labour resources. Nevertheless SKM considered that allocating the equivalent of 0.6 FTE to overtime is excessive and recommended that overtime allowance be reduced to about 20% of normal time cost.

Similarly, the overtime for Catchment Services for Wivenhoe accounts for over 20% of normal time requirements. In contrast, the overtime for Somerset Dam accounts for about 13% of normal time cost. Given that both rangers at Wivenhoe and Somerset Dams perform the same roles, SKM recommended allocating a similar overtime budget allocation.

In contrast, the overtime that has been budgeted for the Wivenhoe Dam Operators and WTP operators for the Central Brisbane Water Supply Scheme is reasonable.

SKM's major concerns arising from this review of Central Brisbane Water Supply Scheme is the high overtime budgeted for Catchment Services at Wivenhoe Dam. SKM has recommended that the overtime budget at Wivenhoe be reduced to the same level as Somerset Dam. While SKM is of the opinion that the cost of the Camp Manager be removed from the cost of the water supply scheme and recovered directly from users, we understand that the Ministerial Direction notice requires all recreation costs be included in the scheme cost with any revenue from the campsite included as an offset.

Another minor adjustment SKM recommended is the allowance provided for Catchment Services at Wivenhoe Dam. Given the 90% time allocation for the rangers at Wivenhoe Dam, SKM believed that the allowance should also reflect that time allocation. Similarly, the average time allocation for dam operators at Wivenhoe Dam is 60%. SKM thus

recommended that allowances allocated to Wivenhoe Dam from Dam Operations should reflect this allocation.

SKM's estimated costs are compared to Seqwater's forecast amounts for 2012-13 in Table 5.15.

Table 5.15: Summary of Forecast Labour Costs 2012-13

Service Activity	*Asset*	*Salaries & Wages Applied ($)*
Catchment Services	Somerset Dam	560,268
	Wivenhoe Dam	381,198
Dam Operations	Somerset Dam	206,006
	Wivenhoe Dam	1,412,587
Water Treatment	Kirkleigh Rec WTP	69,029
	Wivenhoe Rec WTP	77,450
Incident & Emergency	Wivenhoe Dam	249,762
Other Incidental Costs	-	10,700
Total Labour Cost for 2012-13		**2,967,000**

Source: SKM (2012).

Conclusion

The operating expenditure item is assessed as prudent as the need for the expenditure has been demonstrated.

The operating expenditure is assessed as not efficient as the operating expenditure in support of regulated service delivery is not consistent with industry practice and the costs do not represent the least-cost means of providing the requisite level of service within the relevant regulatory framework. In particular, SKM considers that the budgeting for 1 FTE dam operator equivalent of overtime for dam operations is excessive and that a budget for overtime equivalent to 0.5 FTE is more reasonable.

SKM suggested that Seqwater will need to address the following information shortfall to further clarify dam operations labour costs:

(a) reasons for the high rate of overtime at Somerset Dam for Dam Operations and Wivenhoe for Catchment Services; and

(b) information regarding any efficiency targets set for productivity improvements.

In SKM's view, forecast 2013-14 labour costs in the Central Brisbane River WSS costs may be reduced by setting overtime at a lower level to reflect the current low utilisation of dam operating staff. No reasons have been provided for such a high rate of overtime and unless adequate justification is provided, SKM recommended adjusting the allocation of overtime to reduce the labour costs allocated to Central Brisbane River WSS in 2012-13 to $2.967 million.

Authority Analysis

The Authority notes that SKM's recommendation is for a 3.7% reduction to Seqwater's 2012-13 budgeted amount.

SKM's revised estimate corresponds with Seqwater's revised (November 2012) submission in regard to this cost item.

The Authority recommends that SKM's conclusion be accepted and the revised forecast be included for pricing purposes.

Conclusion

Sampled Operating Cost Items

For the Central Brisbane River WSS, the Authority sampled two direct operating cost items. The Authority proposes to accept the recommended efficient cost estimates developed by SKM.

Compared to Seqwater's revised estimates, SKM found materials and other costs to be prudent and efficient, but identified savings in direct labour costs. These are shown in Table 5.16 for 2012-13.

Unsampled Operating Costs

For unsampled items, as outlined in Volume 1 the Authority reviewed in detail approximately 55% of proposed direct operating expenditure for prudency and efficiency. At issue is how to address scheme specific direct operating expenditure not reviewed in detail. Accordingly, the Authority drew upon the results of the SKM review which identified an average saving across all sampled operating cost items.

As outlined in Volume 1, the Authority considered there was merit in applying an average, uniform saving to unsampled direct operating expenditure (excluding electricity and rates) of 4.9%[5] (or 5% rounded).

Based on this methodology, the Authority's recommended direct operating expenditure is outlined below (Table 5.16 refers).

[5] The Authority chose not to include a large reduction in Repairs & Maintenance costs in the Central Lockyer WSS that were included in the original sample in error.

Table 5.16: Review of Budgeted 2012-13 Direct Operating Expenditure (Nominal $'000)

	Seqwater (April NSP)	*Seqwater (November NSP)*	*Authority's Recommended*
Sampled Item			
Materials and Other	1,486	1,507	1,507
Direct Labour	3,022	3,089	2,967
Unsampled Items			5% saving to apply

Source: Seqwater (2012c), Seqwater (2012al) and QCA (2012).

In addition to the efficiency adjustments for the 2012-13 year, the Authority also considers it appropriate to reduce forecast direct operating costs by a further 1.5% per annum in real terms as a general productivity gain, applied cumulatively for each of the 4 years of the regulatory period (2013-14 to 2016-17). Details are provided in Volume 1.

Cost Escalation

Seqwater

Seqwater proposed that where its costs rise in line with inflation, it has adopted the mid-point of the Reserve Bank of Australia's (RBA's) target range for consumer price inflation at the time of its submission, being 2.5% per annum.

For direct labour costs, Seqwater proposed an annual increase of 4% over the 2013-17 period. This aligned with the Authority's SunWater recommendations and was in line with historic growth in labour cost indices over the past 5 to 10 years.

Similarly, Seqwater proposed a 4% escalation for materials and contractors costs, also consistent with the SunWater report and growth in relevant ABS construction cost indices over the last 10 years.

Seqwater submitted that electricity costs comprise only a small proportion of total operating costs of the irrigation water supply schemes and are difficult to forecast.

Seqwater proposed that electricity costs associated with the assumed pumping in the 2012-13 budget be escalated by inflation (2.5%) for the regulatory period (from 2013-14) with a proposed settlement at the end of the regulatory period to reflect the actual electricity costs incurred.

Seqwater has proposed that other direct operating cost categories (that is, other than direct labour and contractors & materials) and all non-direct costs, be escalated from the 2012-13 base year in line with inflation.

Authority's Analysis

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

The Authority recommends that for the regulatory period 2013-17:

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

Summary of Direct Operating Costs

A comparison of Seqwater's and the Authority's direct operating costs for the Central Brisbane River WSS is set out in Table 5.17.

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

Table 5.17: Direct Operating Costs (Nominal $'000)

Costs	*Seqwater*				*Authority*			
	2013-14	***2014-15***	***2015-16***	***2016-17***	***2013-14***	***2014-15***	***2015-16***	***2016-17***
Operations	5,391.2	5,589.8	5,796.0	6,010.0	5,265.5	5,365.6	5,466.5	5,568.0
Repairs and Maintenance – Planned	1,576.7	1,639.8	1,705.4	1,773.6	1,474.5	1,510.1	1,546.2	1,582.8
Repairs and Maintenance - Unplanned	644.0	669.8	696.6	724.4	391.9	401.4	411.0	420.7
Dam Safety	0	0	53.8	0	0	0	44.7	0
Rates	706.4	724.1	742.2	760.8	706.4	724.1	742.2	760.8
Total	**8,318.4**	**8,623.5**	**8,994.0**	**9,268.7**	**7,838.4**	**8,001.2**	**8,214.7**	**8,332.3**

Source: Seqwater (2012al).

5.5 Prudency and Efficiency of Non-Direct Operating Costs

Introduction

Seqwater (2012a) advised that all non-direct costs were assigned to operating expenditure as it does not have sufficiently disaggregated data at the renewals project level for it to allocate non-direct costs to individual renewals projects.

The prudency and efficiency of Seqwater's overall non-direct costs were reviewed for the Authority by SKM 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, since there were no charges applicable to irrigators in the Central Brisbane River WSS prior to this proposal, no previous review occurred in this scheme.

Stakeholders

Seqwater

Seqwater submitted that non-direct costs for 2012-13 were derived at the aggregate level for all schemes and allocated to individual schemes based on the proportion of direct costs attributable to the individual scheme (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 the Central Brisbane River WSS are in Table 5.18**.**

Table 5.18: Seqwater's Actual and Proposed Non-Direct Costs (Nominal $'000)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Seqwater	9,479	9,716	9,959	10,208	10,463
Central Brisbane River WSS	7,084	7,261	7,442	7,628	7,819

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

As noted in Volume 1, Seqwater initially submitted non-direct forecasts in April 2012, and subsequently revised them in November 2012 following the Authority's review of Grid Service Charges and the Minister's subsequent decision and further analysis by Seqwater of bulk water costs.

A comparison of the alternative estimates for the Central Brisbane River WSS is provided in Table 5.19 for non-direct operations costs.

Table 5.19: Non-Direct Operations Costs – Central Brisbane River WSS, 2012-13 Forecasts (Nominal $'000)

	April NSP	*November NSP*	*Variance ($,000)*	*Variance*
Water Delivery	768.7	754.8	(13.9)	(2%)
Asset Delivery	343.2	371.8	28.6	8%
Business Services	1,897.2	1,508.6	(388.6)	(20%)
Organisational Development	773.1	710.3	(62.9)	(8%)
Executive	76.1	111.9	35.8	47%
Flood Control	2,631.0	2,380.4	(250.6)	(10%)
Other	234.1	64.2	(169.9)	(73%)
Total Operations Non-Direct	**6,723.5**	**5,902.0**	**(821.5)**	**(12%)**

Source: Seqwater (2012c) and Seqwater (2012al).

Corporate functions have been defined as comprising the office of the CEO and the Organisational Development and Business Services groups. Corporate costs represent almost half the non-direct operating costs allocated to irrigation schemes in 2012-13 (excluding Flood Control costs).

The major component of corporate costs relates to Information, Communication and Technology (ICT). The major functions involved in ICT relate to services support, database administration, monitor and maintenance of various servers and network infrastructure, demand management, application management, strategy maintenance and development, business analysis and subject matter expert advice.

Flood control costs reflect those costs associated with the on-going operation of Central Brisbane flood control centres and are attributable to Central Brisbane River WSS.

Seqwater's submitted non-direct operating costs for the Central Brisbane River WSS are detailed in Table 5.20 below (November 2012 NSP).

Table 5.20: Seqwater's Forecast Non-Direct Costs, Central Brisbane River WSS (Nominal $'000)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Operations					
Water Delivery	754.8	773.7	793.0	812.8	833.2
Asset Delivery	371.8	381.1	390.6	400.4	410.4
Business Services	1,508.6	1,546.3	1,585.0	1,624.6	1,665.2
Organisational Development	710.3	728.0	746.2	764.9	784.0
Executive	111.9	114.7	117.5	120.5	123.5
Flood Control	2,380.4	2,439.9	2,500.9	2,563.5	2,627.5
Other	64.2	65.8	67.5	69.2	70.9
Sub-total	**5,902.0**	**6,049.6**	**6,200.8**	**6,355.8**	**6,514.7**
Non-Infrastructure Assets	361.4	370.4	379.7	389.2	398.9
Insurance	691.4	708.7	726.4	744.6	763.2
Working Capital	128.9	132.1	135.5	138.8	142.3
Total	**7,083.8**	**7,260.9**	**7,442.4**	**7,628.4**	**7,819.2**

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

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

The Central Brisbane River scheme utilises a range of non-infrastructure assets (buildings and 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 Scheme. Seqwater has used depreciation costs as a proxy for the cost associated with use of these assets. However, these depreciation costs are not captured for the WSS. Accordingly, aggregate non-infrastructure depreciation for 2012-13 has been allocated to facilities on the basis of direct costs and escalated forward over the forecast period.

Seqwater's annual insurance premium cost for 2012-13 is forecast at $6.2 million. The major components to the premium include industrial special risks, machinery breakdown, public liability, professional indemnity, contract works and directors and officers insurance.

Seqwater has allocated its 2012-13 premium to the Central Brisbane River scheme using the replacement value of scheme assets. This value has been escalated by CPI to determine a premium for each year of the forecast period.

In regard to working capital, Seqwater indicated that the QCA has already adopted a methodology for calculating Seqwater's working capital in Grid Service Charges. Seqwater

has calculated the working capital allowance using this methodology and the values submitted to the QCA for 2012-13, at $5.538 million.

Seqwater has allocated a portion of this working capital allowance to the Central Brisbane River scheme on the basis of revenue attributable to the scheme. The 2012-13 working capital allowance has then been escalated by CPI to provide a forecast for each year of the regulatory period.

Seqwater proposed that all non-direct costs be escalated from the 2012-13 base year in line with its estimate of inflation, based on the mid-point of the Reserve Bank of Australia's (RBA's) target range for consumer price inflation at the time of its submission, being 2.5% per annum.

Other Stakeholders

QFF (2012) requested justification for non-direct costs being higher than direct costs.

During Round 1 consultation (IA 2012), irrigators questioned how much Seqwater is paying on catchment management activities and proposed that rather than irrigators paying for catchment management (which delivers environmental and water quality benefits to urban customers), Seqwater should pay irrigators for better catchment management practices on farm.

Irrigators (IA 2012) also asked during Round 1 consultation whether any costs related to the presentations to and findings of the dam enquiry and any associated legal action will be included in irrigators' water charges.

Stakeholders (GVWB 2012, IA 2012) argued that recreational costs should be borne by the users with permits reflecting full cost recovery or government, and that recreational use is currently limited due to water quality (particularly in SEQ where the costs and use by the public is high).

Authority's Analysis

The Authority (QCA 2012b) assessed Seqwater's non-direct operating costs as part of its 2012-13 GSC Review. That review concluded that Seqwater's operating costs (including non-direct costs) should be reduced by 2.5% to reflect a general efficiency gain.

The Government subsequently increased the general efficiency gain to 3.0% and removed Seqwater's proposed recruitment of 62.5 Full Time Equivalents (FTEs) for vacant and new positions, both to apply to the 2012-13 year.

Seqwater (2012aj) has taken these adjustments into account in its revised submission to the Authority. As these costs have been imposed by Government, the Authority does not propose a further reduction for 2012-13. However, as the implications of the merger are currently being considered by Government, further adjustments to the Authority's estimates of non-direct costs may be necessary for the Final Report.

The Authority notes that Seqwater adjusted its aggregate non-direct costs to exclude those costs not relevant to the provision of irrigation services, including costs associated with technical warranty and development, water treatment operations including catchment and water quality management, and costs associated with planning and policy for major non-irrigation capital projects. The Authority accepts these adjustments, noting that specific cost attribution may remain problematic in some cases.

In addition to the above adjustments for the 2012-13 year, the Authority also considers it appropriate to apply a productivity adjustment to the established efficient cost base for 2012-13 for anticipated future efficiency gains brought about by technological, organisational, and operational improvements in service delivery. The Authority recommends a reduction in forecast non-direct operating costs by a further 1.5% per annum in real terms as a general productivity gain, applied cumulatively for each of the 4 years of the regulatory period (2013-14 to 2016-17).

In regard to working capital, the largest portion of irrigators' payments to Seqwater arises from fixed Part A and C charges paid in advance, whereas GSC charges are paid in arrears. This means that, for irrigation activities, Seqwater would not suffer an economic cost resulting from the timing difference between receivables and payables. Seqwater was requested to provide further substantiation of its proposal. However, as further evidence was not forthcoming, the Authority has not incorporated a working capital allowance is justified in this instance.

The Authority accepts Seqwater's proposed escalation of 2.5% per year for 2013-17 for non-direct costs (other than labour and contractors which are escalated at 3.6%).

In response to other stakeholders, the Authority notes that non-direct costs do not exceed direct costs in irrigation schemes. Further, the Authority has reduced non-direct costs when direct costs are reduced.

As noted above, the Authority proposes that catchment management and water quality activities that are conducted for the sole benefit of urban water supply be removed from forecast costs.

In regard to flood enquiry costs, Seqwater has advised the Authority that the cost of participation in the flood enquiry is not relevant to irrigators. However, it is possible that some costs related to enquiry recommendations may be relevant at some future date. At this stage, no provision for these costs was made in the 2012-13 budget and consequently, no costs were carried forward into the 2013-17 period for irrigation prices.

In response to the stakeholders who commented 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.

The Authority's recommended level of non-direct costs to be recovered from the Central Brisbane River WSS (from all customers) is set out in Table 5.21. The allocation of these costs between high and medium priority customers is discussed below.

Table 5.21: Recommended Non-Direct Costs (Nominal $'000)

	Seqwater				*Authority*			
	2013-14	***2014-15***	***2015-16***	***2016-17***	***2013-14***	***2014-15***	***2015-16***	***2016-17***
Non-Direct Operations	6,049.6	6,200.8	6,355.8	6,514.7	5,842.0	5,928.5	6,014.9	6,101.0
Non-Infrastructure	370.4	379.7	389.2	398.9	349.1	352.4	355.6	358.8
Insurance	708.7	726.4	744.6	763.2	698.1	704.6	711.1	717.4
Working Capital	132.1	135.5	138.8	142.3	0	0	0	0
Total	**7,260.9**	**7,442.4**	**7,628.4**	**7,819.2**	**6,889.3**	**6,985.6**	**7,081.6**	**7,177.2**

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

Insurance and labour utilisation rates (which affect non-direct and direct costs) are addressed in Volume 1.

5.6 Allocation of Non-Direct Costs

It is necessary to determine the method to allocate non-direct costs across Seqwater's business, including irrigation tariff groups. By definition, non-direct costs do not directly apply to specific activities within schemes, and thereby cannot be allocated according to their relevance to individual service contract activities.

Seqwater's submissions describe a two stage process for cost assignment:

(a) Stage 1 – Seqwater attributes its directs costs to the tariff groups in which they are incurred, and allocates its non-direct costs to tariff groups using the preferred cost allocation methodology for this stage; and

(b) Stage 2 – Seqwater allocates all of the fixed costs assigned to tariff groups in Stage 1 above (which at this point include direct and non-direct costs), between medium and high priority WAE within each tariff groups using the preferred cost allocation methodology for this stage.

Stage 1 – Allocation of Costs to Tariff Groups

Stakeholder Submissions

Seqwater

Seqwater (2012a) proposed to allocate non-direct costs to tariff groups using total direct costs (TDC) (with the exception of insurance premium costs and working capital) because:

(a) TDC represents a reasonable driver of the non-direct operating costs of Seqwater's irrigation activities;

(b) it is relatively simple to administer, identify and extract from the reporting system;

(c) it allows regular comparison between forecast and actual outcomes, and to update allocations where appropriate; and

(d) it results in cost allocations consistent with expectations about non-direct cost incurrence.

Seqwater noted that the Authority used direct labour costs (DLC) as the cost allocator in the recent SunWater review. Seqwater's comparisons of cost allocations using both DLC and TDC showed use of DLC resulted in significantly more costs being allocated to schemes than considered reasonable.

For those components of its non-direct costs which are not allocated using TDC, Seqwater proposes to allocate:

(a) insurance premium costs to tariff groups on the basis of the replacement value of insured assets; and

(b) working capital allowance to tariff groups according to forecast revenue.

Authority's Analysis

In the Authority's SunWater review, analysis by Deloitte was largely ambivalent on which of these two measures DLC or TDC (out of the several considered and rejected) would be most suitable to allocate non-direct costs. Both were relatively highly ranked.

Although the DLC approach was adopted for SunWater, the Authority concluded that this did not necessarily apply for other entities. The Authority considered the approach proposed by Seqwater was fair and reasonable, having regard to Seqwater's particular cost accounting systems and procedures.

Stage 2 – Allocation of Costs Between Priority Groups

Previous Review

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

Stakeholder Submissions

Seqwater

Seqwater (2012a) has proposed the same approach to stage 2 cost allocation as that proposed by the Authority for the SunWater investigation. For SunWater, for bulk schemes, fixed maintenance costs were allocated to priority groups using headworks utilisation factors (HUFs), and fixed operations costs (including insurance premium costs) were allocated 50% using HUFs and 50% using current nominal WAEs.

Seqwater proposed that renewals and maintenance costs are allocated to medium priority using the Headworks Utilisation Factor (HUF). As noted in Chapter 4, 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.

However, PB found that a strict application of the methodology resulted in a perverse outcome for the Central Brisbane River WSS. As a result, PB suggested an alternative method is to calculate the ratio between medium and high priority customers factored by the cut-off percentage for medium priority entitlements, which calculates to 2.1%.

Accordingly, the proposed allocation of maintenance costs to medium priority customers is 2.1%.

In its draft SunWater report, the QCA allocated insurance premium costs in water supply schemes based on the HUF, and in distribution systems according to nominal WAEs. Seqwater has adopted the same approach as the draft report. Seqwater acknowledged a different approach was adopted in the final report (50% HUF and 50% nominal WAE), which resulted in medium priority being allocated a greater share of these costs.

Seqwater has assigned working capital costs between medium and high priority customers proportional to lower bound revenue.

The balance of costs have been allocated to medium priority based on a 50:50 split between the adjusted asset utilisation factor (2.1%) and the nominal ML entitlements attributable to medium priority customers (2.5%).

Other Stakeholders

Riverside Farming (2012) submitted that as water supplied to irrigators is of a lower priority it should not be considered of equal value. Attributing 2% of volume to irrigation use is not correct when taking into account environmental purposes.

S. & H. Sinclair (2012b) and J.B. & B.L. Keller (2012) similarly commented that there are no actual or justifiable costs or customer services that are directly related to the supply of medium priority water to irrigators and that irrigators have no impact on the day to day operations of the dam. In addition, Seqwater cannot measure irrigation use as it is lost in environmental flow estimations.

S. & H. Sinclair (2012b) also suggested that if dam operations are included in costs, the allocation of costs should be based on the volumetric percentage against combined supply capacity, rather than against Seqwater's allocation.

J. Craigie (2012) submitted that:

(a) the costs associated with the Somerset dam's operation have nothing to do with the provision of water to irrigators in Central Brisbane;

(b) whilst the storage volume of Wivenhoe and Somerset Dams are included in the water sharing rules for medium priority WSS in the Moreton ROP, this is merely a mechanism to ensure priority is given to High Class A priority allocations and that the medium reliability irrigation customers are essentially supplied by unsupplemented sources below Wivenhoe Dam (including tributaries from the Lockyer and mid-Brisbane catchments);

(c) flood mitigation costs in both Wivenhoe and Somerset Dams are irrelevant to Central Brisbane irrigators, as the beneficiaries of any flood mitigation operations are all the communities below the dam including cities of Brisbane and Ipswich.

Authority's Analysis

The Authority notes Seqwater's submission that the initial HUF calculated by PB has resulted in a perverse outcome for the Central Brisbane River WSS.

In Chapter 4 (Renewals) the Authority reviewed Seqwater's alternative "adjusted HUF" methodology provided by PB which is based on the single trigger of 14.9% of useable volume corresponding with MP allocations being reduced to zero. The Authority noted, however, that the Moreton ROP prescribes a range of triggers which represent a progressive reduction in MP allocations once the useable volumes in Somerset and Wivenhoe dams reach less than 50%.

The Authority notes that announced allocations associated with MP are reduced progressively over a range of useable volume scenarios and not just when the less than 15% trigger is met (see Table 4.6 in Chapter 4).

Accordingly, the Authority considered that a more appropriate approach would be to include reference in the HUF calculation to this range of scenarios. On this basis, the Authority arrived at an allocation to irrigation of 1.6% rather than the 2.1% proposed by Seqwater.

For the Central Brisbane River WSS, the Authority, therefore, recommends that:

(a) fixed repairs and maintenance costs be allocated to medium priority customers using adjusted nominal WAE (1.6% of costs to medium priority WAE); and

(b) all other fixed operating costs (including insurance premiums) be allocated 50% using adjusted nominal WAE (1.6% of costs to medium priority as above) and 50% using current nominal WAE (2.46% of costs to medium priority).

In response to Riverside Farming (2012), the Authority agrees that water should be valued to reflect different supply reliabilities and has recommended accordingly. The costs of meeting compliance obligations (including environmental management) are a legitimate cost of supplying water for irrigation purposes, and are required to be included in Seqwater's costs under the Referral Notice.

In response to S. & H. Sinclair (2012b), the Authority has taken into account adjusted volumetric capacities as measured by HUFs so that cost allocation reflects different supply reliabilities where appropriate. WAEs are used to allocate costs only where users of water face the same reliability of supply.

In response to J Craigie, the Authority considers that:

(a) as noted above, costs not related to irrigation services have been excluded from the cost base, while those that are common to both irrigation and non-irrigation customers are allocated in the manner recommended;

(a) the Authority's alternative approach to the HUF methodology is considered to provide a fair and reasonable allocation between high and medium priority but the WRP process defines nominal allocations taking into account both supplemented and unsupplemented sources; and

(b) flood mitigation benefits could be expected to accrue to all users downstream of the dams, including riparian irrigation users. It could be expected that flood impacts on irrigators would be less than if the dams did not exist.

5.7 Summary of Operating Costs

Seqwater's proposed operating costs by activity and type are set out in Table 5.22. The Authority's recommended operating costs are set out in Table 5.23. (The non-direct costs allocated to renewals are not included in these tables.)

Table 5.22: Seqwater's Proposed Operating Costs (Nominal $)

	2013-14	*2014-15*	*2015-16*	*2016-17*
Direct Operations				
Labour	3,085,680	3,209,107	3,337,471	3,470,970
Contractors and Materials	1,171,558	1,218,420	1,267,157	1,317,843
Electricity	278,212	285,167	292,296	299,604
Other	855,739	877,132	899,060	921,537
Repairs and Maintenance				
Planned	1,576,725	1,639,794	1,705,386	1,773,602
Unplanned	644,015	669,775	696,566	724,429
Dam Safety	0	0	53,845	0
Rates	706,434	724,095	742,197	760,752
Non-Direct Costs				
Non-Direct Operations	6,049,565	6,200,805	6,355,825	6,514,720
Non-Infrastructure	370,439	379,700	389,193	398,922
Insurance	708,711	726,428	744,589	763,204
Working Capital	132,149	135,453	138,839	142,310
Total	**15,579,227**	**16,065,877**	**16,622,425**	**17,087,893**

Source: Seqwater (2012al).

Table 5.23: Authority's Recommended Operating Costs (Nominal $)

	2013-14	*2014-15*	*2015-16*	*2016-17*
Direct Operations				
Labour	3,027,724	3,088,955	3,150,671	3,212,826
Contractors, Materials	1,118,356	1,142,511	1,166,912	1,191,544
Electricity	269,063	275,789	282,684	289,751
Other	850,354	858,340	866,193	873,903
Repairs and Maintenance				
Planned	1,474,471	1,510,098	1,546,216	1,582,807
Unplanned	391,948	401,419	411,019	420,746
Dam Safety	0	0	48,850	0
Rates	706,434	724,095	742,197	760,752
Non-Direct Costs				
Non-Direct Operations	5,842,043	5,928,547	6,014,893	6,100,991
Non-Infrastructure	349,141	352,420	355,645	358,810
Insurance	698,080	704,635	711,082	717,411
Working Capital	0	0	0	0
Total	**14,727,615**	**14,986,809**	**15,296,362**	**15,509,541**

Source: QCA (2012).

The Authority's recommended operating costs for 2013-14 are 5.5% lower than Seqwater's proposed amount, as defined in its November NSP.

6. DRAFT PRICES

6.1 Background

Ministerial Direction

The Ministerial Direction requires the Authority to recommend Seqwater's irrigation prices for water delivered from Seqwater WSSs.

Prices are to apply 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 the tariff structures, the Authority is to have regard to the fixed and variable nature of the underlying costs. The Authority is 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 the scheme reaches the level required to recover prudent and efficient costs.

Price paths may extend beyond 2013-17, provided the Authority gives its reasons. The Authority must also give its reasons if it does not recommend a price path, where real price increases are recommended by the Authority.

Previous Review

No charges were applicable to the irrigators in the Central Brisbane River WSS in the 2006-11 price path.

However, in the 2006-11 price paths, real price increases over the five years were capped at $10/ML for relevant schemes. 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.

6.2 Approach to Calculating Prices

In order to calculate Seqwater's irrigation prices in accordance with the Ministerial Direction, the Authority has:

(a) identified the total prudent and efficient costs of the scheme;

(b) identified the fixed and variable components of total costs;

(c) allocated the fixed and variable costs to each priority group where appropriate;

(d) calculated cost-reflective irrigation prices;

(e) compared the cost-reflective irrigation prices with current irrigation prices; and

(f) implemented the Government's pricing policies in recommended irrigation prices.

6.3 Total Costs

Based on the methodology outlined in previous chapters, the Authority has determined total efficient costs for all sectors for each tariff group. This is comprised of prudent and efficient renewals costs used as a basis for estimating the renewals annuity, and efficient direct and non-direct operating costs. In many schemes, external revenue sources can offset some of these costs.

Revenue Offsets

Seqwater receives revenue from property leases, recreation fees and the provision of town water supplies. To ensure that Seqwater is not overcompensated for the provision of services, this revenue needs to reduce the estimate of efficient costs.

Submissions

Seqwater

In the Central Brisbane River WSS, Seqwater initially included a revenue offset of $175,900. In the subsequent revised November NSP, the revenue offset was revised to $510,900 based on the 2012-13 expected amount of such revenue[6].

For the Central Brisbane River WSS examples of revenue offsets include the leasing of land, houses and buildings. In addition, recreational facilities also generate revenues that are off-set against lower-bond costs.

Authority's Analysis

The Authority notes that the proposed amount for the revenue offset is slightly higher than the recent average of $457,300 (over the 2009-10 to 2011-12 period). However, the Authority proposes to accept the amount of $510,900 as a revenue offset for the Central Brisbane River WSS ($2012-13).

[6] This revised figure is primarily based on 2010-11 and 2011-12 actual, and 2012-13 budgeted lease revenue subsequently being included. Seqwater now considers the revised figure of $490,900 to be comparable with the historical average.

Summary of Total Costs

The Authority's estimate of prudent and efficient total costs for the |Central Brisbane River WSS for the 2013-17 regulatory period is outlined in **Table 6.1**. Total costs in 2012-13 are also provided. Total costs reflect the costs for the service contract (all sectors) and do not include any adjustments for the Queensland Government's pricing policies.

Table 6.1: Total Costs for the Central Brisbane River WSS (Nominal $)

	2012-13	*2013-14*	*2014-15*	*2015-16*	*2016-17*
Seqwater (April NSP)					
Renewals Annuity	1,159,603	1,188,593	1,191,679	1,292,517	1,559,178
Direct Operating	7,865,996	8,153,727	8,452,294	8,815,959	9,083,620
Non-Direct Operating	7,846,712	8,042,880	8,243,952	8,450,050	8,661,302
Less Revenue Offsets	(175,878)	(180,275)	(184,782)	(189,401)	(194,136)
Return on Working Capital	128,926	132,149	135,453	138,839	142,310
Total	**16,825,359**	**17,337,073**	**17,838,595**	**18,507,964**	**19,252,273**
Seqwater (November NSP)					
Renewals Annuity	1,005,756	1,030,900	1,031,781	1,107,854	1,459,661
Direct Operating	8,024,332	8,318,362	8,623,491	8,993,980	9,268,737
Non-Direct Operating	6,954,844	7,128,715	7,306,933	7,489,606	7,676,846
Less Revenue Offsets	(510,878)	(523,650)	(536,741)	(550,160)	(563,914)
Return on Working Capital	128,926	132,149	135,453	138,839	142,310
Total	**15,602,970**	**16,086,477**	**16,560,917**	**17,180,119**	**17,983,641**
Authority					
Renewals Annuity	-	1,064,840	1,052,713	1,140,142	1,590,977
Direct Operating	-	7,838,351	8,001,206	8,214,742	8,332,329
Non-Direct Operating	-	6,889,264	6,985,602	7,081,620	7,177,212
Less Revenue Offsets	-	(523,650)	(536,741)	(550,160)	(563,914)
Return on Working Capital	-	0	0	0	0
Total	**-**	**15,268,805**	**15,502,780**	**15,886,344**	**16,536,604**

Source: Seqwater (2012c), Seqwater (2012al) and QCA (2012).

6.4 Fixed and Variable Costs

The Ministerial Direction requires the Authority to have regard to the fixed and variable nature of Seqwater's costs in recommending tariff structures for each of the irrigation schemes.

Stakeholder Submissions

Seqwater

Seqwater (2012s) submitted that all operations (including electricity), maintenance and renewal costs for the Central Brisbane River tariff group do not vary with water use (that is, they are 100% fixed costs).

Other Stakeholders

S & H Sinclair (2012) submitted that a 100% fixed tariff is not consistent with water conservation, as irrigators will trend to waste water. They suggested a tariff structure of Part A 70% and Part B 30%.

JB and BL Keller (2012) suggested a 60/40 or 50/50 split to fixed and variable charges.

K Schmidt (Rivermead 2012) submitted that to encourage the efficient use of water in an area where trading may be limited, a fixed charge of 20% should apply with the remaining 80% paid if irrigators use the water.

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 schemes share similar characteristics. Most of the costs associated with operating a bulk WSS are fixed and do not vary with water use. The Authority therefore sought to, where appropriate, apply the Indec findings to Seqwater schemes. Volume 1 provides further details on this analysis.

In summary, the Authority considers that some costs in both bulk schemes and distribution systems will vary with water use. Accordingly, the Authority will apply the findings determined for the SunWater Review to Seqwater schemes (Table 6.2 refers).

Table 6.2: Recommended Variable Costs

Activity	*% Variable in Bulk*
Labour	20%
Contractors	20%
Repairs and Maintenance	20%
Materials and Other	20%
Dam Safety	0%
Rates	0%
Electricity (pumping)	n.a.
Non-Directs	0%
Renewals Annuity	0%

Source: QCA (2012).

In response to comments, the Authority notes that the proposed price structure contains a higher fixed charge proportion than current charges, but is below the 100% proposed by Seqwater. The Authority's recommendations involve an increase in the fixed charge, but there is a corresponding decrease in variable charges.

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 of the irrigation schemes.

6.5 Allocation of Costs According to WAE Priority

To establish the irrigation share of fixed costs, total fixed costs must be allocated between medium and high priority WAE in each relevant tariff group. Variable costs are allocated according to usage of water.

The Authority has identified in earlier chapters its preferred approach to allocating costs between medium and high priority WAE.

The resulting total fixed revenue requirements for high and medium priority WAE are as shown in Table 6.3. The irrigation share of the total fixed revenue requirement is also shown in Table 6.3.

Table 6.3: Authority's Recommended Allocation of Fixed Revenue Requirement between High and Medium Priority WAE 2013-14 ($'000)

Tariff Group	*High Priority Fixed Revenue Requirement*	*Medium Priority Fixed Revenue Requirement*	*High Priority Irrigation Share of Fixed Revenue Requirement*	*Medium Priority Irrigation Share of Fixed Revenue Requirement*
Central Brisbane	14,964	305	0	293

Source: QCA (2012).

6.6 Variable Charges

On the basis of its analysis of the share of total costs, the Authority has estimated total variable costs for the Central Brisbane River tariff group. To convert this estimate of total variable costs to a volumetric tariff requires the Authority to consider how such costs vary with each ML of usage. An estimate of typical water usage is required to align with estimated costs relating to management practices which seek to ensure services are made available when required.

In Central Brisbane River WSS, the majority of usage relates to non-irrigation (urban and industrial consumption). There were no available data regarding irrigation water usage due to the absence of meters.

In the other Seqwater schemes, the Authority reviewed 10-years of annual usage data. The Authority noted that, with the advent of the Water Grid urban and industrial demand to be met from other storages and from manufactured water sources has changed. The Authority reviewed the available last 4 years of data (sourced from the Water Grid Manager). This indicated that water usage as a percentage of WAE in the Central Brisbane River WSS was 33% in 2008-09, 35% in 2009-10, 38% in 2010-11 and 40% in 2011-12. .

The lower demand in the earlier years reflects the effect of drought and ongoing supply restrictions since the drought. Therefore, and consistent with the approach applied in the other Seqwater irrigation schemes, the Authority has adopted a water use estimate based on the average of those years that exceed the four year average for each tariff group to derive a typical water use estimate.

The average ratio was therefore 39%. The Authority assumed the same percentage applied to the irrigation sector.

Table 6.4 shows total variable costs (all sectors) the typical all sectors' average water use and the resulting volumetric charge.

Table 6.4: All Sectors Water Use and Volumetric Tariffs 2013-14

Tariff Group	*Total Variable Costs ($'000)*	*Authority's Estimate of Typical Water Use (ML)*	*Volumetric Tariff ($/ML)*
Central Brisbane	1,373	110,698	12.31

Source: QCA (2012). Note: The volumetric charge is derived by taking the NPV of total variable costs divided by the NPV of average water use.

6.7 Cost Reflective Fixed and Volumetric Tariffs

The Authority derived cost-reflective fixed and volumetric tariffs on the basis of assessed efficient costs identified above, and the recommended tariff structures.

These prices are cost reflective only and do not take account of the Government's pricing policies. This is discussed in the next section.

Table 6.5 presents current tariffs, the Tier 1 reference (lower bound) tariff, Seqwater's (April and November) proposed tariffs and the Authority's cost reflective tariffs.

Table 6.5: Cost-Reflective Tariffs (Nominal $/ML)

Tariff Group	*Actual*	*Seqwater (April)*	*Seqwater (November)*	*Cost Reflective*
	2012-13	*2013-14*	*2013-14*	*2013-14*
Central Brisbane River				
Fixed (Part A)	n.a.	56.52	52.44	38.34
Variable (Part B)	n.a.	0.00	0.00	12.31

Source: Seqwater (2012aj), Seqwater (2012c), Seqwater (2012al) and QCA (2012).

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

6.8 Queensland Government Pricing Policies

Under the Ministerial Direction, where current prices are already above the level required to recover efficient allowable costs, water prices are to be maintained in real terms using an appropriate measure of inflation (as recommended by the Authority).

Where prices are below efficient cost recovery, prices are to be set to increase in real terms at a pace consistent with the 2006-11 prices until such time as the WSS reaches efficient costs, whereupon prices are maintained in real terms.

Where price increases in real terms are necessary, the Authority must consider phasing in the price increase in order to moderate price impacts on irrigators but at the same time have regard for Seqwater's legitimate commercial interests.

Authority's Analysis

The Authority notes that because charges currently do not apply for Central Brisbane River irrigators, there is no current revenue amount for comparison. The Authority's revenue analysis therefore depends on the approach taken to setting initial water prices.

Water Prices

Seqwater

Seqwater (2011a) proposed a cost-reflective price of $56.52/ML Part A only charge for 2013-14. This was revised in Seqwater's November NSP to a Part A charge of $52.44/ML.

Other Stakeholders

S & H Sinclair (2012) suggested a price path for the Authority's consideration, with an initial price of $21.52/ML, increasing by $5/ML plus CPI each year for 7 years. They suggested this tariff take the form of a 70/30 fixed variable split.

Authority's Analysis

On the analysis provided above, the Authority's cost-reflective Part A tariff is $38.34/ML and the Part B volumetric tariff is $12.31/ML.

Given that irrigation tariffs have not previously applied, it is not possible to calculate current irrigation revenues, in the same manner as for other Seqwater schemes. Further, the Ministerial Direction does not specify a rate of increase to apply over a price path to the Central Brisbane River WSS. In considering this matter, the Authority has considered a price path that 'moderates the price impacts on irrigators' and has 'regard for Seqwater's legitimate commercial interests'.

For reasons specified above, the Authority recommends that the cost-reflective volumetric charge of $12.31/ML apply from 1 July 2013.

The cost-reflective Part A charge is $38.34/ML in 2013-14. The Authority, however, does not consider it appropriate for prices to start at this level, as the Ministerial Direction requires a moderation of price impacts.

Applying the Authority's general approach to setting fixed charges would result in an opening Part A charge of $2/ML. However, such an approach does not have sufficient regard for Seqwater's legitimate commercial interests and is unlikely to promote trading. As no charge has previously applied, the Authority expects that introduction of charges to result in increased water trading as some irrigators who do not use their WAE will seek to avoid the fixed charge.

The Authority considers that water should move to its best and highest value use, and the trading from an unproductive owner, to a productive owner will increase agricultural output and economic activity. Accordingly, the Authority considers that the fixed charge should promote trading.

The starting Part A charge should balance Seqwater's commercial interest and the promotion of trading with the need to allow irrigators the time to adjust.

Therefore, the Authority has given consideration to charges faced by (competing) irrigators in neighbouring WSSs. Under such an approach, the initial Part A tariff for the Central Brisbane River WSS is the simple numerical average of recommended Part A tariffs in the Logan River, Lower Lockyer Valley and Warrill Valley WSSs.

Central Lockyer WSS is also relevant geographically but no Part A charge applies until 1 July 2015.

The average of these recommended Part A tariffs is $22.66/ML. This starting price in the Central Brisbane River WSS moderates the price impact on irrigators and accommodates Seqwater's legitimate commercial interests (compared to a starting Part A of $2/ML).

Moreover, a Part A of $22.66/ML would better promote permanent and temporary water trading in the scheme than a starting Part A of $2/ML. That is, with a higher (Part A) holding cost associated with WAE, water trading will likely increase, moving WAE to higher value uses.

The Authority considers that the increase of $2/ML real per annum that the Authority has applied to other tariff groups is appropriate to apply to the Central Brisbane River WSS.

In conclusion, therefore, the Authority recommends a starting price that is the average of the 2013-14 recommended Part A tariffs for Logan River, Lower Lockyer Valley and Warrill Valley WSSs. The Part A tariff would increase by $2/ML in subsequent years. This approach is likely to achieve cost-reflective pricing over two regulatory periods (assuming no change in costs).

On the basis of the previously described analysis and principles, the Authority recommends prices as outlined below (Table 6.6 refers).

Table 6.6: Recommended Water Prices 2013-17 (Nominal $/ML)

	2013-14	*2014-15*	*2015-16*	*2016-17*
Central Brisbane River				
Fixed (Part A)	22.66	25.28	28.01	30.86
Volumetric (Part B)	12.31	12.62	12.94	13.26

Source: QCA (2012).

The Authority's recommended prices are presented in nominal terms for 2013-17. However, it is anticipated that actual prices will be established each year (March quarter) by Seqwater on the basis of changes in the Brisbane All Groups CPI.

The Authority notes that the starting price suggested by S & H Sinclair (2012) is largely comparable with the Authority's recommended Part A charge. However, the Authority proposes the price be increased at $2/ML per year rather than $5/ML per year as suggested by Sinclair.

Revenue Requirement

The estimated revenue required to meet cost reflective prices for irrigation is $291,800 in 2013-14.

Table 6.7 summarises the revenue maintenance requirement consistent with the Authority's proposed pricing approach. The split between variable revenues, based on a 10 year average irrigation water use, and the balance to be recouped through fixed charges is also shown.

Table 6.7: Total Revenue Requirement (Nominal 2013-14 $'000)

Tariff Group	*Total Revenue Requirement – Cost Reflective*	*Revenue Requirement – Based on Initial Price*	*Fixed Revenue*	*Variable Revenue*
Central Brisbane River	291.8	171.0	153.4	17.6

Source: QCA (2012).

6.9 Impact of Recommended Prices

The impact of any change in prices on the total cost of water to a particular irrigator, can only be accurately assessed by taking into account the individual irrigator's water usage and nominal WAE (see Volume 1).

The Authority also notes that the capacity of irrigators to pay cost-reflective charges is beyond the scope of the Ministerial Direction. In the Authority's SunWater review, the original Ministerial Direction was amended to exclude consideration of capacity to pay from the Authority's brief. The same approach is considered to apply to the Seqwater irrigation review.

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APPENDIX A: FUTURE RENEWALS LIST

Below are listed Seqwater's forecast renewal expenditure items submitted by Seqwater in June 2012 and formed the basis of the April NSPs, for the years 2013-14 to 2035-36 in 2012-13 dollar terms.

Asset	*Year*	*Description*	*Total ($,000)*
Somerset Dam	2013/14	Refurbish Hydro	20
		Refurbish Spillway Crest	75
		Refurbish Spillway Sluice	75
	2014/15	Refurbish Regulator	20
		Refurbish Spillway Crest	50
		Refurbish Spillway Sluice	50
	2015/16	Refurbish Regulator	60
	2016/17	Refurbish Hydro	20
		Refurbish Spillway Crest	60
		Refurbish Spilway Sluice	60
	2017/18	Refurbish Spillway Crest	60
		Refurbish Spillway Sluice	60
	2018/19	Refurbish Regulator	40
		Refurbish Spillway Crest	40
		Refurbish Sump Pump	25
	2019/20	Refurbish Generator	100
		Refurbish Regulator	80
	2020/21	Refurbish Hydro	10
		Refurbish Town Water	50
	2023/24	Replace Water Infrastructure - Dams - Somerset Dam - Control Room - Switchboard - Distribution Switchboard	80
		Replace Water Infrastructure - Dams - Somerset Dam - Control Room - Switchboard - Main Lv Switchboard	53
		Replace Water Infrastructure - Dams - Somerset Dam - Control Room - Switchboard - Main Swtichboard	193
	2025/26	Refurbish Water Infrastructure - Dams - Somerset Dam - Gantry Crane - Gantry Crane - Carriage Structure	150
		Refurbish Water Infrastructure - Dams - Somerset Dam - Gantry Crane - Gantry Crane - Electrical Panels	150
		Replace Water Infrastructure - Dams - Somerset Dam - Gantry Crane - Gantry Crane - 900Mm Dia Sheaves	171
		Replace Water Infrastructure - Dams - Somerset Dam - Gantry Crane - Gantry Crane - Cable Reeler	13
		Replace Water Infrastructure - Dams - Somerset Dam - Gantry Crane - Gantry Crane - Double Drop Sheaves	72
		Replace Water Infrastructure - Dams - Somerset Dam - Gantry Crane - Gantry Crane - Drive Motors	11
		Replace Water Infrastructure - Dams - Somerset Dam - Gantry Crane - Gantry Crane - Slings 100T Swl (Spares)	5
		Replace Water Infrastructure - Dams - Somerset Dam - Gantry Crane - Gantry Crane - Slings 10T Swl (Spares)	1
		Replace Water Infrastructure - Dams - Somerset Dam - Gantry Crane - Gantry Crane - Spare Carriage Wheels	16
		Replace Water Infrastructure - Dams - Somerset Dam - Gantry Crane - Gantry Crane - Steel Superstructure	2,984
		Replace Water Infrastructure - Dams - Somerset Dam - Gate	107

Asset	*Year*	*Description*	*Total ($,000)*
		Hoisting Mechanisms - Gate Winches & Gearing -	
		Replace Water Infrastructure - Dams - Somerset Dam - Inlet Outlet Works - Inlet Screens & Trash Racks - Base Concrete	994
		Replace Water Infrastructure - Dams - Somerset Dam - Inlet Outlet Works - Inlet Screens & Trash Racks - Precast Concrete	2,498
		Replace Water Infrastructure - Dams - Somerset Dam - Inlet Outlet Works - Inlet Screens & Trash Racks - Spares In Sand Blasting Shed For Refurbishment	175
		Replace Water Infrastructure - Dams - Somerset Dam - Inlet Outlet Works - Inlet Screens & Trash Racks - Structural Walls, Colums & Beams	3,251
		Replace Water Infrastructure - Dams - Somerset Dam - Inlet Outlet Works - Inlet Screens & Trash Racks - Trash Screen Fishing Gear	27
		Replace Water Infrastructure - Dams - Somerset Dam - Inlet Outlet Works - Inlet Screens & Trash Racks - Trash Screens	1,399
		Replace Water Infrastructure - Dams - Somerset Dam - Instrumentation (Dam) - Equiptment - Compressor	21
		Replace Water Infrastructure - Dams - Somerset Dam - Instrumentation (Dam) - Equiptment - Exhaust Fan	27
		Replace Water Infrastructure - Dams - Somerset Dam - Instrumentation (Dam) - Equiptment - Sampling Equipment	13
		Replace Water Infrastructure - Dams - Somerset Dam - Instrumentation (Dam) - Equiptment - Temperature Sensing System	112
		Replace Water Infrastructure - Dams - Somerset Dam - Instrumentation (Dam) - Gate Controls -	27
		Replace Water Infrastructure - Dams - Somerset Dam - Instrumentation (Dam) - Monitoring - Seismic Monitoring	80
		Replace Water Infrastructure - Dams - Somerset Dam - Instrumentation (Dam) - Monitoring - Water Level Recorder	53
		Replace Water Infrastructure - Dams - Somerset Dam - Instrumentation (Dam) - Piezometer System - Foundation Piezometers	267
		Replace Water Infrastructure - Dams - Somerset Dam - Instrumentation (Dam) - Piezometer System - Lower Gallery Piezometers	267
		Replace Water Infrastructure - Dams - Somerset Dam - Instrumentation (Dam) - Security - Security Alarm	27
		Replace Water Infrastructure - Dams - Somerset Dam - Instrumentation (Dam) - Security - Security Sensor	93
	2026/27	Replace Water Infrastructure - Dams - Somerset Dam - Site Works (Dam) - Power Supply - Light & Power Reticulation	747
		Replace Water Infrastructure - Dams - Somerset Dam - Site Works (Dam) - Power Supply - Load Bank 33 Kva	53
		Replace Water Infrastructure - Dams - Somerset Dam - Site Works (Dam) - Power Supply - Power Supply	2
		Replace Water Infrastructure - Dams - Somerset Dam - Site Works (Dam) - Power Supply - Underground Power Reticulation	34
		Replace Water Infrastructure - Dams - Somerset Dam - Site Works (Dam) - Power Supply - Wiring Works	53
	2032/33	Replace Water Infrastructure - Dams - Somerset Dam - Site Works (Dam) - Fencing And Gates - Beam Creek Fencing	11
		Replace Water Infrastructure - Dams - Somerset Dam - Site Works (Dam) - Fencing And Gates - Brockhurst Fencing	2

Asset	*Year*	*Description*	*Total ($,000)*
		Replace Water Infrastructure - Dams - Somerset Dam - Site Works (Dam) - Fencing And Gates - Fencing Around D/S Toe Of Embankment	240
		Replace Water Infrastructure - Dams - Somerset Dam - Site Works (Dam) - Fencing And Gates - Kirkleigh Boundary Fence	3
		Replace Water Infrastructure - Dams - Somerset Dam - Site Works (Dam) - Fencing And Gates - Villeneuve Road Fence	2
		Replace Water Infrastructure - Dams - Somerset Dam - Site Works (Dam) - Fencing And Gates - Westvale Road Fencing	126
	2035/36	Replace Water Infrastructure - Dams - Somerset Dam - Dam Wall - Gallery - Pipework Inc. Valves	107
		Replace Water Infrastructure - Dams - Somerset Dam - Dam Wall - Gallery - Pumps	32
		Replace Water Infrastructure - Dams - Somerset Dam - Dam Wall - Metal Work - Chain Mesh Walls	11
		Replace Water Infrastructure - Dams - Somerset Dam - Dam Wall - Metal Work - Gates	21
		Replace Water Infrastructure - Dams - Somerset Dam - Dam Wall - Metal Work - Hand Railing	200
		Replace Water Infrastructure - Dams - Somerset Dam - Dam Wall - Service Bridge - Bearings (Service Bridge)	400
		Replace Water Infrastructure - Dams - Somerset Dam - Dam Wall - Service Bridge - Bridge Beams (Steel)	2,552
		Replace Water Infrastructure - Dams - Somerset Dam - Dam Wall - Service Bridge - Bridge Deck (Service Bridge)	1,398
		Replace Water Infrastructure - Dams - Somerset Dam - Dam Wall - Service Bridge - Gantry Track Rails (Service Bridge)	583
		Replace Water Infrastructure - Dams - Somerset Dam - Dam Wall - Services - Compressed Air Delivery System	32
		Replace Water Infrastructure - Dams - Somerset Dam - Gate Hoisting Mechanisms - Counterweight - Gate I - Concrete	50
		Replace Water Infrastructure - Dams - Somerset Dam - Gate Hoisting Mechanisms - Counterweight - Gate I - Steelworks	56
		Replace Water Infrastructure - Dams - Somerset Dam - Gate Hoisting Mechanisms - Counterweight - Gate J - Concrete	50
		Replace Water Infrastructure - Dams - Somerset Dam - Gate Hoisting Mechanisms - Counterweight - Gate J - Steelworks	56
		Replace Water Infrastructure - Dams - Somerset Dam - Gate Hoisting Mechanisms - Counterweight - Gate K - Concrete	50
		Replace Water Infrastructure - Dams - Somerset Dam - Gate Hoisting Mechanisms - Counterweight - Gate K - Steelworks	56
		Replace Water Infrastructure - Dams - Somerset Dam - Gate Hoisting Mechanisms - Counterweight - Gate L - Concrete	50
		Replace Water Infrastructure - Dams - Somerset Dam - Gate Hoisting Mechanisms - Counterweight - Gate L - Steelworks	56
		Replace Water Infrastructure - Dams - Somerset Dam - Gate Hoisting Mechanisms - Counterweight - Gate M - Concrete	50
		Replace Water Infrastructure - Dams - Somerset Dam - Gate Hoisting Mechanisms - Counterweight - Gate M - Steelworks	56
		Replace Water Infrastructure - Dams - Somerset Dam - Gate Hoisting Mechanisms - Counterweight - Gate N - Concrete	50
		Replace Water Infrastructure - Dams - Somerset Dam - Gate Hoisting Mechanisms - Counterweight - Gate N - Steelworks	56
		Replace Water Infrastructure - Dams - Somerset Dam - Gate Hoisting Mechanisms - Counterweight - Gate O - Concrete	50
		Replace Water Infrastructure - Dams - Somerset Dam - Gate	56

Asset	Year	Description	Total ($,000)
		Hoisting Mechanisms - Counterweight - Gate O - Steelworks	
		Replace Water Infrastructure - Dams - Somerset Dam - Gate Hoisting Mechanisms - Counterweight - Gate P - Concrete	50
		Replace Water Infrastructure - Dams - Somerset Dam - Gate Hoisting Mechanisms - Counterweight - Gate P - Steelworks	56
		Replace Water Infrastructure - Dams - Somerset Dam - Gates - Gate I - Radial Gate	244
		Replace Water Infrastructure - Dams - Somerset Dam - Gates - Gate I - Trunion	56
		Replace Water Infrastructure - Dams - Somerset Dam - Gates - Gate J - Radial Gate	244
		Replace Water Infrastructure - Dams - Somerset Dam - Gates - Gate J - Trunion	56
		Replace Water Infrastructure - Dams - Somerset Dam - Gates - Gate K - Radial Gate	244
		Replace Water Infrastructure - Dams - Somerset Dam - Gates - Gate K - Trunion	56
		Replace Water Infrastructure - Dams - Somerset Dam - Gates - Gate L - Radial Gate	244
		Replace Water Infrastructure - Dams - Somerset Dam - Gates - Gate L - Trunion	56
		Replace Water Infrastructure - Dams - Somerset Dam - Gates - Gate M - Radial Gate	244
		Replace Water Infrastructure - Dams - Somerset Dam - Gates - Gate M - Trunion	56
		Replace Water Infrastructure - Dams - Somerset Dam - Gates - Gate N - Radial Gate	244
		Replace Water Infrastructure - Dams - Somerset Dam - Gates - Gate N - Trunion	56
		Replace Water Infrastructure - Dams - Somerset Dam - Gates - Gate O - Radial Gate	244
		Replace Water Infrastructure - Dams - Somerset Dam - Gates - Gate O - Trunion	56
		Replace Water Infrastructure - Dams - Somerset Dam - Gates - Gate P - Radial Gate	244
		Replace Water Infrastructure - Dams - Somerset Dam - Gates - Gate P - Trunion	56
Water Flow Meters	2025/26	Replace Water Meters (Currently do not exist. Will be installed over next 9 years as part of NWI)	25
	2026/27	Replace Water Meters (Currently do not exist. Will be installed over next 9 years as part of NWI)	25
	2027/28	Replace Water Meters (Currently do not exist. Will be installed over next 9 years as part of NWI)	25
	2028/29	Replace Water Meters (Currently do not exist. Will be installed over next 9 years as part of NWI)	25
	2029/30	Replace Water Meters (Currently do not exist. Will be installed over next 9 years as part of NWI)	25
	2030/31	Replace Water Meters (Currently do not exist. Will be installed over next 9 years as part of NWI)	25
	2031/32	Replace Water Meters (Currently do not exist. Will be installed over next 9 years as part of NWI)	25
	2032/33	Replace Water Meters (Currently do not exist. Will be installed over next 9 years as part of NWI)	25
	2033/34	Replace Water Meters (Currently do not exist. Will be installed over next 9 years as part of NWI)	25
	2034/35	Replace Water Meters (Currently do not exist. Will be installed over next 9 years as part of NWI)	25

Asset	*Year*	*Description*	*Total ($,000)*
	2035/36	Replace Water Meters (Currently do not exist. Will be installed over next 9 years as part of NWI)	25
Wivenhoe Dam	2014/15	Refurbish Water Infrastructure - Dams - Wivenhoe Dam - Inlet/Outlet Works (Dam) - Inlet Screens & Trash Rack - Trash Rack	10
		Refurbish Water Infrastructure -Dams - Wivenhoe Dam - Dam Wall - Zone 4 Riprap	10
		Refurbish Water Infrastructure -Dams - Wivenhoe Dam - Inlet/Outlet Works (Dam) - Baulk Winch	100
	2015/16	Refurbish Water Infrastructure - Dams - Wivenhoe Dam - Inlet/Outlet Works (Dam) - Inlet Screens & Trash Rack - Trash Rack	80
		Refurbish Water Infrastructure - Dams - Wivenhoe Dam - Inlet/Outlet Works (Dam) - Penstock Baulk Winch - Hoist Winch 1	15
		Refurbish Water Infrastructure - Dams - Wivenhoe Dam - Spillway - Spillway Gates	100
	2016/17	Refurbish Water Infrastructure -Dams - Wivenhoe Dam - Inlet/Outlet Works (Dam) - Regulator Valves	35
	2019/20	Refurbish Water Infrastructure - Dams - Wivenhoe Dam - Control Building (Dam) - Standby Generator - Engine Cooling System	35
		Refurbish Water Infrastructure - Dams - Wivenhoe Dam - Inlet/Outlet Works (Dam) - Inlet Screens & Trash Rack - Trash Screen Fishing Gear	10
	2020/21	Replace Water Infrastructure -Dams - Wivenhoe Dam - Site Works (Dam) - Roads And Drainage	339
	2020/21	Replace Water Infrastructure -Dams - Wivenhoe Dam - Site Works (Dam) - Site Signange	88
	2035/36	Replace Water Infrastructure -Dams - Wivenhoe Dam - Site Works (Dam) - Site Signange	88
	2021/22	Refurbish Water Infrastructure - Dams - Wivenhoe Dam - Inlet/Outlet Works (Dam) - Inlet Screens & Trash Rack - Trash Rack	30
		Refurbish Water Infrastructure -Dams - Wivenhoe Dam - Inlet/Outlet Works (Dam) - Intake Baulks	12
	2025/26	Replace Water Infrastructure - Dams - Wivenhoe Dam - Spillway - Gate Hoisting Mechanisms - Cables & Sheaving - Gate 1	30
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Spillway - Gate Hoisting Mechanisms - Cables & Sheaving - Gate 2	30
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Spillway - Gate Hoisting Mechanisms - Cables & Sheaving - Gate 3	30
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Spillway - Gate Hoisting Mechanisms - Cables & Sheaving - Gate 4	30
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Spillway - Gate Hoisting Mechanisms - Cables & Sheaving - Gate 5	30
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Spillway - Gate Hoisting Mechanisms - Winch 1A &1B Gate 1	684
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Spillway - Gate Hoisting Mechanisms - Winch 2A &2B Gate 2	684

Asset	*Year*	*Description*	*Total ($,000)*
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Spillway - Gate Hoisting Mechanisms - Winch 3A &3B Gate 3	684
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Spillway - Gate Hoisting Mechanisms - Winch 4A &4B Gate 4	684
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Spillway - Gate Hoisting Mechanisms - Winch 5A &5B Gate 5	684
	2027/28	Replace Water Infrastructure - Dams - Wivenhoe Dam - Control Building (Dam) - Standby Generator - Emergency Ventilation Damper	41
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Control Building (Dam) - Standby Generator - Fire Suppression System	41
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Control Building (Dam) - Standby Generator - Generator Set Controls	68
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Control Building (Dam) - Standby Generator - Ups Battery Charger	22
	2029/30	Replace Water Infrastructure - Dams - Wivenhoe Dam - Instrumentation (Dam) - Monitoring - Seismic Monitoring	1,642
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Instrumentation (Dam) - Monitoring - Water Quality Monitoring	173
	2030/31	Replace Water Infrastructure - Dams - Wivenhoe Dam - Instrumentation (Dam) - Seepage V Notch Weirs - V Notch Weir Large	10
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Instrumentation (Dam) - Surface Movement Points - Surface Settlement Points	8
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Communication Systems - Mobile Phone	4
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Communication Systems - Pa System	3
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Communication Systems - Radio	11
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Communication Systems - Telephone	59
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Water & Fire Services - Fire Indicator Panel	11
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Water & Fire Services - Fire Services (Lwtic)	224
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Water & Fire Services - Fire Suppression & Alarm System	30
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Water & Fire Services - Fire Suppression System	328
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Water & Fire Services - Fire Suppression System 2	104
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Water & Fire Services - Logan Camp Water Reservoir & Tank	189
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site	4

Asset	Year	Description	Total ($,000)
		Works (Dam) - Water & Fire Services - Ser - Water Services	
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Water & Fire Services - Tank (Teampoly 1085L 4 Module)	3
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Water & Fire Services - Water Meters (Lwtic)	9
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Water & Fire Services - Water Plant	378
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Water & Fire Services - Water Services (Water Line To Picnic Sheds)	8
		Replace Water Infrastructure -Dams - Wivenhoe Dam - Instrumentation (Dam) - Gate Controls	27
		Replace Water Infrastructure -Dams - Wivenhoe Dam - Instrumentation (Dam) - Piezometers	350
	2031/32	Replace Water Infrastructure -Dams - Wivenhoe Dam - Instrumentation (Dam) - Telemetry	282
	2032/33	Replace Water Infrastructure - Dams - Wivenhoe Dam - Instrumentation (Dam) - Equiptment - Laboratory Equipment	86
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Instrumentation (Dam) - Equiptment - Sampling Equipment	269
	2034/35	Replace Water Infrastructure - Dams - Wivenhoe Dam - Control Building (Dam) - Other Mechanical - Air Compressor	11
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Control Building (Dam) - Other Mechanical - Hydraulic Lines	903
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Control Building (Dam) - Other Mechanical - Hydraulic Pack	1,505
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Control Building (Dam) - Other Mechanical - Mechanical Spares	11
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Control Building (Dam) - Other Mechanical - Oil Transfer Pump	3
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Control Building (Dam) - Other Mechanical - Portable Hydraulic Power Unit	82
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Control Building (Dam) - Other Mechanical - Pump	205
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Control Building (Dam) - Other Mechanical - Spill Equipment	33
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Control Building (Dam) - Other Mechanical - Ventilation Plant	14
	2035/36	Replace Water Infrastructure - Dams - Wivenhoe Dam - Instrumentation (Dam) - Water Level Recorder - Water Level Recorder	7
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Saddle Dam 1 - Road Pavement - Gravel	39
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Saddle Dam 2 - Road Pavement - Gravel	51
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Power Supply - Alterations To Hv Reticulation	55
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Power Supply - Auto Dialler	12
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Power Supply - Circuit Breaker (Transformer)	16

Asset	*Year*	*Description*	*Total ($,000)*
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Power Supply - Electrical Cabinet	11
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Power Supply - Electrical Spares	27
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Power Supply - High Voltage Power Reticulation	1368
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Power Supply - High Voltage Switch Gear	958
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Power Supply - Light & Power Reticulation	438
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Power Supply - Ring Main Unit	207
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Power Supply - Transformer (300Kva, Dry Type)	82
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Power Supply - Ups(25Kva)	6
		Replace Water Infrastructure - Dams - Wivenhoe Dam - Site Works (Dam) - Power Supply - Wivenhoe Admin Centre Generator	55
		Replace Water Infrastructure -Dams - Wivenhoe Dam - Inlet/Outlet Works (Dam) - Gate Seals	379
		Replace Water Infrastructure -Dams - Wivenhoe Dam - Site Works (Dam) - Fencing And Gates	215
Total			**40,023**