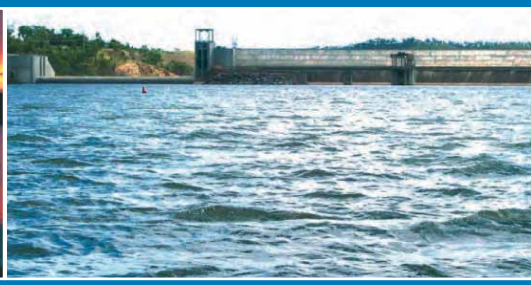
Expenditure Proposals

for the 2010 price review

A submission to the Queensland Competition Authority

December 2009



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Executive summary

1.1 Context

The Queensland Premier and Treasurer have referred the declared monopoly business activities of the Gladstone Area Water Board (GAWB) to the Queensland Competition Authority (Authority) for an investigation into the pricing practices relating to those activities.

The recommendations of this review will form the basis of prices charged by GAWB from 1 July 2010 to 30 June 2015. This *Expenditure Proposals* submission is the second of three initial submissions that GAWB will make to the Authority relating to this price review.

The purpose of this submission is to set out GAWB's proposals for:

- demand forecasts
- capital expenditure
- operating expenditure
- the opening value of its regulated asset base (RAB) and
- cost pass-through events.

All expenditure values included in this submission:

- have been included at 'nominal dollars' being the price GAWB is expecting to pay for an item of expenditure in the year the expenditure is to be incurred and
- exclude any applicable Goods and Services Tax (GST).

1.2 Demand forecasts

In its *Commercial Framework and Pricing Principles* submission, GAWB proposed adopting a demand forecasting methodology that utilises different demand forecasts for different purposes.

GAWB proposes to use a 'base case' demand forecast for determining capital expenditure (including source augmentation), price setting and revenue forecasting.

For years one to five of the planning period, the base case forecast comprises:

- customer contract demand for customers currently signed to long-term contracts or
- expected actual demand based on an analysis of current customer demand, historic demand, customer-sourced forecasts and external information for customers not signed to long-term contracts.

For years six to 20 of the planning period, GAWB has assumed that the current spare capacity in the system is taken up by municipal usage based on long-term growth trends and new industrial customers. This methodology ensures that the recovery of excess capacity costs are equitably shared between current and expected future customers.

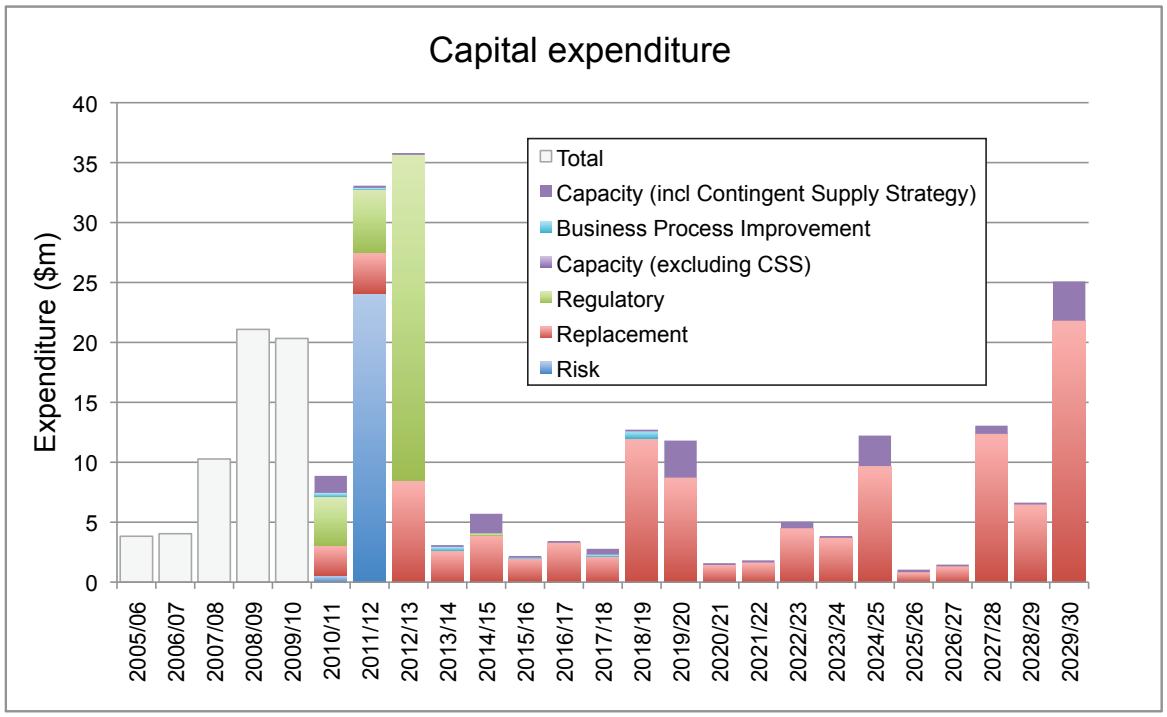
1.3 Capital expenditure proposals

Table 1 and Figure 1 sets out GAWB's actual and proposed capital expenditure.

Table 1 – Capital expenditure summary 2006 to 2030

Period	1 July 2005 to 30 June 2010	1 July 2010 to 30 June 2015	1 July 2015 to 30 June 2030
Basis	Actual / Budget	Forecast	Forecast
Operational			
Source	3,949,492	30,026,784	8,450,111
Treatment & Delivery	20,251,663	50,502,298	74,303,929
Corporate	2,032,552	2,565,317	10,146,230
Total	26,233,707	83,094,399	92,900,271
Average per Annum	5,246,741	16,618,880	6,193,351
Contingent Supply Strategy			
Total	33,327,973	3,440,820	11,808,487
Average per Annum	6,665,595	688,164	787,232
Total Capital Expenditure			
Total	59,561,680	86,535,219	104,708,758
Average per Annum	11,912,336	17,307,044	6,980,584

Figure 1 – Capital expenditure by year and project justification 2006 to 2030



GAWB's proposed capital expenditure over the 20-year planning horizon is $191m. Of this capital expenditure, 92% falls within the following:

- age-based and condition-based replacement of assets ($113m or 59% of the total)
- construction of a new embankment at Saddle Dam No 3 and raising of Awoonga Dam left abutment ($27m or 14% of the total)
- a system storage project to provide back-up for the Awoonga Dam pump station ($22m or 11% of the total) and
- ongoing contingent supply strategy (CSS) costs ($15m or 8% of the total).

Replacement of assets at the end of their useful life is necessary to maintain the integrity of the system.

Construction of a new embankment at Saddle Dam No 3 and raising of Awoonga Dam left abutment are required to satisfy regulatory (dam safety) requirements.

A fundamental risk to the reliability of GAWB's delivery network is its reliance upon the daily operation of the Awoonga Dam pump station. This risk is heightened by a low level of storage within GAWB's delivery network, relative to other water service providers. At present GAWB only has in the order of 12 to 16 hours maximum storage in its delivery network.

In response to this risk, GAWB proposes constructing a suitably sized storage dam within GAWB's delivery network, located between Awoonga Dam and Toolooa Reservoir. This storage dam will be filled by supply from Awoonga Dam and will be maintained for storage until required. The proposed storage would provide 14 days supply in the event of planned maintenance or failure of the Awoonga Dam pump station. It would significantly improve the delivery network security and reliability by reducing the probability of extended supply failure in the event the Awoonga Dam pump station was off-line.

The purpose of the CSS is to attain the capability to augment the supply system to meet defined security criteria under a range of possible future drought and demand scenarios. The underlying assumption for CSS expenditures in this submission is that no augmentation will be required within the planning horizon. The proposed expenditure includes only that work necessary to:

- achieve the targeted state of preparedness to augment the supply system (where this is not achieved by 30 June 2010) and
- maintain that state of preparedness.

1.4 Operating expenditure proposals

Operating costs have steadily increased significantly over the current regulatory control period from around $8m in 2005/06 to more than $16m in 2009/10.

Main causes of this increase are:

- improved knowledge of the condition of GAWB's assets obtained through the current regulatory control period resulting in the identification of several significant and urgent maintenance projects
- the need to employ additional staff and external resources to properly discharge GAWB's duties and
- increases in electricity, chemical, rates and insurance costs.

GAWB has required more staff and resources over the last five years to:

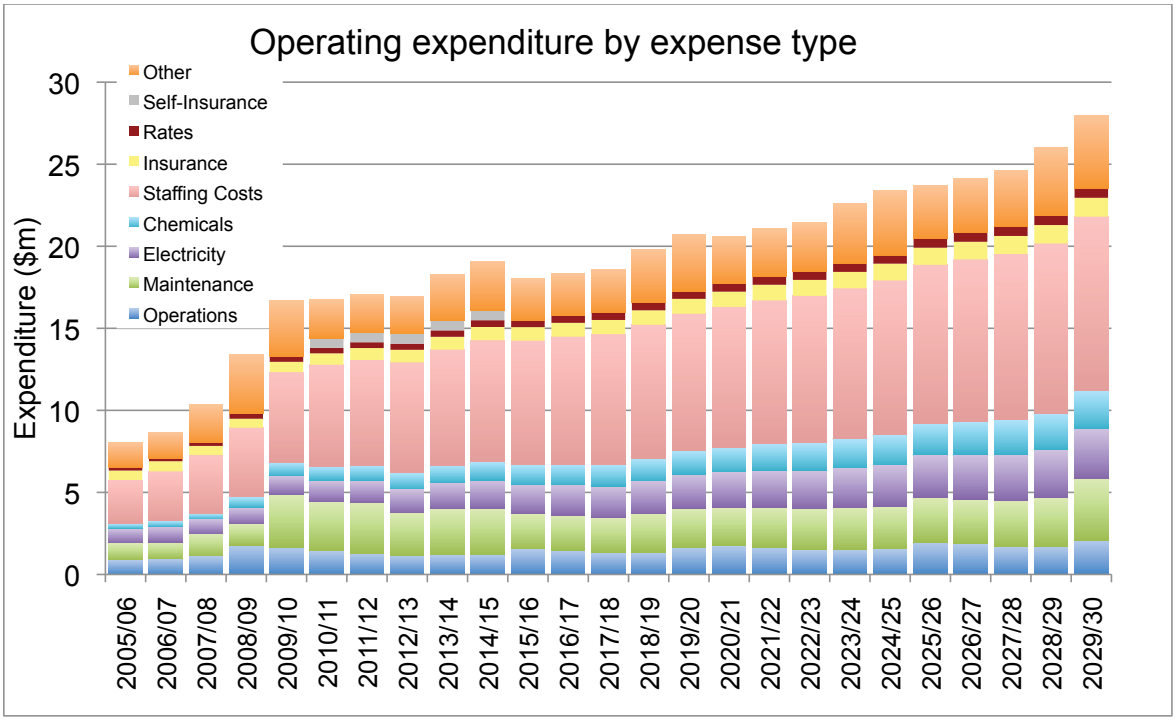
- discharge its obligations relating to safety, the environment and water quality
- reduce risks associated with failing to supply water, through the use of strategic planning activities
- address legacy issues associated with inadequate resourcing in earlier years and
- plan and execute a growing capital works program (necessary for reducing risk, replacing assets identified as requiring replacement, and meeting safety obligations).

GAWB submits that the allowance for operating expenditure at the last price review was not sufficient to allow it to meet all of the regulatory, customer and asset obligations consistent with that of a bulk water provider. Notwithstanding this, GAWB has undertaken all necessary work to ensure these obligations were met and customers were provided with a safe and secure water supply. This has come at a significant financial cost and GAWB's operating expenditure proposals for the next regulatory control period will allow these obligations to be met.

GAWB's operating expenditure proposals for the next regulatory control period show an average annual increase of 2.7% (that is, similar to the rate of inflation) over the 2009/10 expenditure.

The trend in operating expenditure is illustrated in Figure 2

Figure 2 – Total operating expenditure by expense type 2006 to 2030



1.5 Regulated asset base

Table 2 shows calculation of GAWB's proposed regulated asset base (RAB) at 1 July 2010 of $462.79m. Please note that CSS expenditure of $37.35m includes capitalisation adjustments (refer section 6.3.2) of $4.02m.

Table 2 – GAWB proposed 1 July 2010 RAB

Opening RAB at 1 July 2005	$371.67m
Add:	
- Re-inclusion of Hanson Road pipeline	$3.08m
- Re-inclusion of Boat Creek Reservoir	$0.07m
Less:	
- DORC value of disposals	-$7.26m
- Removal of surplus land to RAB	-$3.05m
- Depreciation	-$29.36m
Add:	
- Acquisitions excluding CSS and fluoridation plants	$26.23m
- CSS expenditure	$37.35m
- Fluoridation plants	$1.53m
- Inflation	$62.53m
Opening Value of RAB at 1 July 2010	**$462.79m**

The opening RAB at 1 July 2005 differs from that recommended by the Authority in 2005. GAWB has adopted the values contained in the detailed depreciated optimised replacement cost (DORC) valuation undertaken by SMEC Australia Pty Ltd (SMEC) for GAWB in 2005. A detailed valuation is necessary to properly implement the required roll-forward calculation. It was not possible to reconcile the detailed valuation provided by SMEC with the summarised data provided by the Authority.

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2 Introduction

2.1 This submission in context

The Queensland Premier and Treasurer have referred the declared monopoly business activities of the Gladstone Area Water Board (GAWB) to the Queensland Competition Authority (Authority) for an investigation into the pricing practices relating to those activities. The recommendations of this review will form the basis of prices charged by GAWB from 1 July 2010 to 30 June 2015.

GAWB will make three separate initial submissions to the price review investigation:

- submission 1 (the *Commercial Framework and Pricing Principles* submission) was submitted on 4 September 2009
- submission 2 (this *Expenditure Proposals* submission) provides details of GAWB's 20-year demand forecasts, proposed capital and operating expenditures, and proposed 1 July 2010 regulated asset base (RAB)
- submission 3, a pricing model to calculate prices applying the proposed pricing principles to the forecast expenditures.

2.2 Structure of this submission

Section 3 provides details of GAWB's demand forecasts based on the methodology proposed in the *Commercial Framework and Pricing Principles* submission.

Section 4 of this submission sets out:

- actual capital expenditure for the period 1 July 2005 to 30 June 2009 and budgeted capital expenditure for the period 1 July 2009 to 30 June 2010, which GAWB proposes to add to the RAB and
- forecast capital expenditure for the period 1 July 2010 to 30 June 2030 used to set prices for the next regulatory control period.

Section 5 provides details of GAWB's forecast operating expenditure for the period 1 July 2010 to 30 June 2030 used to set prices for the next regulatory control period.

Section 6 details the 1 July 2010 RAB value calculated by rolling-forward the 1 July 2005 RAB and adding the current regulatory period capital expenditure (including contingent supply strategy (CSS) expenditure) discussed in section 4.

Section 7 provides details of the possible cost pass-through events that may impact GAWB in the next regulatory control period.

2.3 GAWB's desire for transparency

GAWB is transparent in its relationship with the Authority and customers. For this reason a large amount of supporting documentation relevant to this submission is being provided to the Authority.

The *Commercial Framework and Pricing Principles* submission was a public submission.

This *Expenditure Proposals* submission is very largely a public submission. Only seven of the 34 reports referenced in this submission have been supplied to the Authority on a confidential basis. These confidential reports contain commercially sensitive information such as individual customer demand forecasts and other commercial matters.

The pricing model submission will be a confidential submission because it contains individual customer pricing, consumption and capital contribution details. GAWB will be engaging with customers on an individual basis to brief them on how GAWB's proposals, as part of this price review process, will impact them.

2.4 Forecast expenditure

GAWB's capital and operating expenditure forecasts have been based upon the forecast base case demand as outlined in section 3. Any changes to base case demand levels may impact capital and operating expenditure forecasts included in this submission. GAWB will provide details to the Authority of any changes to capital and operating expenditure or any changes in demand forecasts prior to the finalisation of the price review investigation. GAWB proposes to use base case demand at 30 April 2010 for the purpose of determining customer prices for the next regulatory control period.

All expenditure values included in this submission:

- have been included at 'nominal dollars', being the price that GAWB is expecting to pay for an item of expenditure in the year that expenditure is to be incurred and
- exclude any applicable Goods and Services Tax (GST).

3 Demand forecasts

In its *Commercial Framework and Pricing Principles* submission, GAWB proposed adopting a demand forecasting regime that utilises different demand forecasts for different purposes.

GAWB proposed using a 'base case' demand forecast for determining capital works expenditure (including source augmentation), price setting and revenue forecasting.

This base case forecast comprises:

- customer contract demand for customers currently signed to long-term contracts or
- expected actual demand based on an analysis of current customer demand, historic demand, customer-sourced forecasts and external information, for customers not signed to long-term contracts.

An 'upper bound' demand forecast is used to define the parameters of capacity that GAWB should be capable of constructing within a two-year timeframe in accordance with GAWB's CSS.

A 'potential' demand forecast will be monitored for the purpose of long-term planning.

3.1 2010/11 – 2014/15 regulatory control period demand

GAWB continues to assert that the most appropriate level of demand to be 'priced in' for the regulatory control period is the base case forecast.

However, it is important to note that GAWB's prices for the next regulatory control period will not be struck until mid 2010, and the amount of demand that satisfies the test for inclusion may be significantly different from the current estimate of base case demand.

Table 3 and Figure 3 illustrate the current base case demand and two credible alternative base case demand scenarios projected for 30 April 2010.

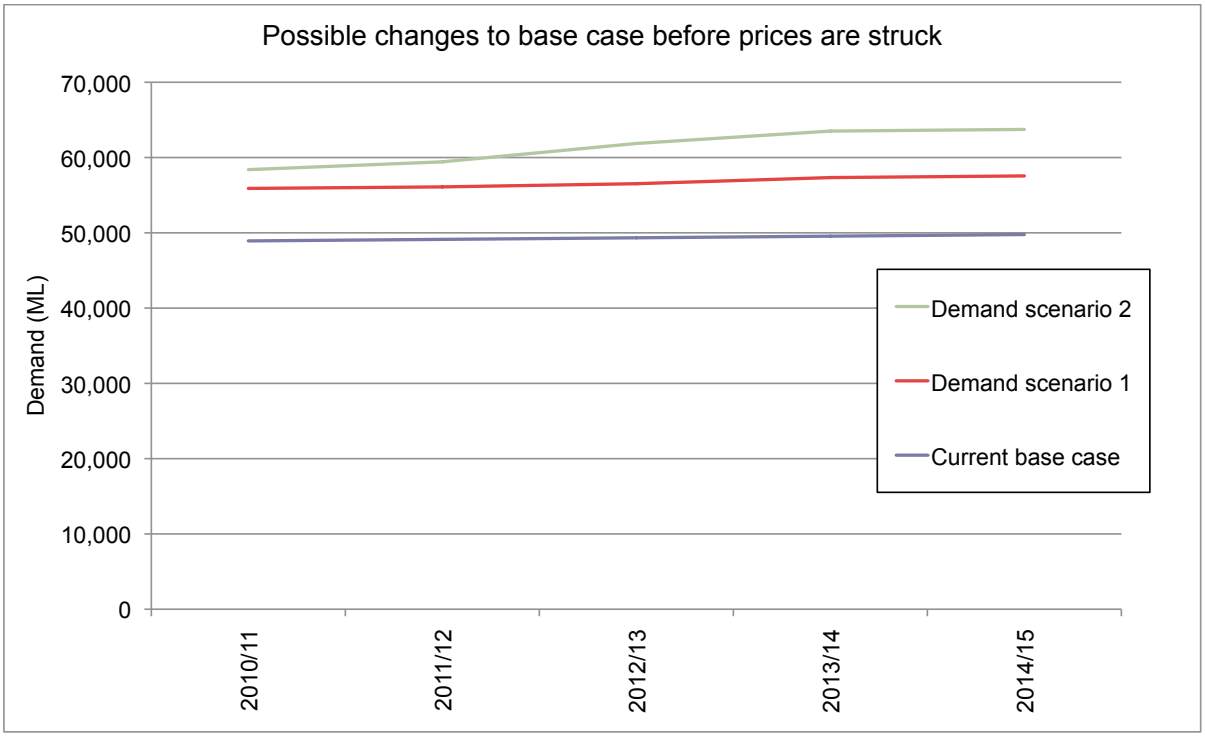
Demand scenario 1 incorporates demand at the time of the submission and additional demand from current customers who have discussed this additional demand requirement with GAWB and are well advanced in negotiations towards securing this demand through a long-term water supply contract.

Demand scenario 2 incorporates possible scenario 1 demand plus demand from two projects where publicly available information suggests they will reach financial close within the coming months.

Table 3 – Possible changes to base case

	2010/11	2011/12	2012/13	2013/14	2014/15
Current base case	48,923	49,128	49,338	49,553	49,772
Demand scenario 1	55,895	56,100	56,522	57,337	57,556
Demand scenario 2	58,391	59,428	61,867	63,514	63,733

Figure 3 – Possible changes to base case



3.2 2015/16 – 2029/30 planning period demand

As has been previously noted in GAWB's submissions to the Authority, demand for water in the Gladstone region is difficult to predict. A single major new customer would add 10% or 20% to the total demand for water in a very short period of time.

Moreover, GAWB's supply capacity is subject to a drought risk. The Historic No Failure Yield (HNFY) of the Awoonga Dam has been reduced several times over the past two decades and future severe droughts may further reduce the quantity of water that can be delivered from the current infrastructure.

In GAWB's circumstances, the expected overall least cost supply development usually involves large supply increments.

Whilst it is appropriate that capacity be added in large increments, those large capacity increments inevitably result in significant amounts of spare capacity in the years immediately following augmentation.

This spare capacity may be used:

- by existing customers if they increase demand
- by existing customers if the assessed safe yield of Awoonga Dam falls further or
- by new customers.

The purpose of adopting a constant real price over the 20-year planning period is to ensure that recovery of the costs of supply is equitably shared between existing customers and future customers, and that prices do not decrease as utilisation increases.

In 2005 the Authority stated:[1]

- *The key objective which should guide the selection of the length of a planning period relates to the need for prices to provide appropriate signals for long term planning by customers. This is important to deal with any efficient excess capacity and provide consistent and stable pricing signals given the lumpiness of infrastructure investments. Under a shorter pricing period:*
- *current customers would be forced to pay for excess capacity inherent in lumpy capacity expansion, albeit optimal to meet long term demand;*
- *significant price shocks may result if a price smoothing period is adopted which is shorter than that required to utilise the capacity of major infrastructure. For example, such an approach would potentially result in much higher prices in earlier regulatory periods, declining in subsequent periods until the next major augmentation; and*
- *future additional demand, once the asset is utilised, could be priced at a relatively lower amount due to the larger denominator used in pricing calculation at that time and would not signal the correct marginal cost to new consumers.*

Consistent with this approach of ensuring that future uptake of spare capacity is reflected in current prices, GAWB proposes to set an aggregate demand forecast for the years six to 20 of the planning period that assumes that existing spare capacity will be consumed by the end of the planning period.

GAWB's forecasting methodology has been reviewed by Nera Economic Consulting (Nera) and Synergies Economic Consulting (Synergies). Their reports have been included at Appendices 1 and 2 respectively.

NERA concluded that the approach adopted by GAWB is consistent with:

- *the QCA's original objectives for the 20-year planning period mechanism;*
- *the desirability of spreading the cost of today's excess capacity so that it is shared with future anticipated customers who will make use of that capacity, even if the specific customers and dates from which they will benefit is not yet certain;*
- *the objective of signalling the costs of future capacity only where the need for and timing of such capacity is reasonably assured; and*
- *the outcome of the approach that QCA adopted at its 2005 review.*

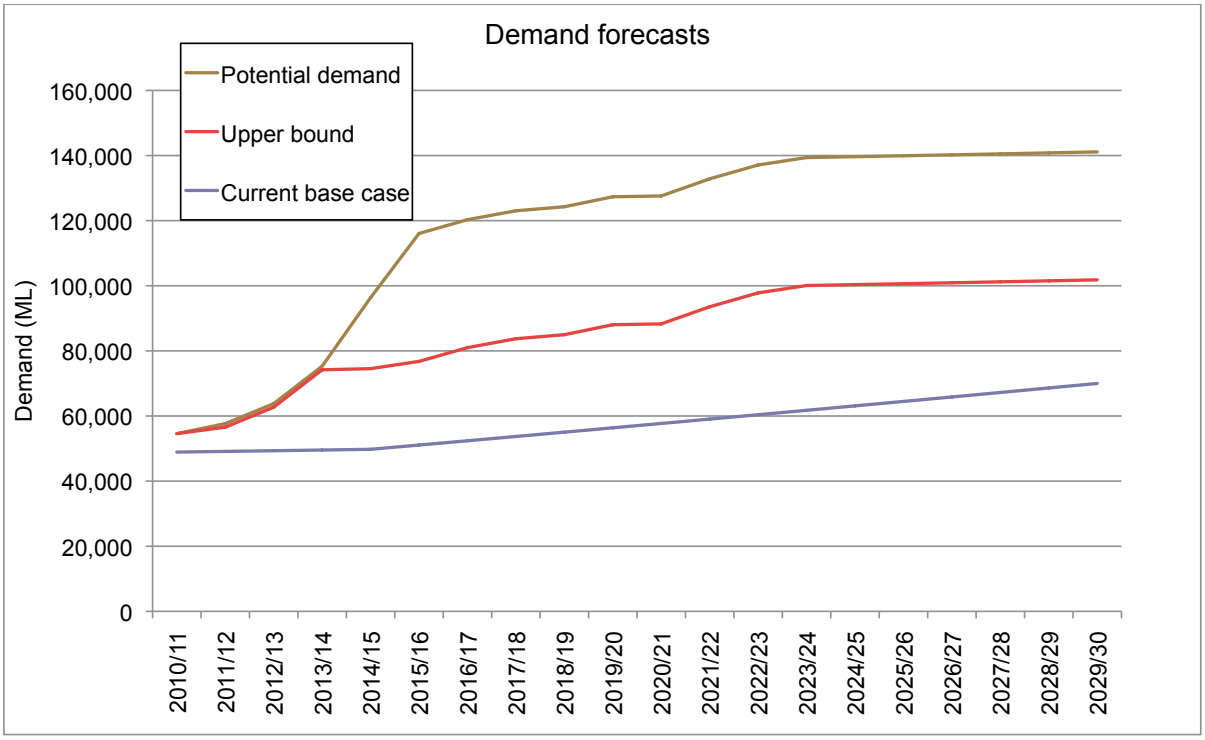
Synergies have also undertaken a peer-review of GAWB's demand forecasts which is included in their report at Appendix 2. Synergies concluded that:

- *The approach of using contracted demand for the first five years of the base case forecast provides an objective measure and should reflect a customer's realistic expectations……*
- *The contracted demand, and in turn aggregate base case demand, may change as more existing customers enter into long-term contracts. The use of these base case forecasts should respond to these changes as they occur.*

1 QCA Final Report, March 2005, p33

Figure 4 shows GAWB's aggregate demand forecasts, based upon the application of GAWB's forecasting methodology as at the date of this submission.

Figure 4 – Demand forecasts



GAWB's customer-by-customer forecast (and Synergies' peer-review of the forecast) will be supplied to the Authority as a confidential submission. GAWB will update the Authority immediately prior to the conclusion of the price review investigation with its forecast demand, taking into account changes to base case demand such as where customers have entered into long-term contracts since providing this submission to the Authority.

4 Capital expenditure

4.1 Introduction

The purpose of this section of the submission is to provide justifications for:

- actual capital expenditure for the period 1 July 2005 to 30 June 2009 and budgeted capital expenditure for the period 1 July 2009 to 30 June 2010, which GAWB proposes to add to the RAB and
- forecast capital expenditure for the period 1 July 2010 to 30 June 2030 used to set prices for the next regulatory control period.

Expenditure in the current regulatory control period is discussed in section 4.2. Proposed expenditure for the next regulatory control period is discussed in section 4.3. Indicative expenditure for the period from 1 July 2015 to 30 June 2030, which is used to set the price path, is discussed in section 4.4.

Table 4 and Figure 5 set out GAWB's actual and proposed expenditure.

Table 4 – Capital expenditure summary 2006 to 2030

Period	1 July 2005 to 30 June 2010	1 July 2010 to 30 June 2015	1 July 2015 to 30 June 2030
Basis	Actual / Budget	Forecast	Forecast
Operational			
Source	3,949,492	30,026,784	8,450,111
Treatment & Delivery	20,251,663	50,502,298	74,303,929
Corporate	2,032,552	2,565,317	10,146,230
Total	26,233,707	83,094,399	92,900,271
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Contingent Supply Strategy			
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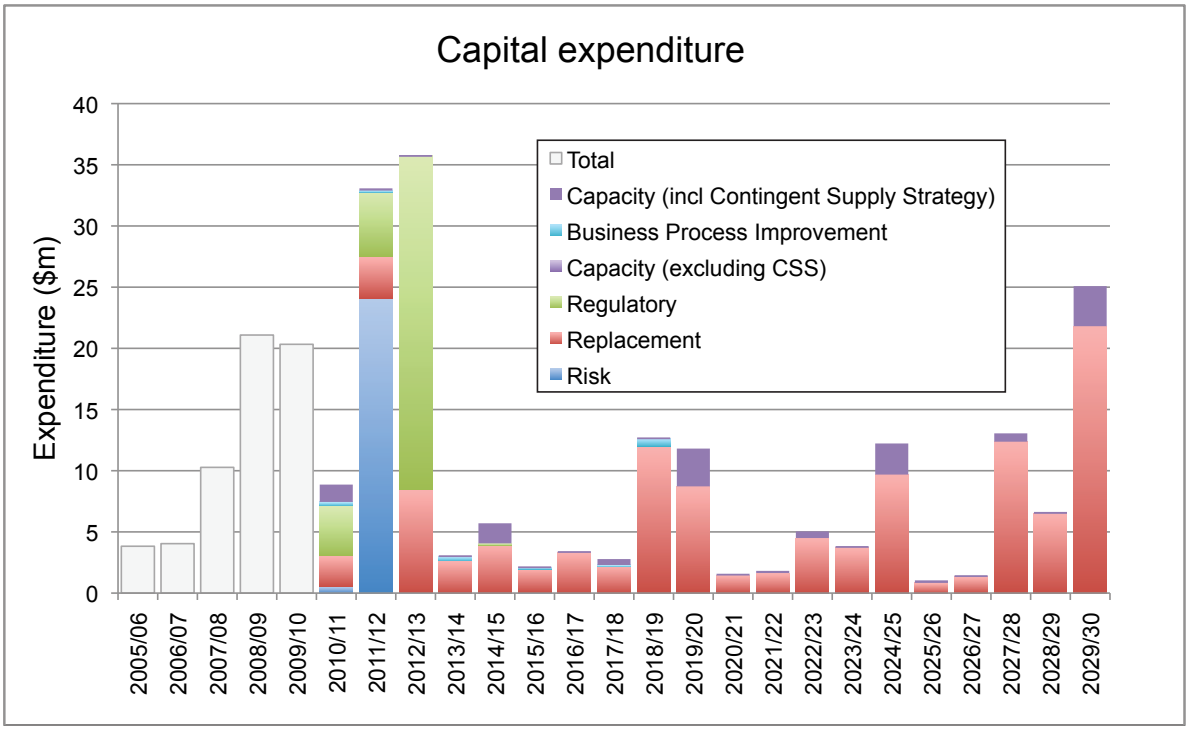
Total Capital Expenditure			
Total	59,561,680	86,535,219	104,708,758
Average per Annum	11,912,336	17,307,044	6,980,584

Figure 5 – Capital expenditure by year and project justification 2006 to 2030



GAWB's proposed capital expenditure over the 20-year planning horizon is $191m. Of this capital expenditure, 92% falls within the following:

- age-based and condition-based replacement of assets ($113m or 59% of the total)
- construction of a new embankment at Saddle Dam No 3 and raising of Awoonga Dam left abutment ($27m or 14% of the total)
- a system storage project to provide back-up for the Awoonga pump station ($22m or 11% of the total) and
- ongoing CSS costs ($15m or 8% of the total).

GAWB's capital expenditure proposals are based on its 10-year capital works program. Prior to undertaking any project outlined in the 10-year capital works program, GAWB prepares a detailed project plan or business case to ensure that:

- the project has clear objectives with benefits of the project articulated
- the project is aligned with organisational goals and objectives
- the impact that the project will have on key stakeholders and the region is understood and managed
- all possible options to meet the objectives of the project are thoroughly investigated and evaluated considering technical aspects, economic, social, and environmental considerations and
- procurement is undertaken in accordance with the *Queensland Government Procurement Policy*.

4.1.1 Justification for projects

GAWB has adopted the following justification criteria in assessing the reasonableness of its capital expenditure and its incorporation in the RAB.

1. Risk mitigation

The project is required to address a credible risk in GAWB's current operating environment that would have high or extreme consequence as assessed in accordance with GAWB's *Risk Management Policy*. The existing residual risk rating will be lowered to an acceptable level by the completion of the project.

2. End-of-life replacement

The project is required to replace assets that are assessed as being at the end of their useful life or which are assessed as being non-maintainable (e.g. spare parts for servicing are difficult to obtain or prohibitively expensive).

3. Regulatory obligation

The project is undertaken in compliance with a requirement of law or regulation (for example *Workplace Health and Safety Act 1995*, *Water Supply (Safety and Reliability) Act 2008, Water Act 2000*).

4. Capacity (including CSS)

The project is required to meet increased customer demand through the augmentation of:

- the delivery network or
- source of water supply.

5. Business process improvement

The project is justified by reference to the efficiencies that it will bring to GAWB's operations.

Because GAWB's demand forecast does not include any major new demand over the planning horizon, no significant capital expenditure projects are required to meet additional demand. No projects are required under the 'capacity' justification, with the exception of the CSS.

Many projects have multiple benefits. Projects required to meet a regulatory obligation may also have benefits of risk mitigation or business process improvements. In general, only the primary project justification is discussed in this submission.

4.1.2 Cost escalation

The cost escalation factors used to inflate capital cost forecasts for the 2011–2030 regulatory planning period are set out in Table 5.

Table 5 – Capital expenditure cost escalation factors 2011 to 2030

Escalation factor	Adopted value	Comments	Expenditure category
Professional services	4.63%	Three-year average (2007–2009) of property and business services wage price index	Used for CSS expenditure where consulting engineering costs dominate expenditure
Construction index	6.3%	Three-year average (2007–2009) of general Queensland construction industry index	Used for capital expenditure categories dominated by construction costs
Consumer Price Index (CPI)	2.43%	Synergies' inflation forecast[2]	All other

4.1.3 Peer-review of forecasts

GAWB has engaged three parties to undertake a third-party peer-review of capital expenditure:

- Cardno (Qld) Pty Ltd (Cardno), an engineering consultancy, was engaged to undertake a review of GAWB's actual expenditure on nominated major projects and forecast infrastructure capital expenditure
- SMS Consulting Group Ltd (SMS), a specialised management and information technology company, was engaged to review and benchmark GAWB's information communication technology (ICT) expenditure and
- Harrington Construction Consultants Pty Ltd (HCC), a construction consultancy, was engaged to undertake a review of GAWB's CSS expenditure.

A copy of Cardno's report is attached as Appendix 3. A copy of the SMS report is attached as Appendix 4. A copy of HCC's report is attached as Appendix 5.

4.2 Current regulatory control period (1 July 2005 to 30 June 2010)

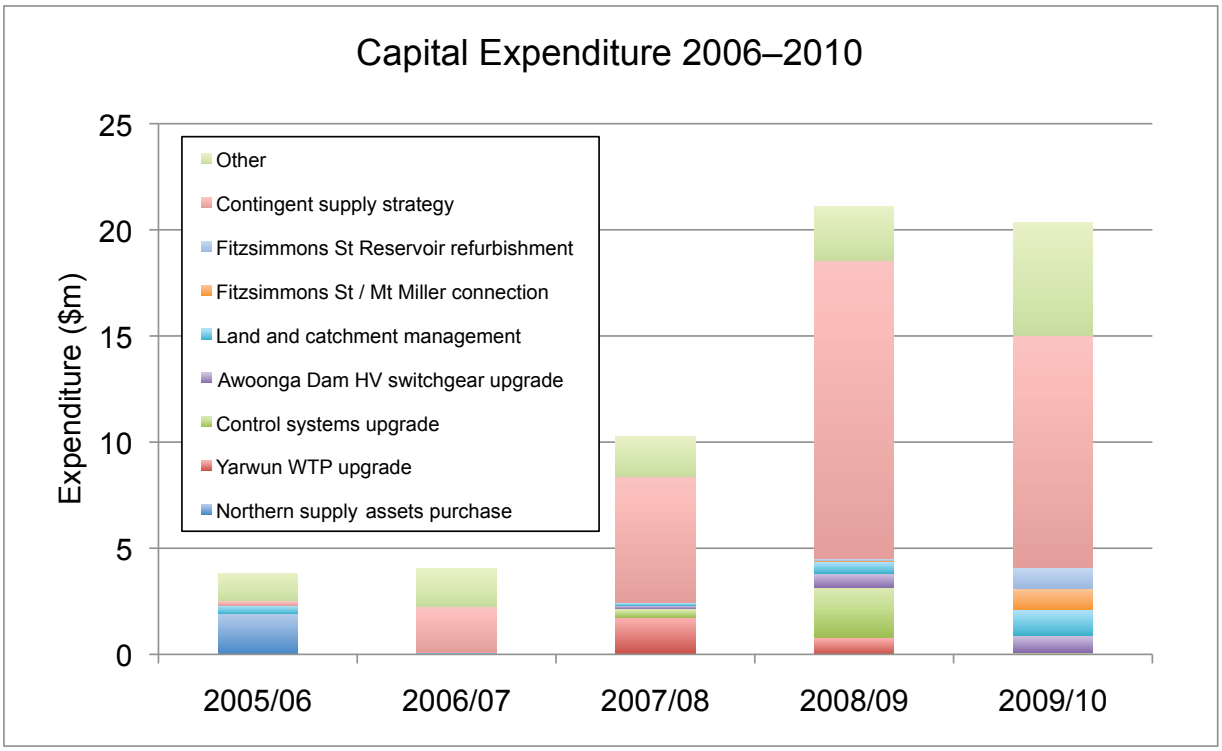
GAWB's capital expenditure over the last five years has totalled approximately $59m, including $33m spent on the CSS project. Table 6 and Figure 6 show the 2006–2010 regulatory control period expenditure by major project.

Table 6 – Capital expenditure summary 2006 to 2010

Year	2005/06	2006/07	2007/08	2008/09	2009/10	Total
Project						
Northern supply assets purchase	1,927,504					1,927,504
Yarwun WTP upgrade		23,141	1,757,141	806,456		2,586,738
Control systems upgrade			392,166	2,326,989	100,000	2,819,155
Awoonga Dam HV switchgear upgrade			162,007	695,920	801,089	1,659,016
Land and catchment management	393,432	82,195	124,787	543,359	1,200,000	2,343,773
Fitzsimmons St / Mt Miller connection				91,985	993,000	1,084,985
Fitzsimmons St Reservoir refurbishment				44,572	1,001,151	1,045,723
Contingent supply strategy	196,193	2,161,241	5,958,710	14,066,477	10,945,352	33,327,973
Other	1,311,482	1,774,803	1,879,351	2,512,013	5,289,164	12,766,813
Total	3,828,611	4,041,380	10,274,162	21,087,771	20,329,756	59,561,680

2 GAWB's *Commercial Framework and Pricing Principles* submission, Appendix A, page 58

Figure 6 – Capital expenditure by major project 2006 to 2010



4.2.1 North industrial area asset purchase

GAWB engaged MWH Australia Pty Ltd (MWH), a specialist infrastructure consultancy, to undertake a review of the potable and raw water delivery networks of the northern area of its bulk delivery network and to develop a strategy for the future development of these systems based on anticipated demands. MWH's final report, *Northern Area Water Supply Strategy*, dated 5 July 2005 is attached as Appendix 6.

MWH recommended GAWB purchase the former Calliope Shire Council's assets to improve infrastructure management of the Mt Miller Reservoir and potable water supply mains in the Mt Miller and Yarwun areas. This benefited GAWB by consolidating control of its northern delivery network.

The assets were purchased at the DORC value as at 30 June 2006 determined by Davwil Designs and Management Services Pty Ltd. A copy of the valuation is attached as Appendix 7. Independent valuers, Herron Todd White, valued the land component of the sale and purchase separately. A copy of the valuation is attached as Appendix 8.

These assets are incorporated into the Northern Industrial Potable price zone.

Because the former Calliope Shire Council proposed charging GAWB a DORC-based price for the use of these assets (which GAWB would have passed on to its customers), acquiring the assets at DORC has no impact on 2011–2015 regulatory control period prices when compared with continued council ownership.

4.2.2 Yarwun water treatment plant upgrade (stage 1)

Yarwun water treatment plant upgrade (stage 1) project involved the automation and refurbishment of the treatment plant and replacement of obsolete electro-mechanical control mechanisms with PLC and SCADA control systems. The project was necessary for GAWB to meet the demand for potable water in Gladstone's northern industrial area.

Secondary benefits of the project include:

- improved operational safety and
- improved reliability of supply.

In its 2005 price review the Authority recognised that an immediate augmentation of the potable supply to the northern industrial area was required to meet demand. Based on advice from SMEC, the Authority recommended:[3]

- mothballing of the Yarwun water treatment plant
- the conversion of Hanson Road main (currently used to supply raw water to the Yarwun water treatment plant) to allow transport of potable water from the Gladstone water treatment plant to the northern industrial area.

A total of $625,000 ($600,000 for conversion of Hanson Road main in the 2006 financial year and $25,000 for mothballing the Yarwun water treatment plant in the 2007 financial year) was included in the Authority's expenditure forecast.

Subsequent to the 2005 price determination, MWH was engaged by GAWB to investigate the northern area water systems further and recommend strategies for supply reliability and servicing future growth.

MWH investigated a number of options to enhance supply reliability for existing demand and to meet future demand growth in the northern region, including mothballing the Yarwun water treatment plant and supplying potable water from the Gladstone water treatment plant through the Hanson Road main. Further investigation of the SMEC-proposed solution revealed that the cost of converting the Hanson Road pipeline from a raw water main to a potable water main would be much higher than the cost that was forecast by SMEC. These additional costs mostly related to connection to the potable system but also included costs of disinfection and the need to augment the pipeline within four to five years to meet forecast demand, due to the limited capacity of the pipeline operating from the 16 megalitre (ML) reservoir.

MWH recommended refurbishing the existing plant and upgrading its capacity to meet demand as the preferred option. The upgrade provided the best value for money enabling short and medium-term requirements to be met. Longer-term requirements will be met through further augmentation of the facility.

Upgrading the Yarwun water treatment plant has allowed the Hanson Road main to remain a partial supply back-up for northern industrial area raw water customers managing risk and planned interruptions to supply from the Mt Miller pipeline. It has also allowed for connection of raw water customers to the Hanson Road pipeline.

The automation, refurbishment and upgrade of the design capacity to 5ML per day commenced in 2006/07 financial year and was finalised in 2008/09.

Delivery customer prices downstream from the Yarwun water treatment plant (Northern Industrial Potable, Fishermans Landing Potable and Boat Creek Pump Station to East End Reservoir zones) will be impacted by this capital expenditure project.

4.2.3 Control systems upgrade (telemetry and flow metering)

GAWB's system for control of metering and monitoring of activities at Awoonga Dam, its water delivery network and treatment plants was a combination of control and communications systems, the majority nearing the end of their useful lives. The telemetry systems were shared with the Gladstone Regional Council (GRC) which resulted in capacity, operation and ownership issues.

3 QCA 2005 Final Report, p105

Similarly the majority of GAWB's network flow meters were technologically obsolete and nearing the end of their useful life.

GAWB implemented its *System Leakage Management Plan* (SLMP) in 2005 to address problems with water losses and sectorisation of the bulk water system. Additional balancing meters to monitor bulk flow movements and pressure reduction were introduced on some of the reticulation mains. The sectorisation of the water supply system and improvements to flow metering are integral to implementing the SLMP. A copy of the SLMP is attached as Appendix 9.

Connell Wagner Pty Ltd (Connell Wagner, now Aurecon), a speciality engineering advisory company, was engaged by GAWB to complete an engineering review to assess and scope the system requirements for monitoring, communication and control facilities. This report incorporated information from previous consultants' work to develop an overall strategy for upgrading GAWB's control systems. A copy of Connell Wagner's report dated 22 November 2007 is attached as Appendix 10.

Connell Wagner recommended a radio telemetry technology upgrade to provide an operational facility that could be independently managed in a functional and secure environment and would allow for future augmentation, additional customers and facilities without restriction to a single supplier.

In the 2006/07 financial year GAWB commenced the replacement program for its flow meters. In the 2007/08 financial year the flow metering upgrade continued and the control system upgrade commenced. The work is scheduled to be concluded in the 2009/10 financial year.

In summary:

- the flow meter replacement program was predominately required to replace meters nearing the end of their useful lives
- the control system upgrade was predominately required to replace equipment nearing the end of its useful life and to resolve operational issues associated with shared ownership of telemetry with GRC
- to comply with the SLMP, some meter replacement was brought forward, additional flow meters were installed, and replacement meters included additional functionality compared with the assets they replaced
- the project provided improved security and auditability of data and systems and
- the SLMP shows that the control systems upgrade project (combination of flow meter and telemetry upgrades) has a significant net benefit.

Flow meter assets are generally included in the relevant pricing zone. The impact of this project on customer prices will vary by location and depend on how much of the delivery network is used to supply a particular customer. Some expenditure is considered to be system-wide and accordingly all customer prices will be impacted.

4.2.4 Awoonga high voltage switchgear upgrade

The high voltage switchgear at the Awoonga Dam was installed during the construction of the Awoonga Dam pump station in 1978 and has reached the end of its design life. The switchboards have not been refurbished and the age of the infrastructure increased the risk of failure.

Subsequent to the 2005 price determination, GAWB undertook an internal audit of the power supply to Awoonga Dam to assess the system's compliance with current electrical standards. It was found that the high voltage installation had been soundly designed, installed and maintained to standards at the time. However, the audit found that action was required to ensure compliance with current standards. Further, critical components for maintenance work were becoming increasingly difficult to source.

Welcon Technologies Pty Ltd, an electrical engineering company, was engaged by GAWB to investigate and make recommendations on the replacement of the ageing high voltage switchgear at Awoonga Dam and other changes in the electrical distribution systems to improve reliability and safety. A copy of the report is attached as Appendix 11.

The project commenced in the 2008/09 financial year (total cost of $1.7m) and will be completed in 2009/10 financial year (forecast cost of $0.8m). It included the purchase and installation of two switchboards, installation of transformer, switchgear and switch room building improvements and fire protection including fire resistant barriers.

Delivery customer prices in the Awoonga to Fitzsimmons St Reservoir and downstream zones will be impacted by this capital expenditure project.

4.2.5 Land and catchment management

GAWB's primary purpose of owning land (approximately 30,000 hectares) is for water storage and catchment/water quality management. Land use within the catchment can impact on water quality and diminish water quality, increasing the cost of treating water.

Consistent with the recommendations of the Coordinator-General contained in the report approving the raising of Awoonga Dam (January 2001) GAWB has, after consideration of storage requirements, potential flood levels, land and catchment management, water quality, public safety and environmental management issues, determined that the boundary of Lake Awoonga be FML of 47m AHD, or FSL of 45m AHD (see Glossary) plus 200m buffer or logical and practical boundary (whichever is the greater), depending on the topography and infrastructure of each location or sites that are required for other GAWB business. This boundary is consistent with accepted best practice for water storage with a boundary of 200m buffer around FSL and also includes areas of land required to be maintained by GAWB for environmental and recreational uses, to meet commitments made in the Environmental Impact Statement for raising the dam.

The land within this boundary comprises a combination of freehold, fixed term Crown leasehold (mainly for grazing purposes), Crown reserves and unallocated State land. There were also a number of public roads within this area that were inundated or subject to inundation. To meet its water supply, water quality and environmental objectives, GAWB is required to control land use around the impoundment and to control public access; unrestricted public access can lead to the spread of noxious weeds and other pests, erosion, damage to flora and fauna, wildfires and other risks to public safety.

As a freehold land owner, GAWB has long-term security of tenure and the ability to control and manage land uses. This ability to control and manage land uses is more limited in respect to Crown land, and long-term tenure is not assured.

The ultimate objective of the land and catchment management project is to acquire freehold ownership of all land within the adopted boundary, including all public roads which lead into the impoundment, to ensure long-term security of tenure and the ability to control and manage land uses and public access. To improve management efficiency and reduce long-term administration costs, it is proposed that the lands be amalgamated within one freehold parcel. The project is justified because it reduces risk to public safety, water quality and environment, and removes risk of loss of tenure over lands required for storage and catchment management.

The project commenced in the 2007/08 financial year and is forecast to be completed in 2011/2012 financial year.

The capital expenditure project is being undertaken in the Awoonga zone; therefore all storage and reservation customer prices will be impacted.

4.2.6 Fitzsimmons St Reservoir / Mt Miller pipeline cross connection

As part of GAWB's SLMP, the two flow meters on the 700mm and 1086mm pipeline inlets to Fitzsimmons St Reservoir were identified as being required to provide sectorisation. While the 700mm pipeline can be brought off-line to install the meter, the 1086mm pipeline is connected to the Mt Miller pipeline, neither of which can be brought off-line for maintenance or repair.

The interconnection of the 700mm pipeline to the Mt Miller pipeline will allow for the installation of the 1086mm meter, and also allow for preventative and corrective maintenance of the 1086mm pipeline.

The capital expenditure project is being undertaken in the Awoonga to Fitzsimmons St Reservoir zone; therefore all delivery customers will be impacted by this expenditure.

4.2.7 Fitzsimmons St Reservoir refurbishment

The Fitzsimmons St Reservoir refurbishment was undertaken to ensure the continued safety, quality and reliability of GAWB's water delivery network and to further provide information for developing a proposal for longer-term remedial works of the reservoir.

GAWB's water delivery network includes two above ground concrete reservoirs located on a hill site in Fitzsimmons Street in close proximity to the Gladstone water treatment plant and surrounded by an urban residential area. The reservoirs are used for the storage of raw water; one has a capacity of 50ML and the other has a capacity of 16ML. The 50ML reservoir is around 80m in diameter and 10m in height. It was constructed in 1980 with a design basis of concrete walls with post tensioned horizontal cables and vertical Macalloy bars, reinforced floors and precast concrete columns and roof beams.

During 2007/08, as part of its strategy for moving toward best practice in asset management, GAWB commenced a structural assessment of its key operating assets, including the two reservoirs in Fitzsimmons Street. The project was implemented to check structural integrity, to ensure capability for a reliable water supply and to achieve best practice for asset management and meeting various regulatory requirements. GAWB engaged consulting engineers IZZAT to complete the assessment.

IZZAT completed an inspection of the Fitzsimmons St 50ML reservoir and reported that Macalloy bars in the wall had failed in two locations, penetrating the roof sheeting. GAWB completed further investigations and found a further four failed Macalloy bars in the wall.

In compliance with recommendations from IZZAT, GAWB implemented the short-term recommended solution which included the deliberate failure of Macalloy bars at the reservoir access point for safety considerations and repair works to strengthen the reservoir where bars had failed.

The estimated cost of repair works in 2009/10 is $1m.

IZZAT has noted a long-term solution is yet to be identified. More bars are expected to fail, with the occurrence of failure unable to be predicted.

If successful, the short-term solution will extend the reservoir life beyond the 20-year planning horizon. Therefore, no long-term solution expenditure is included in GAWB's capital expenditure proposals. If the short-term solution is not successful, further capital expenditure may be required at the 2015 price review. Replacement of the reservoir would cost in the order of $50m.

The capital expenditure project is being undertaken in the Awoonga to Fitzsimmons St Reservoir zone; therefore all delivery customers will be impacted by this expenditure.

4.2.8 Gladstone office refurbishment

In the 2008/09 financial year, GAWB refurbished its Gladstone office at a cost of approximately $470,000. No significant work had been undertaken on the head office since the 1990s when some of the floor area was partitioned for leased offices. The work undertaken included internal reconfiguration, refurbishment of the toilets, new carpets and electrical switchboard upgrade.

Corporate costs are directly allocated to pricing zones where possible. However, most head office costs are allocated as general overhead directly to customers (refer section 5.2.3). All customer prices will be impacted by office refurbishment expenditure.

4.2.9 Information communication technology

In its 2005 price review, the Authority included $260,000 for software and systems upgrades during the current regulatory control period. Actual spend on ICT projects will be $946,189.

Major ICT capital expenditure projects totalling approximately $326,000 were incurred during the period including:

- electronic resource planning tool (Navision) upgrades ($107,546)
- electronic document management system (eDocs) ($160,000)
- Microsoft sharepoint installation ($58,014).

This expenditure was incurred to ensure compliance with *Queensland Government Information Standards*. These standards provide the framework to ensure all ICT investments are suitably justified and aligned with the business.

GAWB engaged SMS Management & Technology Limited (SMS) to undertake a review of GAWB's ICT expenditure for the current regulatory control period.[4] A copy of SMS's report has been included as Appendix 4. SMS concluded that GAWB complied with the *Queensland Government Information Standards* and ICT procurement guidelines, and utilised the Government Information Technology Contracting Framework (a best practice ICT contracting framework). Further, SMS found GAWB's processes to justify ICT expenditure were rigorous, compliant and best practice, ensuring investment is sustainable and aligned with the needs of the business.

ICT expenditure is a corporate cost. All customer prices will be impacted from this expenditure.

4.2.10 Contingent supply strategy

4.2.10.1 Introduction

The CSS involved expenditures totalling $33m (net of government grants) over the current regulatory period. Components of the CSS expenditure include:

- preparatory work for the Gladstone to Fitzroy pipeline (GFP)
- preparatory work for the Lower Fitzroy River Infrastructure (LFRI) project (to be ready for the construction of the storage capacity required to supply the GFP with water)
- preparatory work for a seawater desalination plant in the Gladstone region
- regulatory approval processes for the above projects and
- development of a decision tool to facilitate choice of a particular augmentation, demand reduction or combination of augmentation and demand reduction at the time of an augmentation trigger.

CSS expenditure by project component and year is set out in Table 7.

4 SMS's scope included review both capital and operating expenditure for both the current regulatory control period and the forecast expenditure. Only current regulatory period capital expenditure is discussed here.

Table 7 – Components of CSS expenditure 2006 to 2010

Year	2005/06	2006/07	2007/08	2008/09	2009/10	Total
Project component						
GFP (net of government grants)	196,193	1,824,658	4,902,995	10,878,288	4,289,972	22,092,106
LFRI		10,480	159,340	2,250,025	6,072,790	8,492,635
Desalination		5,734	477,804	351,305	300,000	1,134,843
Regulatory submissions		320,369	418,572	147,013	162,550	1,048,504
Decision tool				439,846	120,040	559,886
Total	196,193	2,161,241	5,958,710	14,066,477	10,945,352	33,327,973

The CSS was developed by GAWB to allow it to respond, in a timely manner, to the water needs of current and future customers in the event of drought or requirements for additional water use. The strategy involves:

- investigation of available source augmentation options allowing the least-cost (highest benefit) solution to be identified and
- undertaking necessary preparatory work and planning to achieve the CSS supply security objectives.

The CSS supply security objectives are:

- to avoid the imposition of emergency restrictions under the *Drought Management Plan* (DMP)[5] and
- to defer the possibility of supply failure by at least two years.

In order to improve certainty that the costs of the CSS preparatory works could be recovered in prices, in March 2007 GAWB made a submission[6] to the Authority regarding:

- the prudence of GAWB's CSS, including selection of supply from the Fitzroy River as an appropriate contingent source
- the level of efficient costs associated with the development of GAWB's contingent supply strategy that should be included in prices
- the timing of expenditures which are related to the implementation of the contingent supply strategy and
- the means by which efficient costs of the contingent supply strategy should be included in prices for subsequent years.

The focus of the CSS in early 2007 was on a large-scale augmentation, the GFP project, in response to ongoing drought conditions in central Queensland.

Endorsement by the Authority of the progression of GAWB's CSS initiatives was received in December 2007. The Authority concluded that:

It is prudent for GAWB to continue working towards implementing the Fitzroy Pipeline option as there is a possibility of an unexpected event, such as one or more years of even lower inflows or a failure in inflows in the coming wet season. Under this scenario, the Fitzroy pipeline would be the prudent option.[7]

In addition, the Authority observed that:

GAWB should ensure that necessary arrangements have been entered into to ensure a right of access to supplies of water from the Fitzroy River mid-2012 should they be required...

GAWB should continue to work on other options such as desalination, air and sea water cooling and alternative supply restrictions.[7]

5 Emergency restrictions are only imposed when failure of the dam is imminent. GAWB's DMP can be found on our website – www.gawb.qld.gov.au.
6 GAWB, *Contingent Supply Strategy* Part A submission, March 2007
7 Queensland Competition Authority (2007) *Final Report: Gladstone Area Water Board: 2007 Investigation of Contingent Water Supply Strategy Pricing Practices Stage A*

Consistent with the Authority's recommendations, GAWB has undertaken works (and incurred expenditure) related to:

- the LFRI project and
- a small scale (i.e. less than 10,000ML per annum) desalination plant in the Gladstone region.

GAWB's source augmentation process framework also allows for the most appropriate response to be determined when faced with a drought or demand trigger, be it source augmentation, demand management measure or otherwise.

4.2.10.2 Impact of February 2008 rainfall

GFP preparatory works were originally planned to be completed by November 2008. This deadline was necessary to allow GAWB to deliver the GFP if low Awoonga Dam inflows had continued.

However, rainfall in February 2008 allowed Awoonga Dam to fill to the point that a drought trigger of the GFP project was no longer imminent.

Once the drought had broken GAWB was faced with two choices:

- immediately cease work on the GFP, with a result that little value would be retained for the expenditure already incurred or
- continue work on the GFP project to a stage where value of the work already commenced could be retained for a period of several years.

Ceasing work would have limited the value of preparatory works for any future drought and prevented GAWB from responding in a timely manner to a demand trigger.

GAWB decided to:

- continue the CSS preparatory works
- defer and amend the planned deadline for completing preparatory works and
- defer some work to a new 'early works' phase.

Removal of the late-2008 deadline for completing the preparatory works allowed:

- optimisation of design (more time to develop the most economical and functional design, including preparation of the documentation to a stage whereby the design can be maintained for a period of years)
- risk reduction (more time to recognise risks and develop strategies to avoid the cost of risks being realised, which includes allocating risks to the party best able to manage those risks) and
- improved procurement (more time to develop good and competitive contracts and obtain best value for money).

Improved design and risk reduction allowed GAWB to defer CSS program expenses to a new 'early works' stage. Early works will occur between the augmentation trigger and the commencement of construction.

4.2.10.3 Efficiency of expenditure

GAWB engaged Harrington Construction Consultants Pty Ltd (HCC), to provide advice as to whether the CSS expenditure met the criteria that:

- the standard of the works is appropriate, in that the proposed works do not involve any unnecessary works and are not over-designed and
- the cost of the works is reasonable; that is, it is economically efficient.

A copy of the HCC report is included as Appendix 5.

HCC concluded that:

- GAWB has complied with the Authority's Part A recommendations
- work undertaken is appropriate in that the works do not involve any unnecessary works and are not over-designed and
- the cost of the work is reasonable; that is, it is economically efficient.

More details of GAWB's CSS expenditure, including governance and procurement, are included in Appendix 12.

All storage and reservation customers will be impacted by CSS expenditure.

4.2.11 Fluoridation projects

Of the remaining expenditure, the most significant projects were the fluoridation projects at the Gladstone and Yarwun water treatment plants. These projects were developed in response to the Queensland Government's *Water Fluoridation Act 2008*. The roll-out of fluoridation for Gladstone's potable water supply is scheduled to be completed by 31 December 2009.

GAWB is responsible for planning and constructing the fluoridation facility and developing operations, maintenance and occupational health and safety manuals.

The projects together have a capital cost of around $1.5m. The works will be funded by the Queensland Government (GAWB incurs the cost and will receive re-imbursement by State subsidies) so the capital expenditure will have no impact on prices to customers.

4.3 Next regulatory control period (1 July 2010 to 30 June 2015)

GAWB proposes capital expenditure of $86m in the 2011–2015 regulatory control period. Significant projects include:

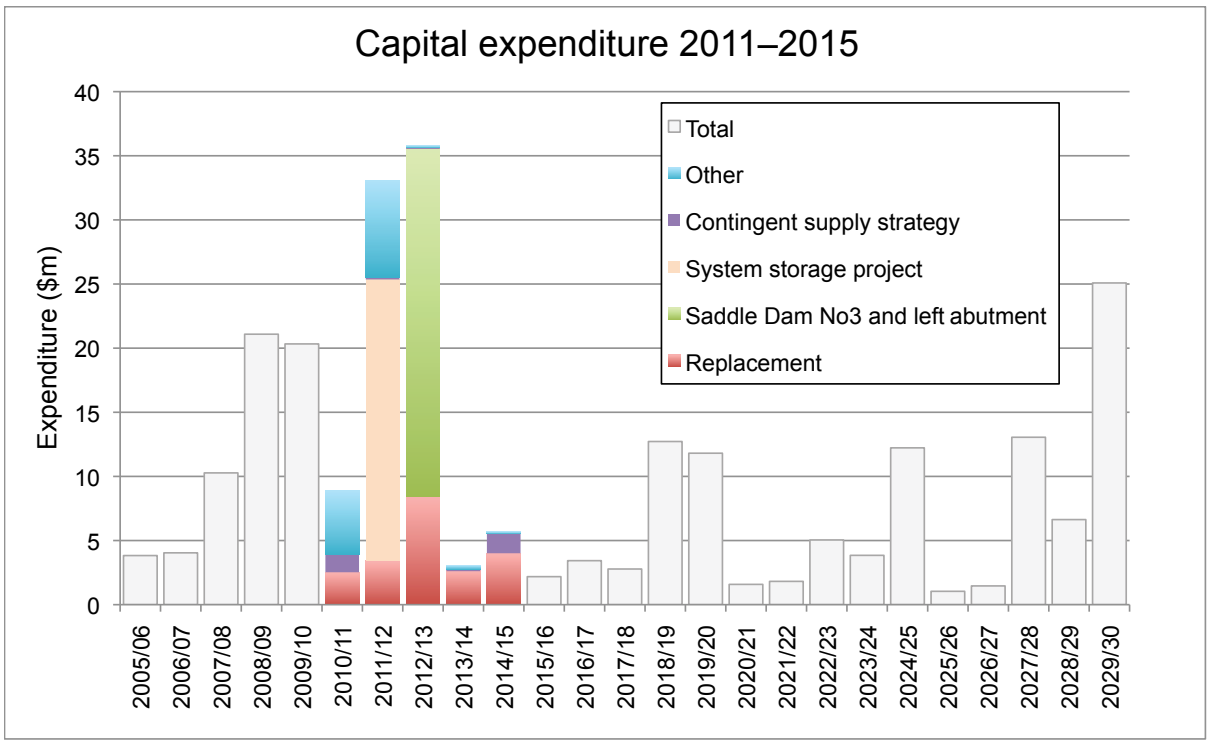
- Saddle Dam 3 and Awoonga Dam left abutment raising projects (together $27m or 31% of the total five-year expenditure)
- system storage project ($22m or 25% of the total five-year expenditure)
- age-based and condition-based replacement of assets ($21m or 24% of the total five-year expenditure)
- CSS expenditure ($3m or 4% of the total five-year expenditure).

Details of each of these and the major projects included in the age-based and condition-based replacement of assets program follow.

Other program and projects total $13m or 16% of the total five-year expenditure. Significant contributory projects (including proposed expenditure on the Awoonga recreational area and hatchery) are discussed in section 4.3.5.

Figure 7 shows GAWB's proposed 2011–2015 regulatory control period capital expenditure in the context of historic and planning period expenditure levels.

Figure 7 – Capital expenditure by project/program 2011 to 2015



4.3.1 Saddle Dam No 3 and Awoonga left abutment raising

GAWB plans to construct a new embankment at Saddle Dam No 3 and raise Awoonga Dam left abutment to comply with flood capacity obligations. GAWB is required to complete the Saddle Dam No 3 embankment by 1 October 2015.

Following a review of the *Awoonga Dam Acceptable Flood Capacity Guidelines Assessment Report*, in which it was determined that raising the left abutment was required, the Department of Environment and Resource Management (DERM) requested GAWB provide further information relating to the incremental flood discharge and extended population at risk from flooding due to failure of the Saddle Dam No 3 embankment. This would provide critical information required for the new Dam Safety Condition. A copy of the draft new Dam Safety Condition Schedule is attached as Appendix 13.

GHD Pty Ltd (GHD) was engaged to provide an assessment of the acceptable flood capacity of Saddle Dam No 3 and proposed several options to meet regulatory requirements. A copy of GHD's report dated May 2009 is attached as Appendix 14.

Further investigation and assessment have identified the preferred option as constructing a new embankment (at Saddle Dam No 3). This option provides the most cost effective, environmentally sound and lowest risk method of meeting DERM's acceptable flood capacity requirements. To ensure compliance with dam safety guidelines, the option includes raising the left abutment of Awoonga Dam. A further assessment and cost estimate by GHD dated 3 September 2009 is attached as Appendix 15.

The capital expenditure project is being undertaken in the Awoonga zone and accordingly all storage and reservation customer prices will be impacted.

For clarity, $1.2m of the expenditure (2012/13) relates to raising the left abutment which is required by 2025. GAWB is planning to align the completion of raising the left abutment with the Saddle Dam 3 works to minimise the total costs of satisfying these regulatory requirements and, in addition, to reduce the identified risk as soon as is practicable.

4.3.2 System storage

In February 2009, R2A Pty Ltd (R2A) was engaged to undertake a comprehensive assessment of GAWB's critical infrastructure to ensure that all sensible and practicable precautions are being taken to provide customers with a secure and reliable bulk water supply. A copy of the report is attached at Appendix 16.

A fundamental risk to the reliability of GAWB's delivery network is its reliance upon the daily operation of the Awoonga Dam pump station. This risk is heightened by a low level of storage within GAWB's delivery network, relative to other water service providers. At present GAWB only has in the order of 12 to 16 hours maximum storage in the delivery network.

A key recommendation of the R2A report (which supported GAWB's preliminary assessment) is the provision of a storage facility and associated pumping station to address the risk of a failure to pump from the Awoonga Dam pump station for up to 14 days. As well as the risk of pump failure, the addition of this storage would reduce risks associated with undertaking planned routine maintenance (requiring shut down).

It is proposed to construct a suitably sized storage dam within GAWB's delivery network, located between Awoonga Dam and Toolooa Reservoir, to be filled by supply from Awoonga Dam, for storage until required. While the storage will provide 14 days back up supply for the delivery network, the incremental cost of 14 days storage compared with a shorter period (for example one to two days), is relatively immaterial.

The facility will include a re-pump station to return the water to the delivery network and into the Toolooa Reservoir for further distribution throughout the delivery network, including Gladstone and northern industrial area customers.

Aurecon Australia Pty Ltd (formerly Connell Wagner) has provided a pre-feasibility cost estimate. A copy of the estimate dated 4 September 2009 is attached as Appendix 17.

Prices for all customers supplied from GAWB's delivery network will be impacted by this capital expenditure project.

4.3.3 End-of-life asset replacement

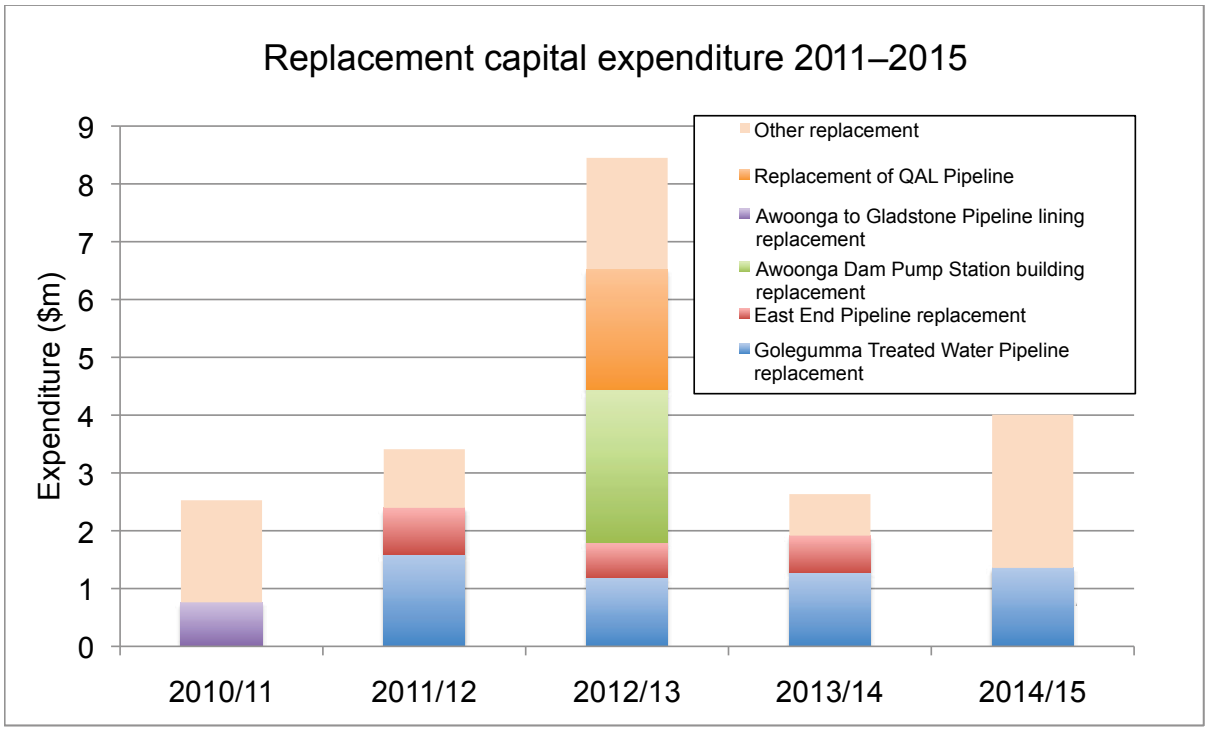
Figure 8 shows replacement expenditure by year and significant project. Significant asset replacement projects include:

- staged replacement of the Golegumma treated water pipeline ($5.4m or 26% of the five-year replacement assets total)
- replacement of the Awoonga Dam pump station building ($2.6m or 13% of the five-year replacement asset total)
- replacement of sections of the East End pipeline ($2.0m or 10% of the five-year replacement assets total)
- replacement of Queensland Alumina Limited (QAL) pipeline ($2.1m or 10% of the five-year replacement assets total)
- replacement of failed lining in the Awoonga to Gladstone pipeline ($0.8m or 4% of the five-year replacement assets total).

Other replacement expenditure ($8.1m) comprises:

- specific planned projects with a value less than $750,000
- general replacement (with the asset replacement program generated directly from the asset database based on remaining lives assessed for the DORC valuation).

Figure 8 – Regulatory control period asset replacement capital expenditure 2011 to 2015



4.3.3.1 Golegumma treated water pipeline

Alf Grigg & Associates Pty Ltd (Grigg) was engaged to undertake a condition evaluation of GAWB's water supply pipelines and associated infrastructure. Two reports by Grigg are attached as Appendix 18 and Appendix 19. Grigg concluded that the Golegumma pipeline was approaching the end of its useful life, with sections of the pipeline at risk of immediate failure.

Replacement of the asset is required to maintain delivery network integrity. GAWB proposes staged replacement of the asset over nine years, consistent with the condition assessment by Grigg. The cost in the 2011–2015 regulatory control period is forecast to be $5.4m.

Delivery prices in the South Gladstone to Toolooa and Benaraby potable zones will be impacted by this capital expenditure project.

4.3.3.2 Awoonga Dam pump station building

Awoonga Dam pump station consists of a dry pumping well built from 1978–1980. The building's main purpose is to ensure that the pumps stay operational. This becomes very important during/following a major storm or cyclone.

The building consists of a steel portal frame structure that supports a gantry crane used to remove the pumps and pump motors for maintenance works. The floor of the building is approximately 30m above ground level with the roof another 15m higher.

The pump station building is at the end of its life with severe corrosion in a number of the sub frame members. Corrosion also exists around the window frames, which extend almost the full height of the building on all four faces. This has made the windows unsafe, causing them to fall out in some circumstances.

Following a storm or a cyclone it is important that GAWB has a suitable structure that can allow the pumps to operate as required. The present building presents a risk of failure during a major event, which may mean damage to the electrical equipment or an integral part of the pumps and associated workings.

Consulting engineers, GHD, recommended immediate action to repair/replace the majority of the structure. GAWB considered several possible courses of action. The proposed project involves:

- some short-term structural remediation, including the replacement of unstable glass windows with plastic sheets to make the site safer (completed during the current regulatory control period)
- extensive renovation of the building in 2012/13, as recommended by GHD at a forecast cost of $2.6m.

Prices for all customers supplied from GAWB's delivery network will be impacted by this capital expenditure project.

4.3.3.3 East End pipeline

Grigg concluded that parts of the East End pipeline were at the end of their useful life and at risk of immediate failure.

Specifically, the East End pipeline is experiencing accelerated corrosion in sections laid in acid sulphate soils. This is prematurely reducing its useful life, with breaks occurring in the pipeline. Accordingly, replacement of the most severely corroded sections of the pipe is required to maintain system integrity.

The estimated cost to replace three sections of approximately 1.47km of the pipeline with the modern equivalent asset (high-density polyethylene pipe) is $2.03m.

Delivery prices in the Boat Creek Pump Station to East End Reservoir zone will be affected by this capital expenditure project.

4.3.3.4 Replacement of QAL raw pipeline

Grigg also concluded that the QAL pipeline is at the end of its useful life.

The QAL raw pipeline is a mild steel cement-lined pipe. Based on industry standards, the estimated cost to replace the pipe is slightly more than $1m per kilometre. Duplication of approximately 1.47km of pipeline between the railway line and QAL plant with 600mm pipe, which will be cross-connected to the existing pipeline with appropriate isolation valves, will allow isolation of the existing pipeline for repairs in the future.

Delivery prices in the QAL Raw zone only will be affected by this project.

4.3.3.5 Awoonga to Gladstone pipeline

Grigg also identified failure of 15km of the lining of the Awoonga to Gladstone pipeline. Replacement of this pipeline would require capital expenditure of the order of $15m.

GAWB conducted a risk assessment which identified a significant risk of failure occurring in the residential areas of Gladstone, particularly beneath suburban and main roads.

However, as the Awoonga to Gladstone pipeline is duplicated over its entire length, a failure in part of the pipeline can be isolated for repair without compromising supply. GAWB therefore proposes a reactive maintenance/repair approach to manage leaks in the Awoonga to Gladstone pipeline.

The proposed approach comprises:

- purchasing spare pipe which will allow for repairs as required
- purchasing additional pipe fittings to facilitate the inspection of the pipeline within the suburban areas.

The proposed capital expenditure is only $0.8m, albeit with slightly increased maintenance costs associated with reactive repair of leaks (between $20,000 and $50,000 per annum).

Prices for all customers supplied from GAWB's delivery network will be impacted by this capital expenditure project.

4.3.4 Contingent supply strategy

Table 8 presents GAWB's proposed CSS expenditure for the 2011–2015 regulatory control period.

Table 8 – Proposed CSS expenditure 2011 to 2015

Year	2010/11	2011/12	2012/13	2013/14	2014/15	Total
CSS expenditure	1,419,306	182,275	76,171	121,644	1,641,424	3,440,820

The purpose of the CSS is to attain the capability to augment the supply system to meet defined security criteria under a range of possible future drought and demand scenarios. This capability includes being able to assess demand management scenarios against the supply augmentation options GAWB has developed to a state of preparedness.

The target 'state of preparedness' is defined by GAWB as being able to deliver the augmentation within the required timeframe to complete the necessary commercial and regulatory approvals, and finalise early works prior to a nominal two-year construction program.

As at 30 June 2010, GAWB will have achieved the following in each of the main components of the CSS:

- GFP project – achieved the targeted state of preparedness and transitioned to an 'on hold' phase pending trigger
- LFRI project – completed the majority of preparatory work, with completion forecast for August 2010
- desalination project – identified a site and progressed studies and investigations so that the targeted state of preparedness is attained by 30 June 2011 and
- analysis tool – have a robust model finalised for future use in assessing investment options (including demand buy back), should an augmentation trigger (demand or drought) become imminent.

The underlying assumption for expenditures in this submission is that no augmentation will be required within the planning period. The proposed expenditure includes only that work necessary to:

- achieve the targeted state of preparedness to augment the supply system (where this is not achieved by 30 June 2010) and
- maintain that state of preparedness.

On attaining the required state of preparedness, each project will be transitioned to a holding status.

The proposed program of work includes:

- a risk review in the middle of the next regulatory control period and
- a full review of all components of the CSS (excluding engineering design), timed to occur prior to the 2015 price review.

GAWB engaged Arup (for the GFP and desalination projects) and GHD (for the LFRI project) to forecast holding costs for each project (the reports are included as Appendix 20, Appendix 21 and Appendix 22). To coordinate the CSS activities in the future, the external advice received for the three projects were then aligned to represent the most efficient and prudent allocation of resources for 2011 to 2030. HCC provided a peer-review of the overall program of expenditure. Details of the proposed expenditures are included in Appendix 23.

All storage and reservation customers will be impacted by CSS expenditure.

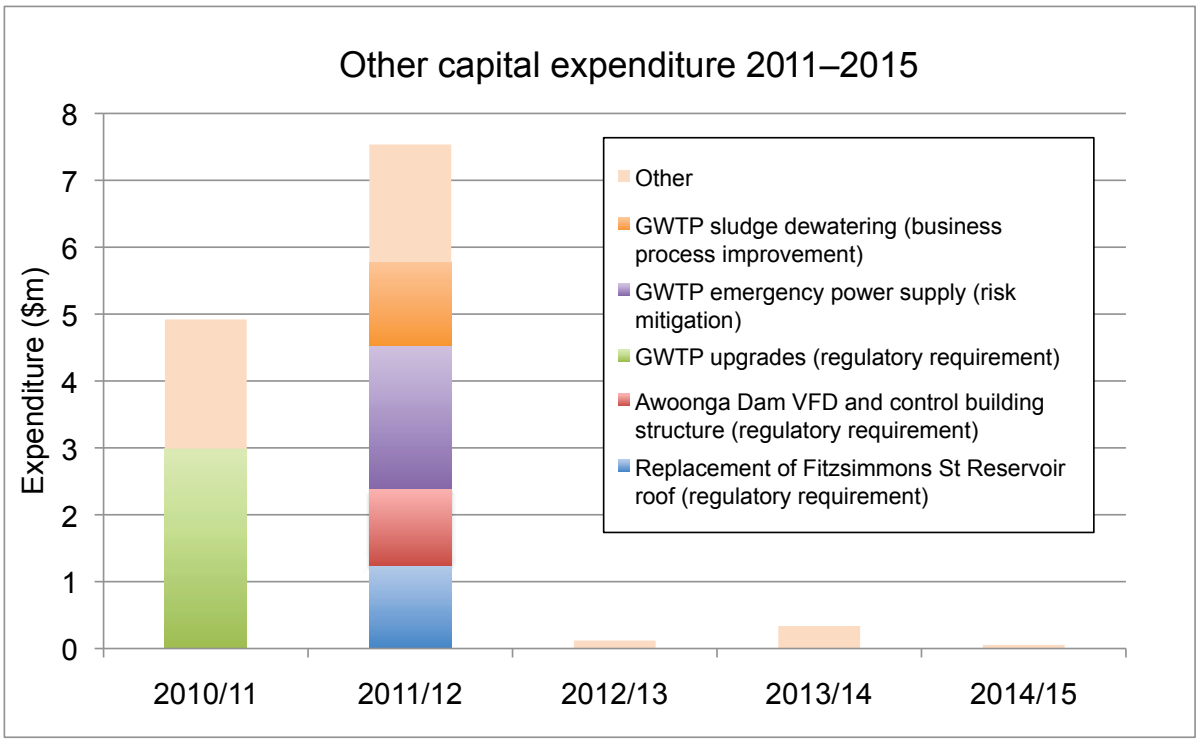
4.3.5 Other capital expenditure

Other proposed capital expenditure totals $13m over the 2011–2015 regulatory control period. Figure 9 shows other expenditure by year and significant project. Significant asset replacement projects include:

- various Gladstone water treatment plant (GWTP) upgrades (regulatory requirement) ($3.0m or 23% of the five-year other capital expenditure total)
- GWTP emergency power supply (risk mitigation) ($2.1m or 16% of the five-year other capital expenditure total)
- GWTP sludge dewatering (business process improvement) ($1.2m or 10% of the five-year other capital expenditure total)
- replacement of Fitzsimmons St Reservoir roof (regulatory requirement) ($1.3m or 10% of the five-year other capital expenditure total) and
- Awoonga Dam variable frequency drive and control building structure (regulatory requirement) ($1.2m or 9% of the five-year other capital expenditure total).

Remaining capital expenditure (projects less than $750,000 each) total $4.2m or 32% of the five-year total.

Figure 9 – Other capital expenditure 2011 to 2015



4.3.5.1 GWTP upgrades

The GWTP upgrades include:

- replacement of powdered activated carbon (PAC) and polyelectrolyte dosing plants
- installation of a roof over Plant 2 flash mixer and clarifiers and
- replacement of the main building roof.

PAC and polyelectrolyte are primary reagents used in the treatment process at the GWTP. The performance of the treatment process and quality of treated water are strongly dependent on the ability to accurately control the dosage of these reagents. The current PAC system is in excess of 16 years old and has three significant shortcomings:

- manual handling of bags
- limited contact time of PAC in the treatment process – inhibiting the effectiveness of the treatment process and
- frequent operator intervention – required to make dose rate changes which increases the risk of calculation and measurement error.

The proposed expenditure will address these shortcomings.

The existing polyelectrolyte system is approximately 25 years old and suffers from the following shortcomings:

- lack of capacity
- lack of flexibility
- unreliability of ageing equipment.

The proposed expenditure will address these shortcomings.

The two clarifiers and the inlet mixing chamber at the GWTP are external to the buildings. These tanks are exposed to sunlight which promotes the growth of algae cells. Not only is the algae growth a maintenance problem requiring frequent cleaning of components of the clarifiers, but its growth contributes to the overall algal cells that are required to be removed by activated carbon and filtration. The installation of a high-density shade cloth structure over the clarifiers and mixer will significantly reduce the growth of algae, which will contribute to reductions of maintenance and chemical usage.

The roof on the GWTP has been found to be structurally inadequate to sustain the cyclonic wind loads in accordance with the current versions of the *Building Code of Australia and Australian Standard AS1170.2 – Wind Loads*. The proposed expenditure will address this structural inadequacy.

This expenditure will impact the GWTP pricing zone and all downstream potable zones.

4.3.5.2 GWTP emergency power supply

In the event of an extended power outage with the destruction of electrical supply infrastructure caused by a cyclone or severe storm, the ability of the GWTP to produce and deliver potable water would be prevented. A diesel powered emergency power supply of sufficient capacity to operate Plant 1 and either the high-lift or low-lift pump is proposed. This will allow the GWTP to continue to produce potable water during emergency situations that have resulted in the failure of the existing power supply network.

This expenditure will impact the GWTP pricing zone and all downstream potable zones.

4.3.5.3 GWTP sludge dewatering

Sludge generated by the clarifiers and filters at the GWTP is thickened in a sludge thickener then discharged to the trade waste pipeline for processing by GRC at its sewage treatment plant. According to the charges for trade waste published on the Council's website, the cost of disposing the sludge to trade waste will increase from approximately $40,000 per annum to $240,000 per annum.

It is therefore proposed to install a sludge dewatering facility at the GWTP where the objective will be to separate the solids from the effluent stream to produce a cake suitable for truck transport to an off-site disposal facility. The water component would be returned to the GWTP recovered water system as saleable raw water for industrial customer consumption.

The proposed dewatering system is intended to reduce trade waste discharge costs associated with clarifier underflow discharge to sewer, produce additional water of sufficient quality for use by local industry, and produce a low moisture solids stream for disposal to landfill.

This expenditure will impact the GWTP pricing zone and all downstream potable zones.

4.3.5.4 Replacement of Fitzsimmons St Reservoir roof

The Fitzsimmons St Reservoir is a key raw water storage asset supplying the GWTP as well as industrial customers. The integrity of this structure is important in maintaining both a continuous and safe supply of raw water. The roof of the reservoir protects the water from wildlife and the elements and prevents algae growth being stimulated by sunlight.

The Fitzsimmons St Reservoir roof is constructed from corrugated fibro asbestos sheeting, secured to timber battens. The asbestos material was found to be in fair condition but deteriorating. The 2009 asbestos audit recommended removal of this material. The asbestos sheeting is classified as fragile in the *National Working at Heights Code*, therefore requires additional working at heights controls for access and maintenance on the roof. The roof has been risk assessed as a 'moderate' risk in GAWB's *Asbestos Management Plan*.

Prices for all customers supplied from GAWB's delivery network will be impacted by this capital expenditure project.

4.3.5.5 Awoonga Dam VFD and control building structure

An investigation by structural engineers from consultants WorleyParsons showed that the roof sheeting on the Awoonga Dam control building had reached the limit of its useful life after 30 years of service. Additionally, it was determined that the rafters and hanger beams have inadequate strength to sustain cyclonic wind loads as calculated from the latest versions of the *Building Code of Australia and Australian Standard AS1170.2 – Wind Loads*.

It was also shown that the roof sheeting, fasteners, purlins and rafters in the Variable Frequency Drive (VFD) Building are inadequate to sustain the cyclonic wind loads calculated by applying the latest versions of the relevant standards. In addition, the door locking mechanisms and windows are inadequate to withstand cyclonic wind loads.

Prices for all customers supplied from GAWB's distribution network will be impacted by this capital expenditure project.

4.3.5.6 Recreational area

Consistent with the findings of the earlier price review investigations by the Authority (see 2002 Final Report at p60 and 2005 Final Report at p98), GAWB's recreational assets are included in the RAB. These assets are enjoyed by the public in the Gladstone region.

For the 2011–2015 regulatory control period, GAWB proposes $880,370 of capital expenditure related to the recreational area including:

- a walkway pontoon ($144,857)
- road resurfacing ($287,848)
- residential house renovations ($155,397) and
- new and upgraded toilets and new shelter ($193,919).

Recreational area expenditure is allocated to the Awoonga zone and accordingly all storage and reservation customer prices will be impacted. Further details on GAWB's recreational area can be found in Appendix 24.

4.3.5.7 Hatchery

Consistent with the findings of the earlier price review investigations by the Authority (see 2002 Final Report at p61 and 2005 Final Report at p98), GAWB's hatchery is included in the RAB.

The majority of forecast capital expenditure ($204,860) relates to the relocation of the hatchery. The hatchery is on land owned by Gladstone Ports Corporation, which has indicated it expects to require vacant possession of the land within the next regulatory control period (the precise date is as yet unknown). The balance of forecast capital expenditure ($112,673) is for replacing the obsolete tank heating system and electricity mains. Both items can be relocated to either the new hatchery site or for another purpose within GAWB.

Hatchery expenditure is allocated to the Awoonga zone and accordingly all storage and reservation customer prices will be impacted by this expenditure. Further details on GAWB's hatchery can be found in Appendix 24.

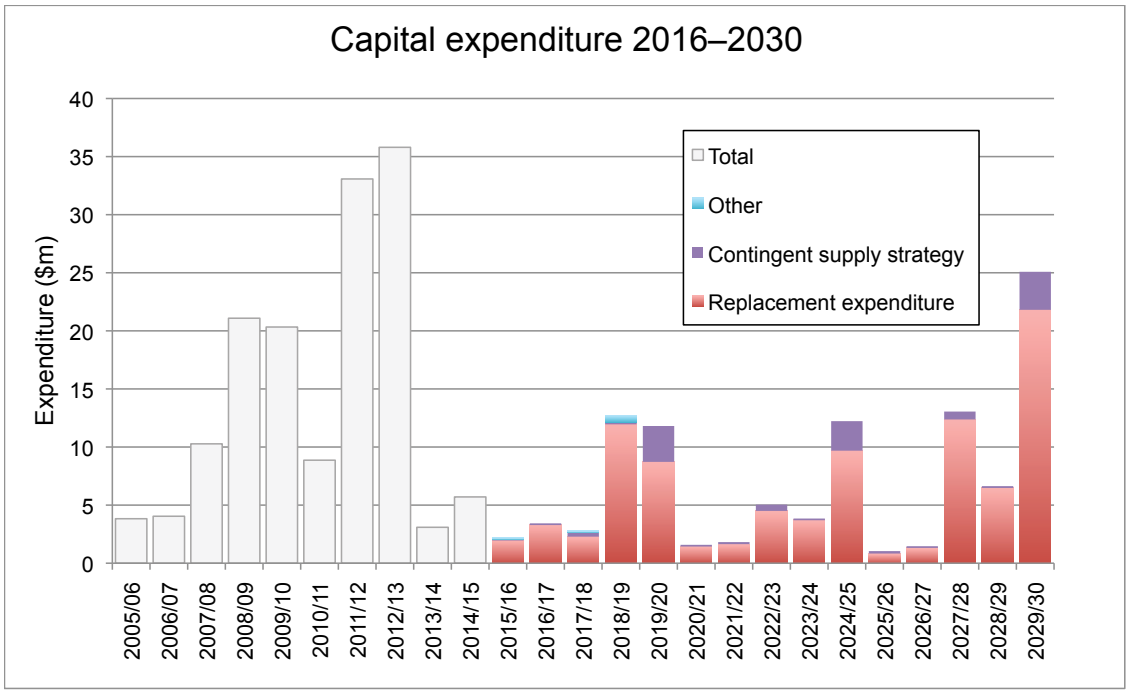
4.4 Remaining 15 years of the planning period (1 July 2015 to 30 June 2030)

GAWB's 20-year planning period requires it to forecast costs for 15 years beyond the end of the next regulatory control period. Forecast expenditure outside of the next regulatory control period, i.e. after 30 June 2015, is used solely for the purpose of setting the price path for the next regulatory control period (1 July 2010 to 30 June 2015).

GAWB's regulatory regime contains a revenue carryover mechanism. This mechanism ensures that GAWB only recovers the net present value of the building block revenue for the five years of the next regulatory control period (1 July 2010 to 30 June 2015).

Figure 10 shows GAWB's proposed 2016–2030 regulatory control period capital expenditure in the context of historic and proposed 2011–2015 period expenditure levels.

Figure 10 – Capital expenditure 2016 to 2030



GAWB's proposed capital expenditure for 15 years from 1 July 2015 totals $105m. This comprises:

- ongoing age-based and condition-based replacement of assets ($92m or 88% of the total 15-year expenditure)
- CSS expenditure ($12m or 11% of the total 15-year expenditure)
- other expenditure (less than $1m or 1%).

4.4.1 End-of-life asset replacement

Asset replacement expenditure ($92m) comprises:

- $10m of specific planned projects (including the replacement of the Boyne Island potable water pipelines ($6m) and completion of the Golegumma potable water pipeline replacement and Hanson Rd raw water pipeline replacement projects)
- $82m of general replacement (with the asset replacement program generated directly from the asset database based on remaining lives assessed for the DORC valuation).

4.4.2 Contingent supply strategy

As discussed in section 3, the underlying assumption for expenditures in this submission is that no augmentation will be required within the planning horizon.

For the period from 1 July 2015 to 30 June 2030, the proposed expenditure includes only that work necessary to maintain the targeted state of preparedness.

In particular, the proposed costs provide for:

- risk reviews every 2.5 years
- reviews of all components (excluding engineering design) of the CSS every five years, timed to occur prior to a price review and
- review of all components (including engineering design) of the CSS in year 10.

5 Operating expenditure

5.1 Introduction

The purpose of this section of the submission is to outline GAWB's proposed operating expenditure for the period 1 July 2010 to 30 June 2030, which is used to set prices for the next regulatory control period.

Operating costs have steadily increased over the current regulatory control period and represent a significant change from around $8m in 2005/06 to more than $16m in 2009/10.

Main causes of this increase are:

- improved knowledge of the condition of GAWB's assets obtained through the current regulatory control period resulting in the identification of several significant and urgent maintenance projects
- the need to employ additional staff and resources to properly discharge GAWB's duties and
- increases in electricity, chemical, rates and insurance costs.

Some of the significant maintenance projects are either currently being undertaken or are required to be undertaken within the next regulatory control period.

Over the last five years, GAWB has required more staff and resources to:

- discharge its obligations relating to safety, environment and water quality
- reduce risk associated with failing to supply water through the use of strategic planning activities
- address legacy issues associated with inadequate resourcing in earlier years and
- plan and execute a growing capital works program (necessary for reducing risk, replacing assets identified as requiring replacement, and meeting safety obligations).

GAWB submits that the allowance for operating expenditure at the last price review wasn't sufficient to allow it to meet all the regulatory, customer, and asset obligations consistent with that of a reasonable bulk water provider. Notwithstanding this, GAWB has undertaken all necessary work to ensure these obligations were met and customers were provided with a safe and secure water supply. This has come at a significant financial cost and GAWB's operating expenditure proposals for the next regulatory control period will allow these obligations to be met.

GAWB's operating expenditure proposals show an average annual increase of 2.7% over the next regulatory control period (that is, similar to the rate of inflation) over 2009/10 expenditure. The trend in operating expenditure is illustrated in Figures 11, 12 and 13 and Table 9.

Figure 11 – Total operating expenditure by expense type 2006 to 2030

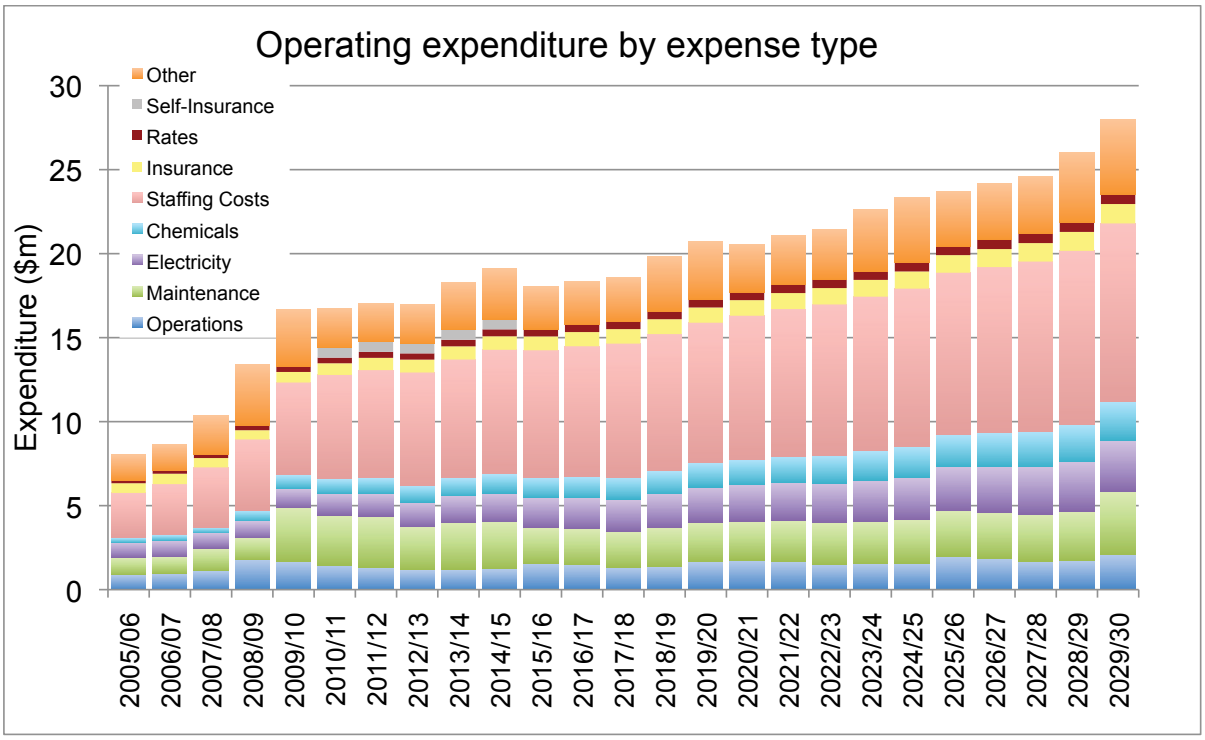


Figure 12 – Total operating expenses compared with 2006 forecast

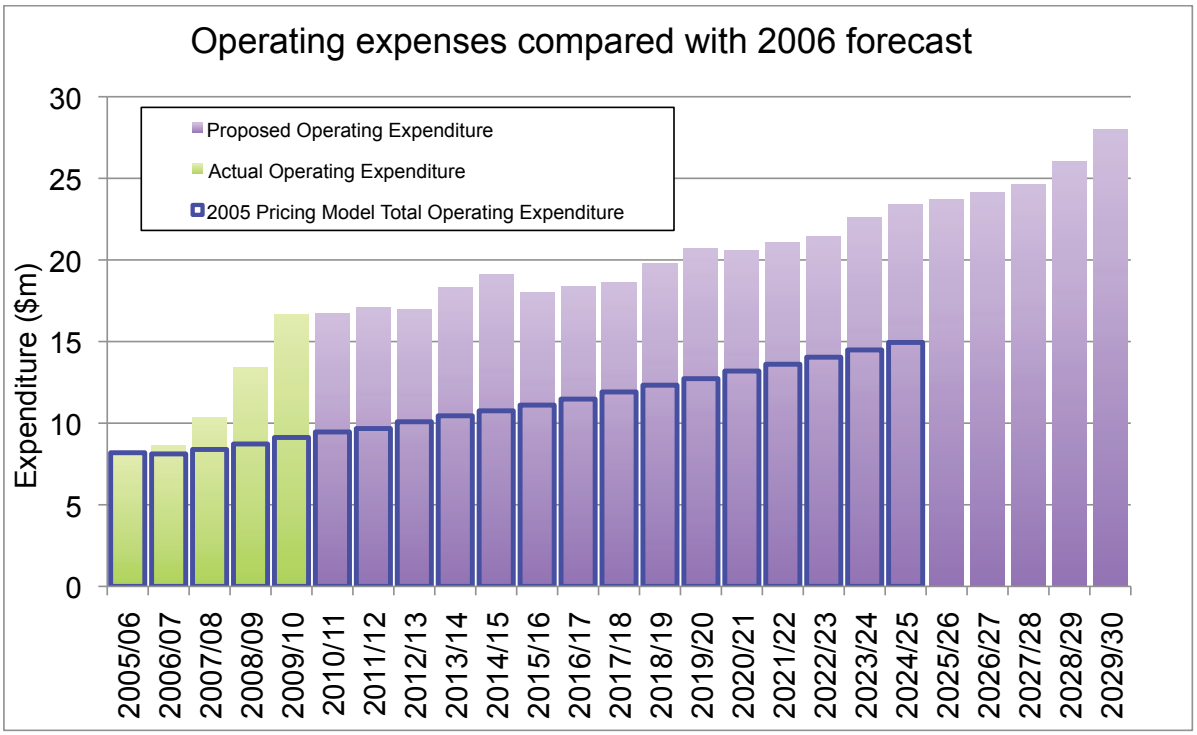
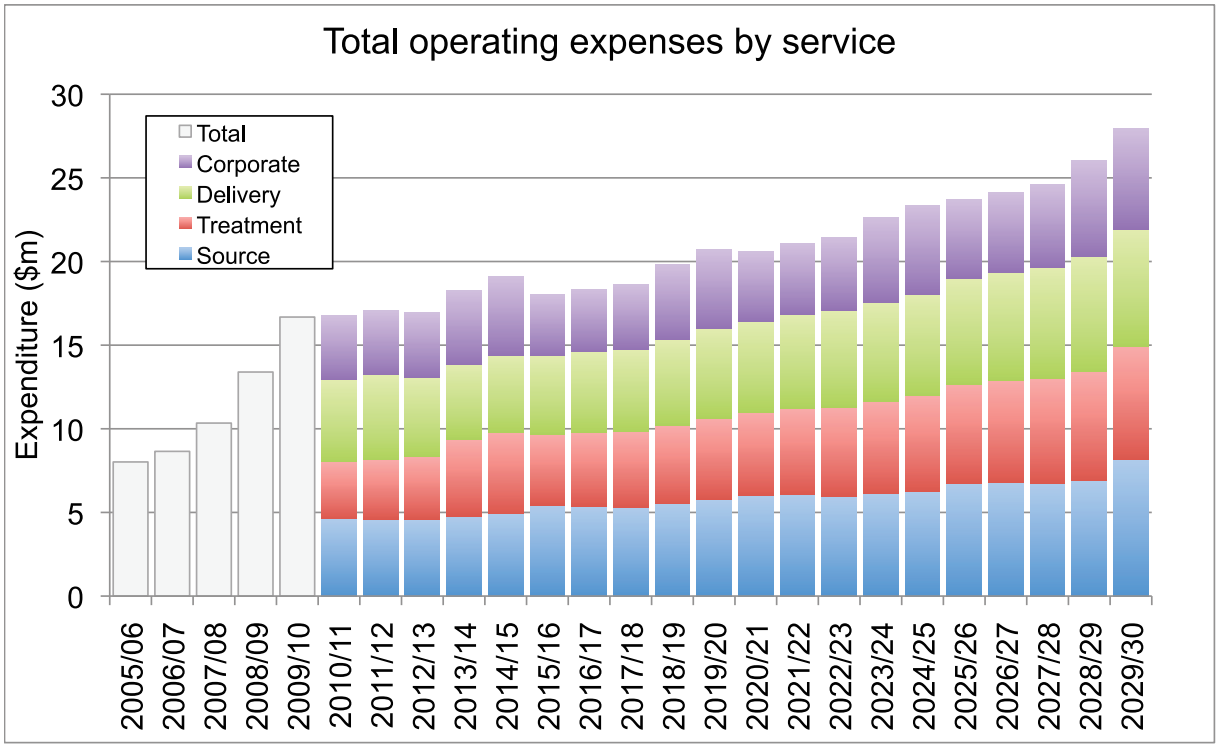


Table 9 – Proposed operating expenditure 2011 to 2015

	2005/06 Actual	2006/07 Actual	2007/08 Actual	2008/09 Actual	2009/10 Budget	2010/11 Forecast	2011/12 Forecast	2012/13 Forecast	2013/14 Forecast	2014/15 Forecast
Operating Expenses										
Operations	900,746	977,392	1,128,049	1,794,140	1,659,910	1,449,831	1,301,444	1,168,852	1,201,432	1,235,005
Maintenance	1,021,175	998,816	1,338,640	1,292,456	3,220,287	2,992,639	3,074,090	2,576,569	2,798,361	2,794,982
Electricity	890,103	946,053	918,596	1,001,631	1,140,887	1,286,131	1,350,079	1,463,848	1,587,332	1,721,337
Chemicals	298,853	357,581	337,457	651,144	810,880	866,475	926,228	990,299	1,058,872	1,132,155
Other	1,497,761	1,585,060	2,298,074	3,598,031	3,403,573	2,346,754	2,320,615	2,301,520	2,821,750	3,005,119
Staffing_Costs	2,644,862	3,001,548	3,554,245	4,201,141	5,496,198	6,183,172	6,414,537	6,724,580	7,050,604	7,392,674
Insurance	576,983	618,172	555,452	548,683	628,777	695,792	730,582	767,111	785,751	804,845
Rates	187,459	165,461	211,162	305,968	319,163	336,079	353,891	372,647	392,397	413,194
Self_Insurance						590,200	590,200	590,200	590,200	590,200
	8,017,943	8,650,084	10,341,675	13,393,195	16,679,675	16,747,074	17,061,666	16,955,625	18,286,700	19,089,511

Figure 13 – Total operating expenses by service 2006 to 2030



5.2 Preparation of forecasts

5.2.1 Escalated base year costs

In the absence of the provision of detailed expenditure forecasts by GAWB, the Authority adopted a simple approach of (mostly) escalating GAWB's 2004/05 budget by CPI for 20 years.

For the 2011-2015 regulatory control period, GAWB has undertaken an in-depth analysis, including:

- a specific forecast for every line of the general ledger accounts, taking into account contracts for supply of services (electricity contracts, contracted maintenance, etc.)
- linking expenditure forecasts to known future regulatory obligations (periodic regulatory reviews, strategic water plan updates, dam safety requirements, etc.)
- adopting cost escalation factors relevant to the particular cost item (e.g. electricity network costs based on regulated price determination rather than CPI).

The cost escalation factors used to forecast operating costs for the 2011- 2015 regulatory control period are set out in Table 10. For the remainder of the planning horizon, CPI was used to escalate all costs.

Table 10 – Operating expenditure cost escalation factors 2011 to 2015

Escalation factor	Adopted value	Comments	Expenditure category
Employment costs	5%	Consists of 4% market movement as per consultant advice and 1% performance related movement	Employment costs
Insurance	5% for three years, CPI thereafter	Advice from consultant	Insurance
Professional services	4.63%	Three-year average (2007–2009) of property and business services wage price index	Consultant costs
Electricity – under contract	Energy charges at contract value. Network costs (passed through under contracts) at 8%	Applies to electricity costs for the Awoonga Dam pump station, water treatment plants and head office. The current electricity contract expires in 2012 at which time the 'Electricity – no contract' escalation factor is used.	Electricity
Electricity – no contract	8%	Factor in line with retail electricity price increases	Electricity
Chemicals	4.84%	Three-year average (2007–2009) of the articles produced by manufacturing industries – chemicals index	Chemicals
Construction index	6.3%	Three-year average (2007–2009) of Queensland general construction industry index	Maintenance
Council cost index	5.3%	February 2009 index	Council rates
CPI	2.43%	Synergies inflation forecast[8]	All other

5.2.2 Preventative maintenance schedule

Preventative maintenance scheduling is an important factor in providing a safe and secure water supply to customers. Preventative maintenance will:

- allow maintenance to be scheduled and conducted while maintaining storage and delivery requirements for customers
- reduce the risk of unexpected breakdowns and associated supply failure
- reduce maintenance costs in the long term by reducing the need for emergency repairs
- provide GAWB with better understanding of the condition of its assets.

During the current regulatory control period, GAWB has developed a detailed preventative maintenance schedule for its delivery network and treatment plants in consultation with GHD.

The costs associated with the preventative maintenance schedule have been incorporated into GAWB's 20-year operating expenditure forecasts.

8 GAWB's ***Commercial Framework and Pricing Principles*** submission, Appendix A, page 58

GAWB engaged Hunter Water Australia (HWA) to review the appropriateness and frequency of the preventative maintenance tasks for the delivery network and treatment plants. A copy of HWA's report has been included at Appendix 25. HWA concluded that the tasks are considered to be within the normal range of reasonable expectations for similar equipment and structures in the water industry throughout Australia.

GAWB has also developed a preventative maintenance schedule for Awoonga Dam. This schedule is based upon GAWB's obligations and the dam safety plan submitted to the dam safety regulator, DERM. The costs associated with the preventative maintenance schedule have also been incorporated into GAWB's 20-year operating expenditure forecasts.

5.2.3 Allocation of costs to zones

Where possible, GAWB has captured and forecast operating costs by specific pricing zone(s). This approach ensures the cost reflectivity of water prices charged.

GAWB's business was segmented into the following components for allocation purposes:

- source assets – currently Awoonga Dam plus CSS preparatory costs
- raw delivery network – comprising all raw delivery pricing zones
- water treatment plants – the GWTP and Yarwun water treatment plant (YWTP) and
- potable delivery network – comprising all treated delivery pricing zones.

Costs for supporting the above segments are treated as support service costs and represent those costs that cannot be directly assigned to any of the segments listed above.

If a cost is directly related to one pricing zone, the cost is solely assigned to that pricing zone.

If a cost is directly related to a group of pricing zones, the cost is assigned to those groups of pricing zones based on a relevant expenditure driver (such as asset value).

Where costs are directly related to a specific segment of GAWB's infrastructure network (such as the raw delivery network), costs are assigned to the pricing zones within that segment based on the demand in each respective pricing zone within the segment.

Where costs are related to more than one segment of GAWB's infrastructure, network costs are:

- assigned to each respective segment based on a relevant expenditure driver for that cost and
- allocated to particular pricing zones within the segment based on the demand in each pricing zone within that segment.

Support service costs are allocated directly to customers based on the general administration cost allocation methodology that was recommended by the Authority in the 2005 price review comprising:[9]

- 10% allocated directly to each customer on a per customer basis and
- 90% allocated on the basis of demand weighted (using the weights previously adopted by the Authority) to reflect the relative administrative effort of providing storage services, raw water delivery and treated water.

9 QCA 2005 Final Report, p142

5.3 Current regulatory control period (1 July 2005 to 30 June 2010)

Operating costs have steadily and significantly increased over the current regulatory control period from around $8m in 2005/06 to more than $16m in 2009/10.

As discussed in section 5.1, the main causes of this increase are:

- improved knowledge of the condition of GAWB's assets obtained through the current regulatory control period resulting in the identification of several significant and urgent maintenance projects
- the need to employ additional staff to properly discharge GAWB's duties and
- increases in electricity, chemical, rates and insurance costs.

The regulatory mechanism does not allow GAWB to recover additional operating expenditure from customers (even if that expenditure was necessary and efficient).

However, an assessment of the efficiency of GAWB's historic expenditure is relevant to the Authority's assessment of GAWB's proposed future operating expenditure, which is largely based on current expenditure levels.

To demonstrate the prudence and efficiency of GAWB's current level of expenditure, the following benchmarking reviews were commissioned:

- total operating costs
- organisational resourcing
- remuneration management processes
- ICT expenditure.

Each of these reviews is discussed in the follow section.

5.3.1 Operating cost benchmarking

Marchment Hill Consulting (MHC) was engaged to undertake a benchmarking study comparing GAWB's operations against suitable peer organisations. A copy of MHC's report has been included as Appendix 26.

As outlined in MHC's report, Land and Catchment Management, Hatchery and Recreational Area activities were excluded from the benchmarking exercise due to the inability to obtain appropriate comparison cost information from peer organisations. GAWB has included further details on these activities, including resources deployed, in Appendix 24.

Notwithstanding that GAWB's expenditures and staff numbers have increased in recent years, the MHC analysis demonstrated that GAWB's efficiency and productivity were generally better than the peer group. Figure 14 and Figure 15 are extracted from the MHC report.

Figure 14 – Operating expenditure as a proportion of water sales

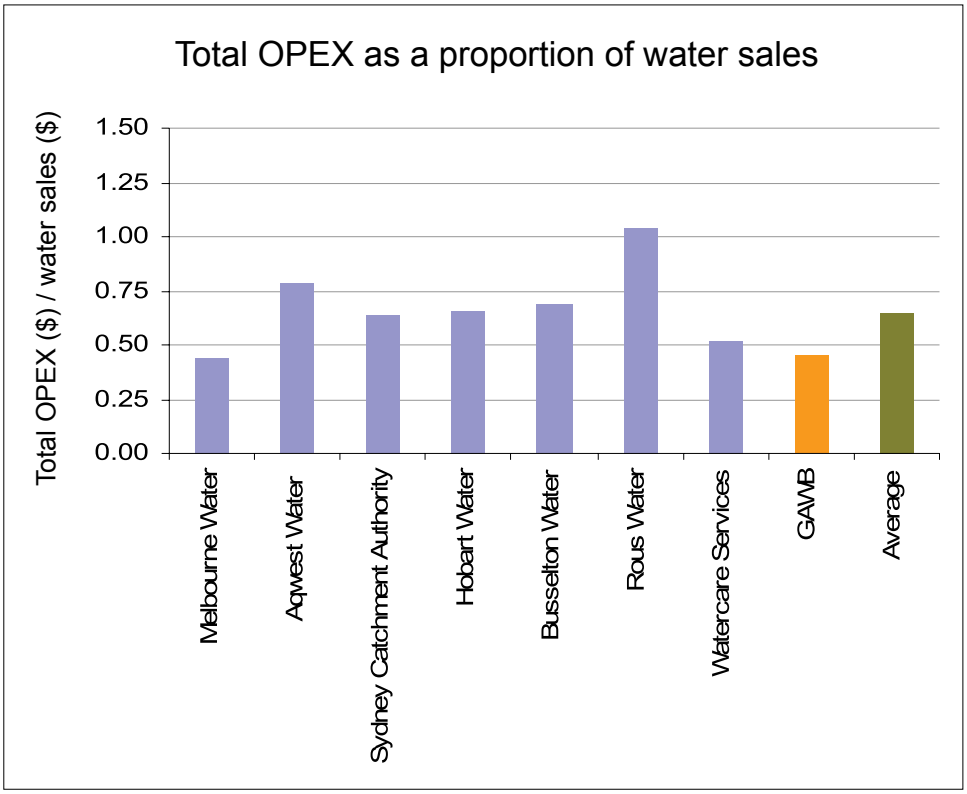
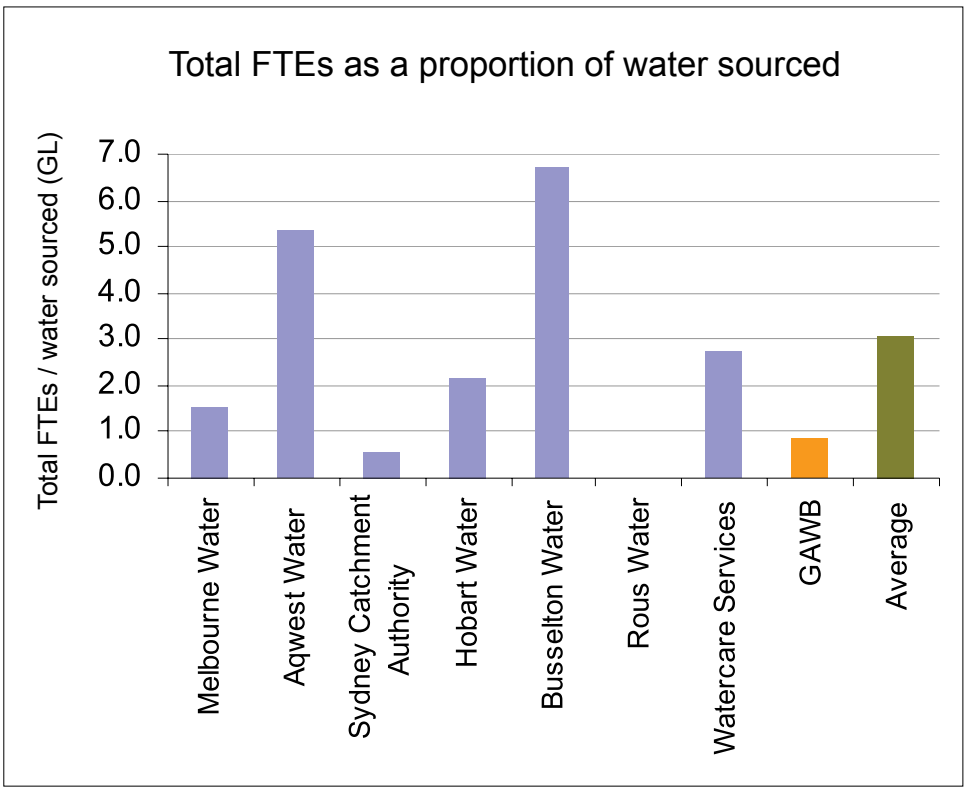


Figure 15 – Staffing levels as a proportion of water sales



5.3.2 Organisational resourcing review

GAWB engaged GHD to undertake this review. GHD has extensive knowledge regarding the operation of water businesses throughout Australia. The engagement examined the appropriateness of current staffing levels with reference to:

- increase in staff numbers since 2005
- use of external resourcing (consultants/contractors)
- workload and
- resource efficiency improvements.

GHD recognised that the increase in staff numbers (internal resourcing) over the last five years was a function of:

- increased obligations related to safety, environment and water quality activities
- reducing risk associated with failing to supply water through the use of strategic planning activities such as GAWB's CSS
- addressing legacy issues; for example those associated with the adoption of a three-year ICT strategy
- transferring water treatment activities to GAWB that were previously outsourced to GRC and
- undertaking a growing capital works program (necessary for reducing risk, replacing assets identified as requiring replacement, and meeting safety obligations).

GHD did not find that the level of staffing was inefficient. Indeed GHD recommended additional staff for the 2011–2015 regulatory control period:

> *Staff numbers are approaching what GHD considers to be appropriate for an organisation the size of GAWB and it is expected that staff numbers will plateau after 2015.*

A copy of GHD's report is included as Appendix 27.

5.3.3 Remuneration management processes

Mercer (Australia) Pty Ltd (Mercer) was engaged to benchmark GAWB's remuneration management processes against the broader market.

A copy of Mercer's report has been provided to the Authority as a confidential attachment to the submission. Mercer concludes that:

- *GAWB uses a rigorous and systematic method of remuneration management which ensures a responsible and conservatively competitive offering to employees. Through the use of the Mercer CED methodology to govern position assessment and classification, the organisation has instituted an approach to job evaluation which is consistent with that used in the QPS. The resulting construct of work value provides a means by which to assess the contribution of individual roles to the organisation and can be used as a means by which to gauge an appropriate level of remuneration against the General Market. With regard to its positioning against the market, GAWB has opted for a positioning similar to that of Queensland GOCs, positioning remuneration for most roles at a maximum of the General Market Median while reserving the ability to position higher than this mark for critical positions posing significant attraction and retention issues.*
- *Mercer has demonstrated not only that current remuneration levels in use by GAWB accurately reflect the wider market, both through work value-based links to the General Market and secondary survey comparisons to a sample of specific roles. Analysis of job family premiums has demonstrated that the ability to pay above the Median in exceptional circumstances will be important in allowing it the (the) organisation to meet specific workforce needs, especially in its key Engineering & Technical and IT areas. The importance of taking into consideration market growth in salaries when estimating future workforce cost was also presented, with even a conservative 4% yearly increase demonstrated to have significant impact on workforce salaries.*
- *In summary, Mercer is confident that GAWB's approach to remuneration management and its remuneration levels are appropriate in terms of wider market practice.*

5.3.4 ICT expenditure

As discussed previously, GAWB engaged SMS to undertake a review of GAWB's ICT expenditure. A copy of SMS's report, as outlined previously, has been included as Appendix 4.

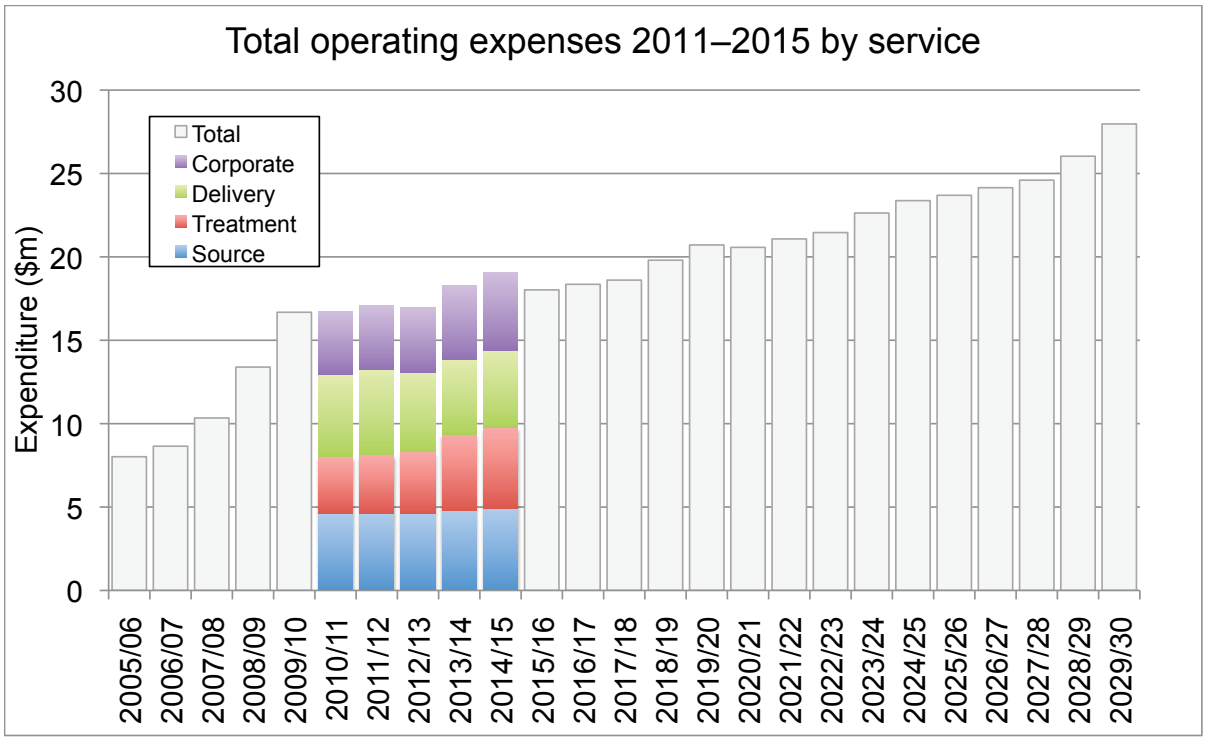
SMS concluded that:

- benchmarks indicate that ICT operations were underfunded in the early part of the regulatory control period
- GAWB increased its ICT expenditure in the later part of the period to catch-up and reinvigorate ICT operations with the average of spending over the period in line with industry benchmarks and
- the increase in operating expenditure is largely due to the appointment of a full-time information systems manager, with ICT staffing ratios well below industry benchmarks.

5.4 Next regulatory control period (1 July 2010 to 30 June 2015)

GAWB's operating expenditure proposals for the next regulatory control period give an average annual increase of 2.7% (that is, similar to the rate of inflation) over the 2009/10 expenditure – refer Figure 16.

Figure 16 – Total operating expenses by service 2011 to 2015

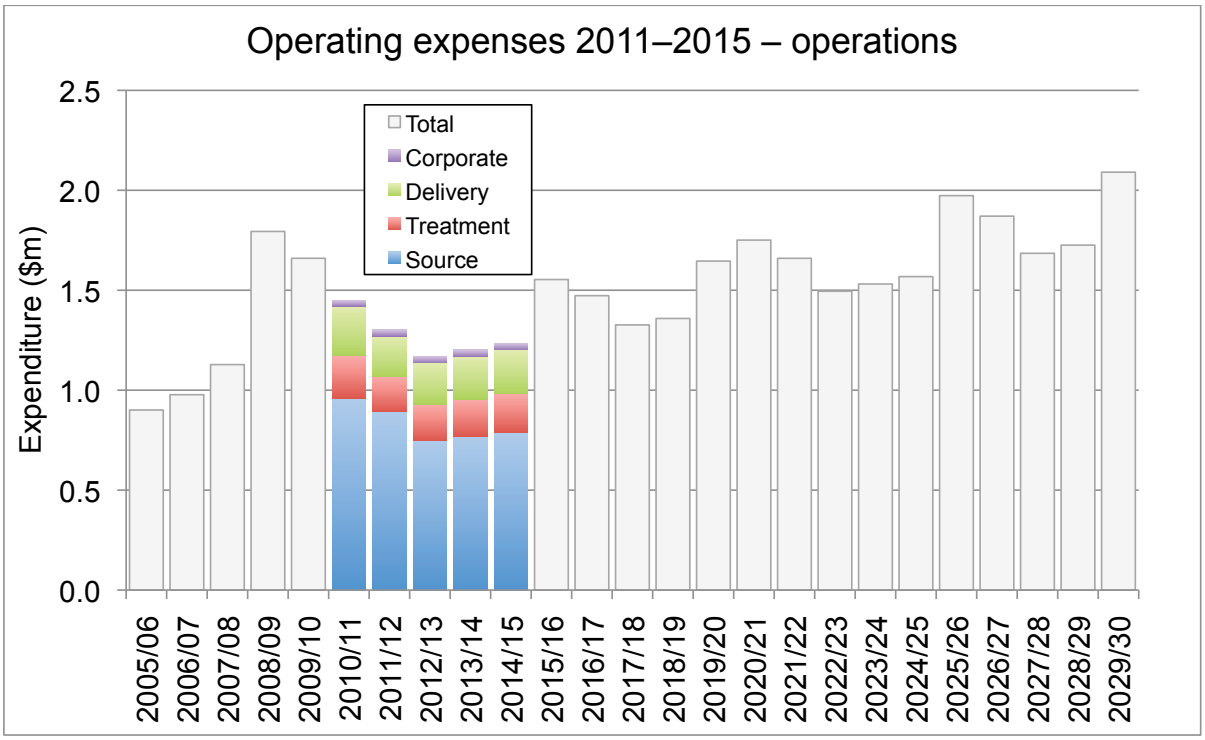


5.4.1 Operations

GAWB expects that operational expenses over the next regulatory control period will be lower than those incurred in the last two years of the current regulatory control period. Part of this decrease is the result of internalising activities currently contracted out. Therefore the decrease is partially offset by an increase in staffing costs (see section 5.4.5).

GAWB proposes to update its *Strategic Water Plan* in 2010/11 and 2011/12, giving rise to forecast expenditure that is higher than trend for the first two years of the regulatory control period (the pattern is repeated in each subsequent regulatory control period) – refer Figure 17.

Figure 17 – Operations expenses by service 2011 to 2015



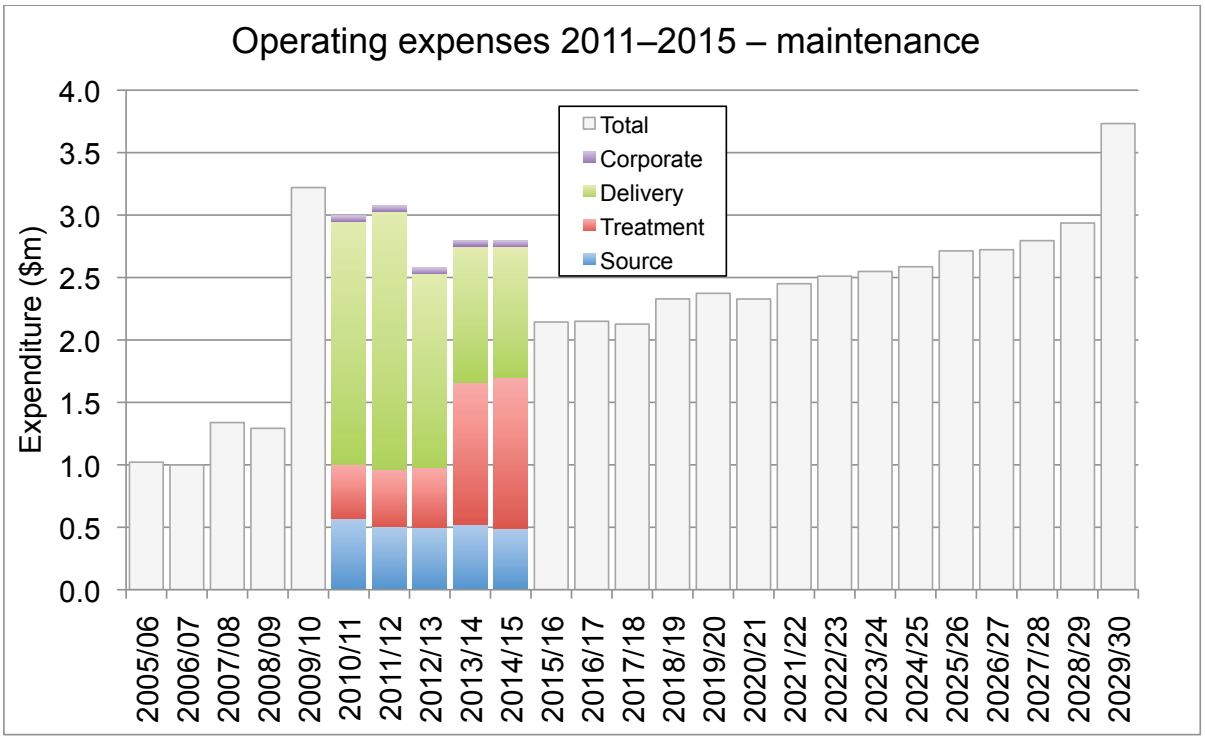
5.4.2 Maintenance

The following table outlines the forecast maintenance for the next regulatory control period. While the preventative maintenance schedules make up a large proportion of the total maintenance expenditure, specific maintenance projects have been identified and included in the forecast – refer Table 11 and Figure 18.

Table 11 – Maintenance expenditure by major projects 2011 to 2015

	2010/11	2011/12	2012/13	2013/14	2014/15
Preventative Maintenance Schedule					
Treatment & Delivery Preventative Maintenance	827,678	888,568	906,098	972,234	991,982
Dam Preventative Maintenance	203,385	235,682	241,039	265,843	246,395
	1,031,063	1,124,250	1,147,137	1,238,077	1,238,377
Awoonga					
Awoonga Dam - valve repairs	73,031	-	-	-	-
Rec Area - toilet facilities repairs	10,243	-	-	22,016	-
Replanting of garden areas	5,122	5,246	5,373	5,504	5,638
Walking Trails - boat ramp to Parsloe Park	-	-	26,867	-	-
Gas BBQ - Riverston & Ironbark Gully repairs	10,243	-	-	-	-
Vegetation regeneration project	51,215	52,460	-	-	-
Rec Area - irrigation system	10,243	-	10,747	-	11,276
	160,096	57,705	42,987	27,520	16,913
Awoonga to Fitzsimmons St Reservoir					
Specific pipeline inspections	52,315	-	-	59,923	-
Specific pipeline repairs	20,926	21,895	22,909	47,939	50,158
	73,241	21,895	22,909	107,862	50,158
Boyne Potable					
Repairs to South Trees Bridge	265,750	282,492	-	-	-
	265,750	282,492	-	-	-
Boyne Raw					
Repairs to South Trees Bridge	265,750	282,492	-	-	-
	265,750	282,492	-	-	-
Mt Miller Pipeline					
Repairs to pipeline - lining failure	-	564,985	600,579	-	-
	-	564,985	600,579	-	-
North Industrial Potable					
Repairs to concrete structure	478,350	-	-	-	-
	478,350	-	-	-	-
Yarwun Water Treatment Plant					
Repairs to concrete structures	-	-	-	638,415	-
Building repairs	53,150	56,498	60,058	63,841	67,864
	53,150	56,498	60,058	702,256	67,864
Gladstone WTP					
Repairs to concrete structure	-	-	-	-	678,635
Building repairs	53,150	56,498	60,058	63,841	67,864
	53,150	56,498	60,058	63,841	746,499
Other	612,089	627,273	642,842	658,804	675,171
Total Maintenance per forecasts	**2,992,639**	**3,074,090**	**2,576,569**	**2,798,361**	**2,794,982**

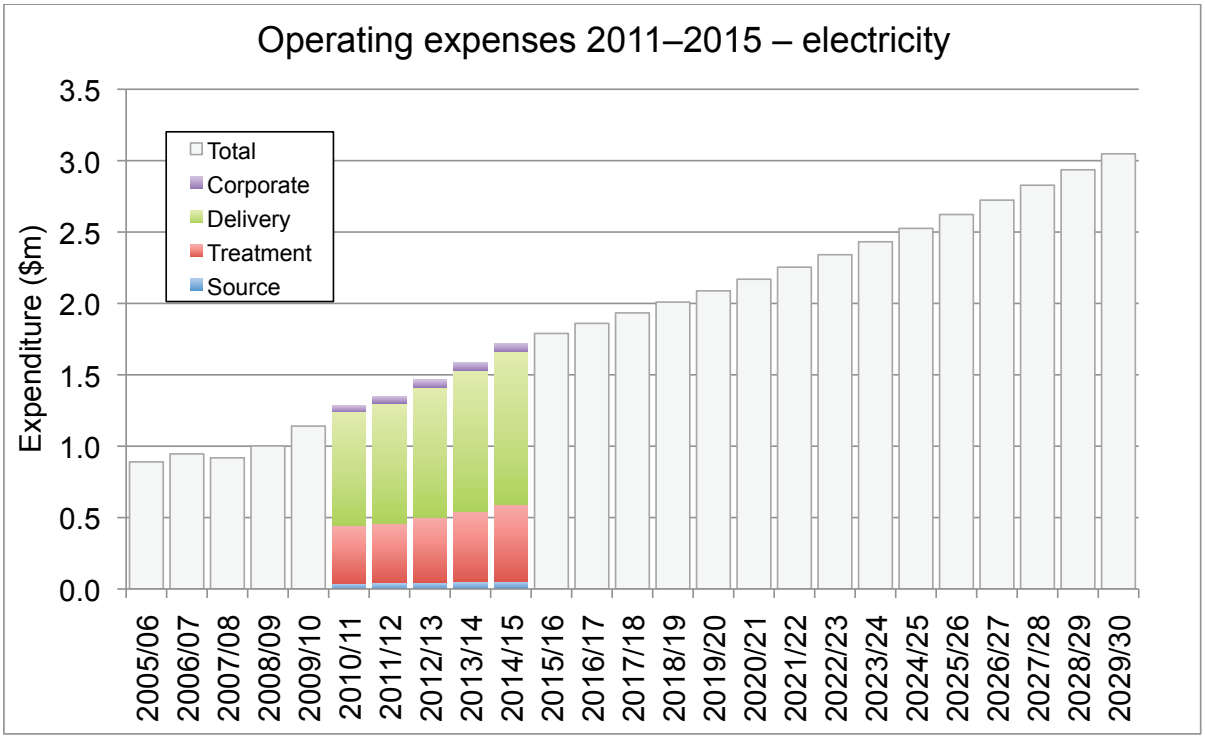
Figure 18 – Maintenance expenses by service 2011 to 2015



5.4.3 Electricity

Electricity is largely used for pumping in the delivery network. GAWB's total electricity cost is forecast to increase by 8.6% per annum over the next regulatory control period (based on contract energy rates and 8% network price increases and minor increase in the amount of pumping required) – refer Figure 19.

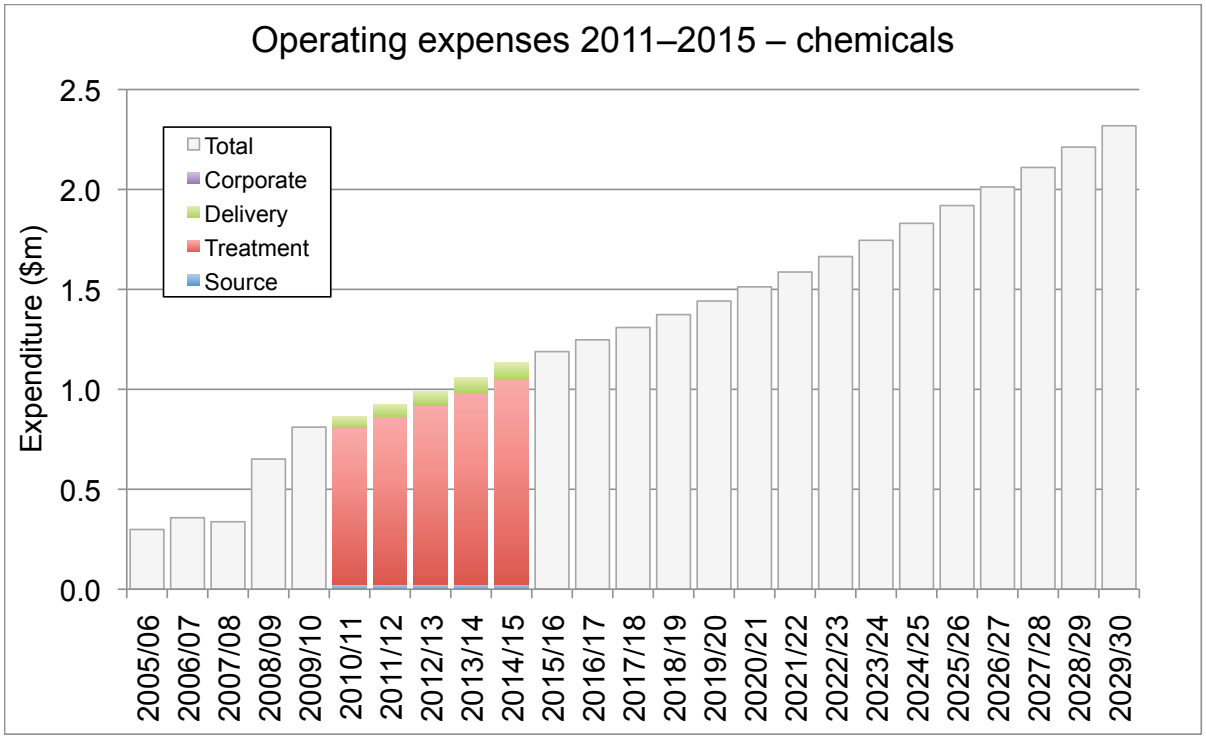
Figure 19 – Electricity expenses by service 2011 to 2015



5.4.4 Chemicals

Chemicals are largely used in the treatment of water to potable quality. GAWB's total chemicals cost is forecast to increase by 6.9% per annum over the next regulatory control period (based on a 4.84% per annum increase in the cost of chemicals and a small increase in the amount of potable water delivered) – refer Figure 20.

Figure 20 – Chemicals expenses by service 2011 to 2015



5.4.5 Staffing costs

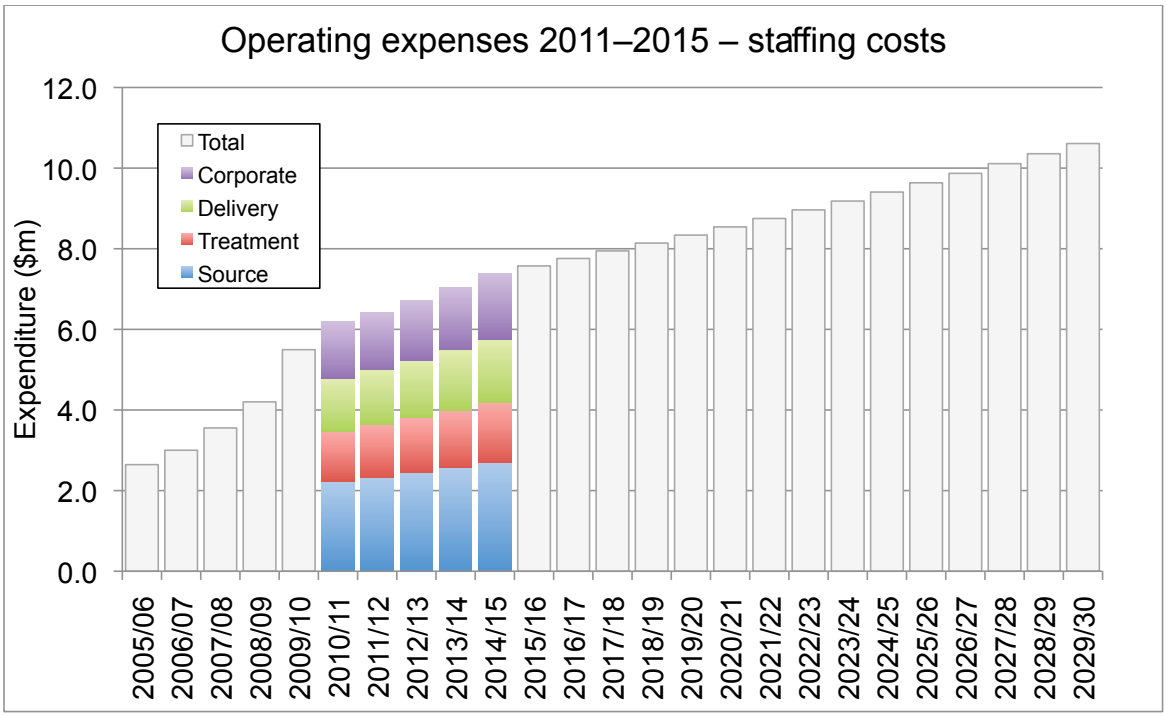
Staffing costs are forecast to increase by 6.1% per annum over the next regulatory control period. This increase comprises:

- an increase in internal staff numbers (some three full-time equivalents (FTEs) or 12% over the five-year regulatory control period) and
- an expected annual increase in costs of 5% per annum.

As noted in section 5.3.2, GAWB engaged GHD to undertake an organisational resourcing review. Whilst GHD recommended an increase of 7.5 FTEs for the regulatory control period:

- four of these FTEs were for the internalisation of activities currently being contracted out. GAWB has not included these positions in the forecasts for staffing costs as a final decision has not been made on the internalisation of these resources. These costs are currently captured by GAWB through maintenance expenditure
- 0.5 FTE has been allowed in other forecast costs representing the cost of obtaining short-term additional external ICT support. This has not been included in the forecast for staffing costs and
- three additional FTEs have been included in the forecast for staffing costs – refer Figure 21.

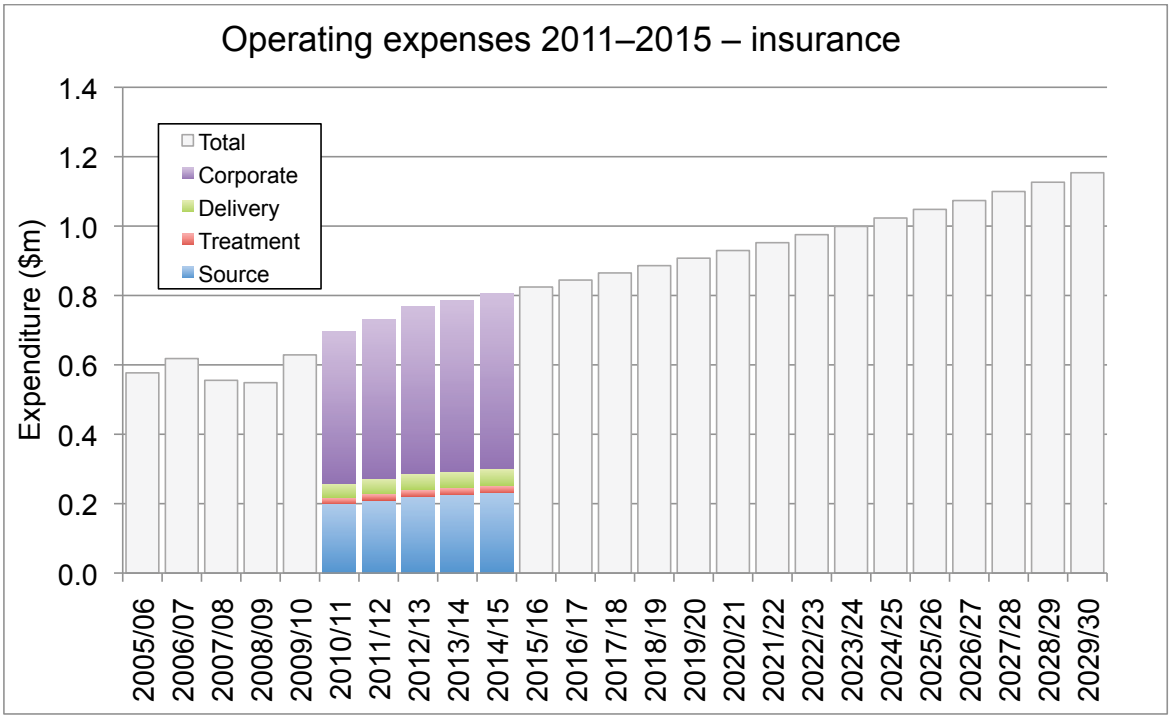
Figure 21 - Staffing costs by service 2011 to 2015



5.4.6 Insurance

Insurance costs are forecast to increase by an average of 5.1% over the next regulatory control period. Additional premiums were incurred in 2010 to increase GAWB's public liability insurance coverage to a level consistent with other water service providers. The cost of insurance is forecast to increase by 5% in 2012 and 2013, and by 2.43% for the remainder of the planning period – refer Figure 22.

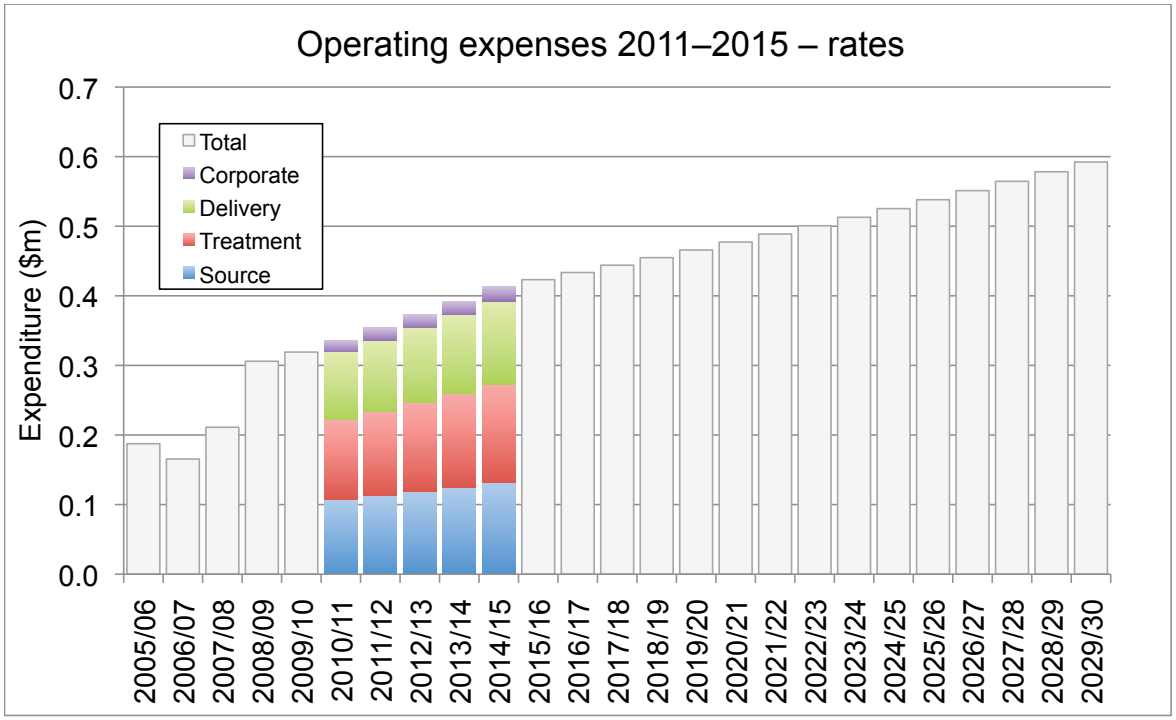
Figure 22 – Insurance expenses by service 2011 to 2015



5.4.7 Rates

Rates expenses are forecast to increase by 5.3% per annum over the next regulatory control period – refer Figure 23.

Figure 23 – Rates expenses by service 2011 to 2015



5.4.8 Self-insurance

In general, business risks are mitigated by GAWB by:

- capital or operational expenditure
- purchasing insurance or
- regulatory mechanisms such as cost pass-through or price review triggers.

Where it is not possible or economically efficient to completely mitigate a risk through one of the above mechanisms, GAWB bears the residual risk. Self-insurance costs are essentially an 'insurance premium' for that residual risk borne by GAWB.

SAHA International (SAHA) was engaged to provide an assessment of self-insurance costs for GAWB. Based on this assessment, GAWB proposes that the Authority approves $590,200 per annum in each year of the next regulatory control period for specific risks borne by GAWB. If a self-insured risk event occurs during the next regulatory control period, GAWB will not be entitled to pass-through these costs.

SAHA also identified that there were some risk events faced by GAWB that were better dealt with as a cost pass-through event rather than inclusion in the allowance for self-insurance. Please refer section 7.2.

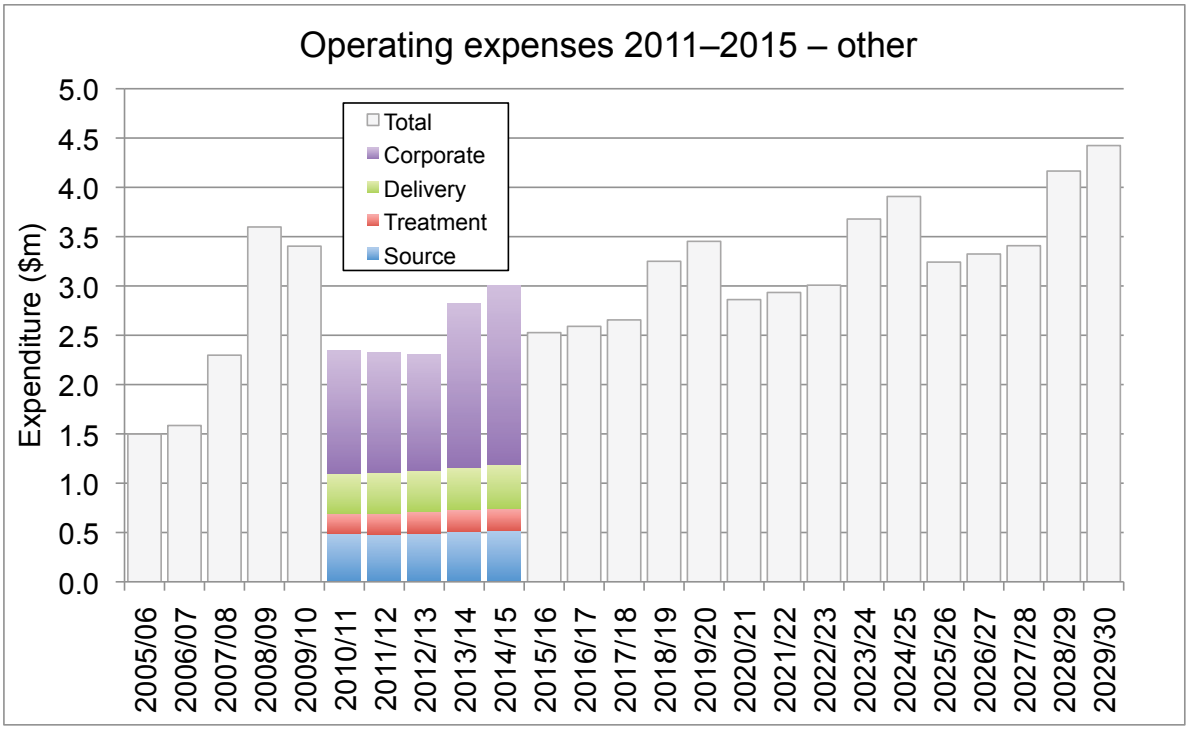
A detailed analysis of risks covered by the proposed self-insurance premium has been provided to the Authority as a confidential submission.

5.4.9 Other expenses

Other operating expenses are forecast to fall for the first three years of the next regulatory control period as a result of lower corporate costs.

The higher expenses in years four and five of the regulatory control period relate to the forecast cost of preparing for the 2015 price review. However, even at this higher level, expenses are forecast to be lower than those incurred in the final two years of the current regulatory control period – refer Figure 24.

Figure 24 – Other operating expenses by service 2011 to 2015

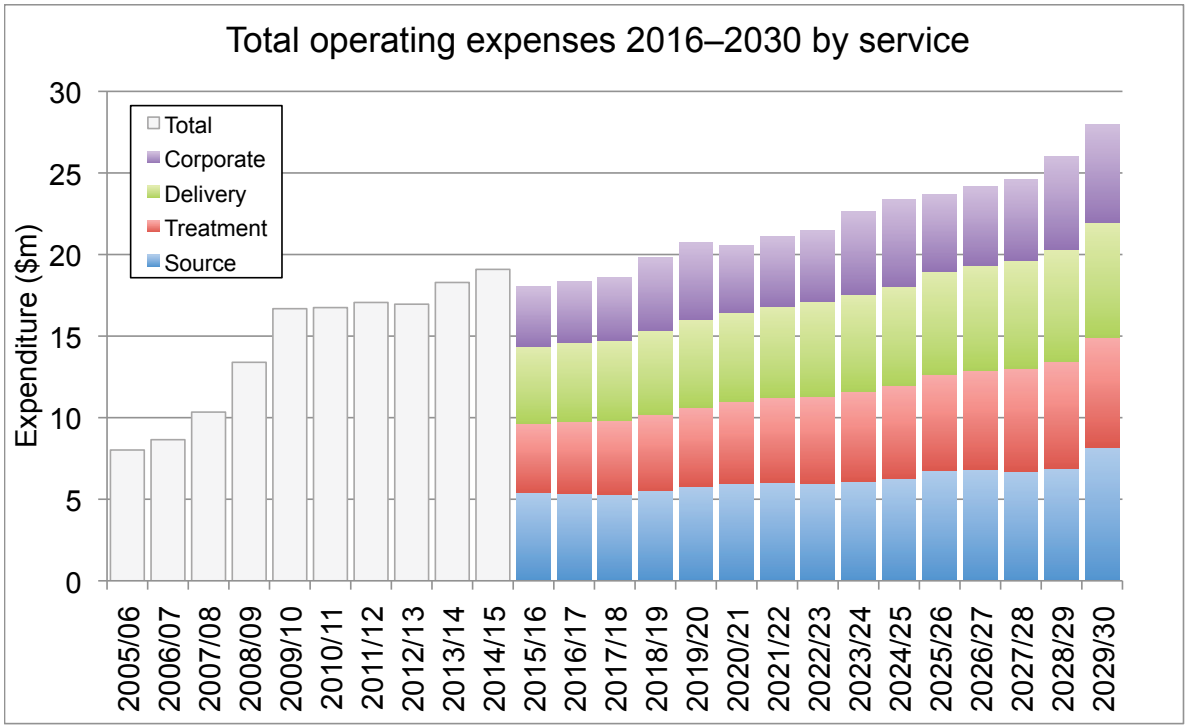


5.5 Remaining 15 years of the planning horizon (1 July 2015 to 30 June 2030)

Forecasts for 2015/16 to 2029/30 assume CPI increases over 2014/15 expenditure. Again, additional expenditure includes:

- costs of the next price review, incurred in the last two years of each regulatory control period
- costs relating to the strategic water planning process, incurred in the first two years of each regulatory control period
- a large increase in maintenance expenditure forecast in 2030 due to spillway relief hole clearing that is required for Awoonga Dam every 20 years and
- the costs to review GAWB's *Resource Operations Plan* (ROP) in 2020 and 2030 – refer Figure 25.

Figure 25 – Total operating expenses by service 2016 to 2030



6 Regulated asset base

6.1 Approach

As set out in the *Commercial Framework and Pricing Principles* submission, GAWB proposes that the opening regulated asset base (RAB) for the 2011–2015 regulatory control period be set as follows:

- roll-forward of the 2005 valuations (using actual Brisbane All Groups CPI and straight-line depreciation over the remaining lives estimated in 2005)
- addition of efficient capital expenditure and assets purchased or constructed during the 2005–2010 regulatory control period
- removal of redundant assets and assets sold during the 2005–2010 regulatory control period and
- changes to 2005 price review optimisation decisions and such other adjustments where appropriate.

6.2 2005 RAB

The starting point for the roll-forward is the 2005 RAB.

In its 2005 Final Report, the Authority used a RAB value at 1 July 2005 of $355.63m. The RAB was based on a 2005 DORC valuation performed by SMEC and land valuations performed by Herron Todd White.

To assist GAWB to replicate the Authority's indicative price calculation to customers, the Authority provided to GAWB a summarised RAB spreadsheet. This spreadsheet summarised the RAB at 1 July 2005 by pricing zone and asset groups aggregated by useful life. This information was in summary form only and did not contain details of the individual asset values. The total RAB value at 1 July 2005 in the Authority's spreadsheet and subsequently used in GAWB's pricing model was $357.08m.

Because the Authority's RAB data was available only in summary form, it is not possible to roll-forward the value of specific assets.

In April 2009, GAWB sought this detailed information from the Authority as this information was important to:

- enable development of a pricing model for the regulatory control period commencing 1 July 2010
- ensure that assets were allocated to the correct pricing zones and
- identify and reconcile differences between GAWB's fixed assets register and the RAB.

The Authority had received only summarised assets values from SMEC but assisted GAWB in trying to obtain detailed information from SMEC. Unfortunately, SMEC was unable to provide details of the 2005 valuation undertaken for the Authority.

In the absence of a detailed version of the Authority's 2005 valuation, an alternative starting point is required.

In 2005 SMEC also undertook a DORC valuation for GAWB. However, GAWB has been unable to reconcile this valuation with the summarised information that the Authority provided to GAWB in 2005.

The total RAB value in SMEC's valuation for GAWB was some $16m or 4.5% higher than the value quoted in the Authority's 2005 Final Report (after adjusting for the optimisations recommended by the Authority in 2005).

In the case of Hanson Rd pipeline and Boat Creek Reservoir optimisations, GAWB could identify the specific assets optimised by the Authority, and has replicated this optimisation.

In the case of other optimisations (Mt Larcom pipeline, Calliope infrastructure and Wurdong-Beneraby infrastructure), GAWB could not identify the specific assets optimised by the Authority because there was insufficient data in the 2005 Final Report to identify the assets. In the absence of any other information, GAWB has reduced the zone asset value to that recommended by the Authority in 2005. GAWB intends to work with the Authority to identify, where possible, the specific assets optimised in 2005 to improve GAWB's treatment of optimisations.

GAWB proposes to adopt a 2005 opening RAB of $371.67m as set out in Table 12.

Table 12 – GAWB proposed 1 July 2005 RAB

SMEC 2005 DORC for GAWB	$378.67m
Less:	
- Hanson Rd & Boat Creek Reservoir optimisation	-$3.38m
- other optimisations	-$3.62m
Opening Value of RAB at 1 July 2005	**$371.67m**
Opening value of RAB per QCA 2005 report	$355.63m
- Difference	$16.04m
- % Difference	4.51%

6.3 Asset additions

6.3.1 Capital expenditure and purchased assets

Details of capital expenditure and asset purchases for the current regulatory control period are included in section 4.2.

6.3.2 CSS preparatory expenditure

In submissions to the Authority's investigation of the CSS, GAWB proposed:[10]

> *In the case that the associated physical infrastructure is not anticipated to be commissioned within the 20 year planning horizon, efficient preparatory costs be included in the RAB and priced and depreciated over the economic life of the preparatory works.*

If that submission is accepted by the Authority, then the capitalised CSS expenditure should be included in the RAB from 1 July 2010.

The Authority's Part (a) Final Report provides that CSS preparatory expenditure should be capitalised using the weighted average cost of capital (WACC) applicable for GAWB's other regulated assets. For the 2005–2010 regulatory control period, that rate is 7.73%.

Table 13 shows the value of CSS expenditure capitalised to 1 July 2010.

Table 13 – CSS expenditure capitalised to 1 July 2010

Year	2005/06	2006/07	2007/08	2008/09	2009/10	Total
Years of roll-forward	4.5	3.5	2.5	1.5	0.5	
Capitalisation factor (WACC of 7.73%)	1.40	1.30	1.20	1.12	1.04	
CSS Expenditure	196,193	2,161,241	5,958,710	14,066,477	10,945,352	33,327,973
CSS Expenditure capitalised to 1 July 2010	274,282	2,804,668	7,177,843	15,728,609	11,360,517	37,345,919

6.4 Redundant and sold assets

Land to the value of $3.05m has been removed from the RAB at 30 June 2010. This land relates to properties that have been identified as surplus to GAWB's requirements as part of the land and catchment management project (refer section 4.2.5).

6.5 Changes to optimisation

As discussed in section 4.7.2 of GAWB's *Commercial Framework and Pricing Principles* submission, GAWB proposes two changes in optimisation from those included in the 2005 opening RAB.

GAWB submits that the Hanson Rd pipeline should be included in the RAB. The Hanson Rd pipeline:

- is necessary to supply existing raw water customers
- is necessary to supply raw water to the YWTP (releasing capacity on the Mt Miller pipeline to supply industrial customers in the northern industrial area) and
- is a partial back-up for the Mt Miller pipeline.

GAWB submits that the Boat Creek raw water reservoir should be reinstated to provide raw water storage for customers in the proposed North Industrial Raw and Fishermans Landing Raw pricing zones.

10 GAWB Gladstone to Fitzroy Pipeline – *Part (c) Submission*, May 2009, p36

The reinstatement will:

- provide approximately 36 hours storage for customers downstream of the North Industrial Raw zone and
- allow customers to have a continuous uninterrupted supply in the event either Mt Miller or Hanson Road pipelines are isolated due to maintenance.

The reinstatement of the Boat Creek reservoir and pipeline connection to the network itself results in an increase in the RAB of around $820,000 comprising:

- reinstatement of assets previously optimised by the Authority – $70,000 and
- forecast capital expenditure in 2009/10 of $750,000 of capital expenditure in 2009/10.

The reinstatement of the reservoir will reduce the risk of supply interruptions for northern industrial customers. The reservoir will provide a short-term backup supply of approximately 2.5 days supply (based on average daily demand) in the event Mt Miller pipeline or Hanson Road pipelines need to be isolated due to maintenance requirements.

6.6 Proposed opening RAB at 1 July 2010

Table 14 shows calculation of GAWB's proposed RAB at 1 July 2010 of $462.79m.

Table 14 – GAWB proposed 1 July 2010 RAB excluding CSS expenditure

Opening RAB at 1 July 2005	$371.67m
Add:	
- Re-inclusion of Hanson Road pipeline	$3.08m
- Re-inclusion of Boat Creek Reservoir	$0.07m
Less:	
- DORC value of disposals	-$7.26m
- Removal of surplus land to RAB	-$3.05m
- Depreciation	-$29.36m
Add:	
- Acquisitions excluding CSS and fluoridation plants	$26.23m
- CSS expenditure	$37.35m
- Fluoridation plants	$1.53m
- Inflation	$62.53m
Opening Value of RAB at 1 July 2010	**$462.79m**

7 Cost pass-through

The Authority has previously stated that 'material changes in expected costs may be passed through to customers, subject to approval by the Authority.' Eligible costs include: changes in taxation, changes in government charges such as resource management charges, changes in compliance requirements, changes in law and changes in government policy. A material change is considered to be one which affects the annual revenue requirement consistent with the approved pricing practices by more than 1%.[11] GAWB has identified the following additional possible cost pass-through events that may impact on the next regulatory period.

7.1 Emissions Trading Scheme

The Emissions Trading Scheme (ETS) is a new regulatory change that the Commonwealth Government has introduced as an attempt to combat the impacts of climate change. There is considerable uncertainty as to the final form of the ETS including when it will be implemented. The costs to which GAWB will be exposed due to the introduction of the scheme are a direct result of a regulatory change and unquantifiable at this point in time.

While GAWB acknowledges there is uncertainty surrounding the implementation of the ETS, it does imagine that the ETS will be imposed within the next regulatory period. GAWB submits that the additional cost of the ETS should therefore be subject to a cost pass-through, irrespective of the materiality threshold.

7.2 Self–insurance

As outlined at section 5.4.8, GAWB engaged SAHA International to provide an assessment of self-insurance costs for GAWB. SAHA in its review has outlined some residual self-insurance risks that would be better handled through a cost pass-through mechanism rather than a self-insurance premium. Details of these risks have been provided to the Authority in GAWB's confidential submission.

7.3 Employing office

On 23 April 2007 the Queensland Parliament passed the *Statutory Bodies Legislation Amendment Act 2007* which amended the *Water Act 2000*. The amendments included the creation of the Gladstone Area Water Board Employing Office as a statutory body for the purposes of the *Financial Accountability Act 2009*. The new entity is able to employ staff and hire these staff to GAWB under a labour hire arrangement on a cost recovery basis. While staffing costs will remain unchanged, additional expenditure will be incurred for the ongoing administration and audit requirements of the new entity.

Due to the uncertainties surrounding the introduction, GAWB has not included any allowance in its operating expenditure forecasts for costs associated with the Employing Office and proposes to use a cost pass-through mechanism if this event occurs within the next regulatory control.

11 Queensland Competition Authority, *Gladstone Area Water Board: Investigation of pricing Practices (2005)*, pxv

Glossary

AHD	Australian Height Datum
Authority	Queensland Competition Authority
Capex	Capital expenditure
Cardno	Cardno (Qld) Pty Ltd
Connell Wagner	Connell Wagner Pty Ltd, now Aurecon Australia Pty Ltd
CPI	Consumer Price Index
CSS	Contingent supply strategy
DMP	Drought Management Plan
DORC	depreciated optimised replacement cost
ETS	Emissions Trading Scheme
FML	Flood Margin Level
FSL	Full Supply Level
FTE	full-time equivalent
GAWB	Gladstone Area Water Board
GFP	Gladstone to Fitzroy Pipeline
GHD	GHD Pty Ltd
GRC	Gladstone Regional Council
Grigg	Alf Grigg & Associates Pty Ltd
GST	Goods and Services Tax
GWTP	Gladstone Water Treatment Plant
HCC	Harrington Construction Consultants Pty Ltd
HNFY	Historic No Failure Yield
HWA	Hunter Water Australia
ICT	Information communication technology
LFRI	Lower Fitzroy River Infrastructure Project
Mercer	Mercer Australia Pty Ltd
MHC	Marchment Hill Consulting
ML	megalitre
MWH	MWH Australia Pty Ltd
Opex	Operating expenditure
PAC	Powdered activated carbon
PLC	programmable logic controller
QAL	Queensland Alumina Limited
R2A	R2A Pty Ltd
RAB	regulated asset base
ROP	resource operations plan
SAHA	SAHA International
SCADA	Supervisory control and data acquisition system
SLMP	System Leakage Management Plan
SMEC	SMEC Australia Pty Ltd
SMS	SMS Consulting Group Ltd
Synergies	Synergies Economic Consulting
VFD	variable frequency drive
YWTP	Yarwun Water Treatment Plant

Gladstone Area
Water Board