Deloitte.

Essential Services Commission

2013-18 Review of Water Prices

Assessment of expenditure forecasts for regional urban businesses

Gippsland Water

Final Report

18 February 2013

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Mr Marcus Crudden
Acting Director - Water
Essential Services Commission
Level 2, 35 Spring St
Melbourne VIC 3000

18 February 2013

Dear Marcus

Re: Assessment of expenditure forecasts for regional urban businesses

We are pleased to provide our Final Report setting out our assessment of Gippsland Water's operating and capital expenditure for the 2013-2018 regulatory period. This Final Report provides our findings and recommendations. It should be read in conjunction with our *Overview* document, which sets out our approach to a number of common expenditure issues across the businesses we have reviewed.

Please do not hesitate to contact me if you have any questions regarding the report.

Yours sincerely

Paul Liggins
Partner
Deloitte Touche Tohmatsu

Contents

Executive Summary

Background

The Essential Services Commission (ESC) is currently conducting a review of the proposed prices to be charged by Victoria's water businesses for the period 1 July 2013 to 30 June 2018, referred to in this document as 'the next regulatory period' or third water plan period (WP3).

The businesses have submitted Water Plans to the ESC for the WP3 period. The Water Plans include forecasts of operating expenditure, capital expenditure and demand, proposed service standards and prices. The ESC will review the Water Plans and intends to release a draft decision in March 2013, with a final decision issued in May 2013.

Deloitte has been engaged by the ESC to review the expenditure forecasts made by 10 regional urban water businesses.

The ESC has requested that in our review of the capital expenditure forecasts we focus on the major projects that comprise a significant proportion of the total capital expenditure forecasts and provide advice on whether the expenditure meets certain criteria.

In relation to operating expenditure we have been asked to provide advice on whether changes in operating costs are consistent with the timing of major capital projects; that businesses are fulfilling their obligations and meeting customer service expectations as cost efficiently as possible; that forecast divergences can be readily explained; and one-off costs associated with the drought have been removed. The ESC has highlighted that energy, labour, IT and chemical costs should be a significant focus of the review.

Process for review

We took the following approach to undertaking this review:

- We reviewed the Water Plans and supporting documentation provided by Gippsland Water to the ESC
- We submitted a request for further information and prepared a number of questions for Gippsland Water
- We visited Gippsland Water on 12 and 13 November 2012 to discuss the Water Plan and our questions
- Following our visit and as part of the preparation of this Draft Report we held further discussions with Gippsland Water on particular aspects of the Water Plan
- We prepared a Draft Report which was provided to the ESC on 11 December 2012
- We held discussions with Gippsland Water regarding the Draft Report and reviewed a written response from Gippsland Water dated 29 January 2013.

Approach to review

In our assessment of operating and capital expenditure proposed by each of the nominated water businesses, we have followed the direction of the *Water Industry Act (1994)* and the *Water Industry Regulatory Order* (WIRO). The WIRO requires, amongst other things that the ESC:

*(a) be satisfied that the prices contained in the **Water Plan** which the **regulated entity** proposes it be permitted to charge for **prescribed services** over the term of the **Water Plan**, or the manner in which the **Water Plan** proposes that such prices are to be calculated or otherwise determined, are such as to:*

*(i) provide for a sustainable revenue stream to the **regulated entity** that nonetheless does not reflect monopoly rents or inefficient expenditure by the **regulated entity**;*

*(ii) allow the **regulated entity** to recover its operational, maintenance and administrative costs;*

*(iii) allow the **regulated entity** to recover its expenditure on renewing and rehabilitating*

existing assets;

*(iv) allow the **regulated entity** to recover:*

*(A) a rate of return on assets as at 1 July 2004 that are valued in a manner determined by, or at an amount otherwise specified by, the **Minister** at any time before 1 July 2004;*

(B) a rate of return on investments made after 1 July 2004 to augment existing assets or construct new assets;

Recommendations - operating expenditure

The table below summarises our recommended changes to Gippsland Water's forecast operating expenditure. Note that throughout this report, unless indicated otherwise, references to Gippsland Water's 'forecast' or 'proposal' refer to its original September Water Plan proposal and not any subsequent proposals or adjustments that have been received.

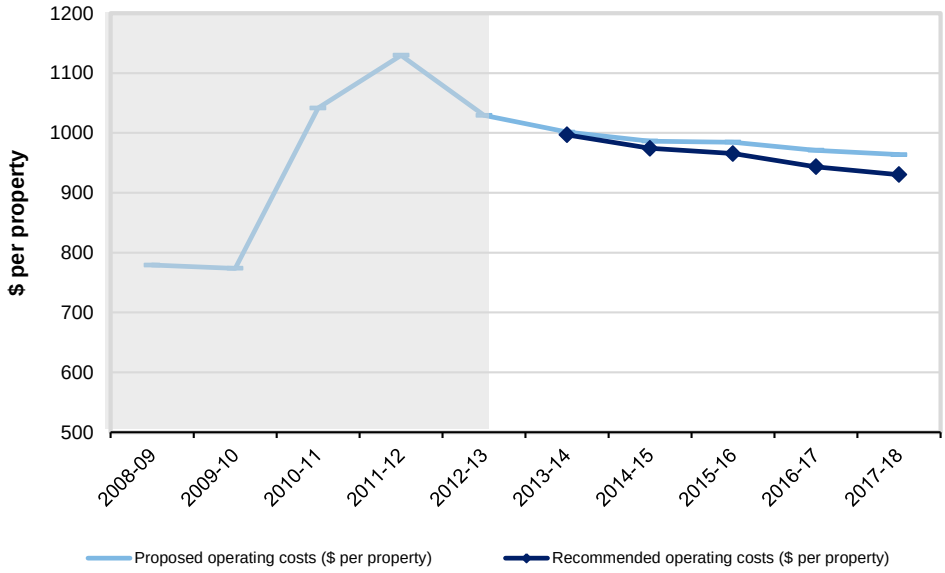
Table E1 Gippsland Water forecast controllable operating expenditure and recommended adjustments ($m, 01/01/2013)

Operating expenditure item	2011-12	2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Proposed controllable operating expenditure ($m)	72.468	66.651	66.731	67.691	67.824	68.371	**337.268**
Recommended adjustments							
Labour		-0.456	-0.953	-1.457	-2.035	-2.498	**-7.398**
Defined benefits superannuation costs		0.464	0.452	0.439	0.428	0.416	**2.199**
Payments to Southern Rural Water		-0.022	-0.022	-0.022	-0.022	-0.022	**-0.110**
Other items		-0.302	-0.293	-0.273	-0.303	-0.273	**-1.445**
Total recommended adjustments		**-0.317**	**-0.816**	**-1.312**	**-1.932**	**-2.377**	**-6.754**
Recommended operating expenditure		**66.334**	**65.915**	**66.379**	**65.892**	**65.994**	**330.514**

Notes: Operating expenditure excludes licence fees and environmental contribution. Adjustments have been made to Gippsland Water's proposed controllable operating expenditure to re-include licence fees which it considers were erroneously removed from its forecasts by the ESC.

Figure E1 compares our recommended operating expenditure for Gippsland Water (on a per connection basis) with Gippsland Water's proposal and its historical actual expenditure. Costs follow a gently declining trend over the WP3 period. The key reason for costs being substantially higher in WP3 than for the majority of WP2 is the additional expenditure associated with the Gippsland Water Factory.

Figure E1 Proposed and recommended operating expenditure ($, 01/01/2013)



Notes: Operating expenditure excludes licence fees and environmental contribution. Adjustments have been made to Gippsland Water's proposed controllable operating expenditure to re-include licence fees which it considers were erroneously removed from its forecasts by the ESC.

Performance against productivity hurdle

The ESC's Guidance Paper notes that the ESC will require all businesses to achieve a minimum of 1% per year productivity improvement on customer growth adjusted business as usual (BAU) operating expenditure for the WP3 period (the productivity hurdle).

We have interpreted BAU operating expenditure as being all operating expenditure other than expenditure that is the result of new or changed service outcomes, or new obligations imposed by Government or technical regulators.

In the case of Gippsland Water, we have assessed the following increases in operating expenditure above the 2011-12 baseline as meeting this definition:

- Electricity
- Defined benefits superannuation contributions
- Additional bulk payments to Southern Rural Water

The following table summarises the expenditure above the 2011-12 BAU for those items that we have assessed as meeting the ESC's requirements for prudency and efficiency.

Table E2 Prudent and efficient new initiatives and obligations expenditure above the 2011-12 baseline ($m, 01/01/2013)

Operating expenditure item	2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Electricity	0.644	0.628	0.625	0.608	0.589	3.094
Additional bulk costs	0.151	0.151	0.151	0.151	0.151	0.755
Defined benefits superannuation	0.464	0.452	0.439	0.428	0.416	2.199
Total	**1.259**	**1.230**	**1.216**	**1.186**	**1.157**	**6.048**

Note: Electricity encompasses carbon price impacts.

Table E3 below calculates a "recommended BAU expenditure" using our total recommended operating expenditure less recommended expenditure on new or changed service outcomes, or new obligations imposed by Government or technical regulators above the BAU target. This amount is then compared with the growth and productivity adjusted BAU target to obtain a view on whether or not Gippsland Water's operating expenditure, following our adjustments, meets the ESC's productivity hurdle.

Table E3 Productivity hurdle assessment ($m, 01/01/2013)

Operating expenditure item	Actual	Water Plan forecast					Total
	2011-12	2013-14	2014-15	2015-16	2016-17	2017-18	WP3
Recommended operating expenditure		66.334	65.915	66.379	65.892	65.994	330.514
Less prudent and efficient new initiatives expenditure		1.259	1.230	1.216	1.186	1.157	6.048
Recommended BAU expenditure		**65.075**	**64.685**	**65.163**	**64.705**	**64.837**	**324.465**
Adjusted BAU target	63.254	63.901	64.226	64.554	64.883	65.214	322.779
Amount above BAU target		1.174	0.458	0.609	-0.178	-0.377	1.687

As shown in the table, following our recommended adjustments, and accounting for expenditure above the BAU target that is the is result of new or changed service outcomes, or new obligations imposed by Government or technical regulators, Gippsland Water falls $1.7m short of meeting the ESC's productivity hurdle.

Capital expenditure

We have recommended a reduction of $9.5m to Gippsland Water's proposed capital expenditure, as set out below. The majority of this adjustment relates to the removal of the Warragul-Moe water supply interconnect project.

Table E4 Gippsland Water forecast capital expenditure and recommended adjustments ($m, 01/01/2013)

Capital expenditure item		Water Plan forecast					
		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Loch Sport sewerage scheme	Proposed	9.16	17.70	5.21	0.21	0.00	**32.28**
	Recommended	9.16	17.70	5.21	0.21	0.00	**32.28**
	Net change	0.00	0.00	0.00	0.00	0.00	**0.00**
Shared assets - wastewater program	Proposed	1.89	3.15	1.80	2.53	2.32	**11.69**
	Recommended	1.89	3.15	1.80	2.53	2.32	**11.69**
	Net change	0.00	0.00	0.00	0.00	0.00	**0.00**
Regional outfall system renewal program	Proposed	2.44	2.10	2.70	1.37	1.13	**9.74**
	Recommended	2.36	2.02	2.62	1.29	1.05	**9.33**
	Net change	-0.08	-0.08	-0.08	-0.08	-0.08	**-0.42**
Warragul - Moe water supply interconnect - stage two	Proposed	0.34	0.00	0.00	8.60	0.00	**8.94**
	Recommended	0.00	0.00	0.00	0.00	0.00	**0.00**
	Net change	-0.34	0.00	0.00	-8.60	0.00	**-8.94**
SCADA asset upgrade program	Proposed	1.51	1.44	1.56	1.47	1.37	**7.35**
	Recommended	1.51	1.44	1.56	1.47	1.37	**7.35**
	Net change	0.00	0.00	0.00	0.00	0.00	**0.00**
Water reticulation system renewals program	Proposed	1.02	1.02	1.02	1.52	1.52	**6.10**
	Recommended	1.02	1.02	1.02	1.52	1.52	**6.10**

Capital expenditure item		Water Plan forecast					
		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
	Net change	0.00	0.00	0.00	0.00	0.00	**0.00**
Water treatment plant enhancements	Proposed	1.04	1.09	1.09	1.25	1.25	**5.72**
	Recommended	1.04	1.09	1.09	1.25	1.25	**5.72**
	Net change	0.00	0.00	0.00	0.00	0.00	**0.00**
Wastewater reticulation system renewals program	Proposed	1.02	1.02	1.02	1.02	1.02	**5.10**
	Recommended	1.02	1.02	1.02	1.02	1.02	**5.10**
	Net change	0.00	0.00	0.00	0.00	0.00	**0.00**
GWF membrane replacement works	Proposed	0.94	1.09	0.99	0.99	0.99	**5.00**
	Recommended	0.98	0.98	0.98	0.98	0.98	**4.88**
	Net change	0.04	-0.11	-0.01	-0.01	-0.01	**-0.12**
GWF minor improvement works	Proposed	0.94	1.09	0.99	0.99	0.99	**5.00**
	Recommended	0.94	1.09	0.99	0.99	0.99	**5.00**
	Net change	0.00	0.00	0.00	0.00	0.00	**0.00**
Sale water treatment plant upgrade	Proposed	0.75	4.25	0.00	0.00	0.00	**5.00**
	Recommended	0.75	4.25	0.00	0.00	0.00	**5.00**
	Net change	0.00	0.00	0.00	0.00	0.00	**0.00**
Warragul-Hazel Creek trunk sewer (stage three)	Proposed	0.20	4.76	0.00	0.00	0.00	**4.96**
	Recommended	0.20	4.76	0.00	0.00	0.00	**4.96**
	Net change	0.00	0.00	0.00	0.00	0.00	**0.00**
Total proposed		41.63	54.90	38.13	34.69	33.59	**202.94**
Recommended capital expenditure		41.25	54.71	38.03	26.00	33.49	**193.47**
Recommended adjustments from proposed		-0.39	-0.20	-0.10	-8.70	-0.10	**-9.47**

1 Introduction

1.1 Background

The Essential Services Commission (ESC) is currently conducting a review of the proposed prices to be charged by Victoria's water businesses for the period 1 July 2013 to 30 June 2018, referred to in this document as 'the next regulatory period'.

The businesses have submitted Water Plans to the ESC for the next regulatory period. The Water Plans include forecasts of operating expenditure, capital expenditure, demand, proposed service standards and prices.

1.2 Scope of review

The ESC has engaged Deloitte to provide it with advice on whether the regional urban water businesses' proposed expenditure forecasts are consistent with the requirements of the legislative framework.

In undertaking this review, Deloitte's key responsibilities are to:

- Assess the appropriateness of the expenditure forecasts in relation to the key objectives of the review
- Provide independent advice to the ESC regarding the appropriateness of the forecasts
- Where Deloitte's advice indicates that a proposed expenditure level is not appropriate, propose to the ESC a revised expenditure level.

Capital expenditure

In relation to capital expenditure, we have focussed on the major projects that comprise a significant proportion of the total capital expenditure forecasts. In forming a view as to whether expenditure meets the requirements in the WIRO, and consistent with advice in the ESC's Guidance Paper, we have had regard to the following items:

- Does proposed capital expenditure reflect obligations imposed by Government (including technical regulators) or customers' service expectations?
- Are proposed new major capital works consistent with efficient long-term expenditure on infrastructure services?
- Does the business have appropriate asset planning procedures?
- Does the business have appropriate asset management systems in place?
- Does the business have appropriate project management procedures in place to enable effective delivery of capital works?
- Has a risk-based approach been adopted to develop the capital expenditure program? Is there clear evidence that projects are prioritised?
- Are major projects consistent with long-term strategies and planning?
- Is the timing for the proposed new capital expenditure reasonable?
- Are individual project cost forecasts reasonable and do not include undue contingencies or provisions, and reflect current efficient rates for undertaking capital expenditure in the Victorian water sector?
- Is capital expenditure deliverable in the timeframes proposed?

In relation to deliverability of individual projects as well as capital expenditure programs more broadly, the ESC has indicated that the following points need to be considered:

- The actual performance against previous capital expenditure programs and the business' demonstrated capacity to deliver against capital budgets
- The internal and external resources available to the water business to deliver the identified projects
- Timing of proposed capital programs in terms of deliverability, taking into account the proposed capital expenditure across the industry
- The opportunity to smooth the business's capital profiles or defer discretionary or non-essential projects from the start of the regulatory period to later in the period
- The business' risk sharing, and incentive and penalty payment arrangements with its contractors.
- Whether businesses have appropriate project management systems and processes in place.

Operating expenditure

In relation to operating expenditure we have been asked to provide advice on, amongst other things, whether changes in operating costs are consistent with the timing of major capital projects; that businesses are fulfilling their obligations and meeting customer service expectations as cost efficiently as possible; that forecast divergences can be readily explained; and one-off costs associated with the drought have been removed.

The ESC has highlighted that energy, labour, IT and chemical costs should be a significant focus of the review. The Guidance Paper also outlines the ESC's intention to remove expenditure relating to drought mitigation and other related unnecessary water conservation, in light of the fact that Victoria is no longer experiencing a period of drought.

In addition, the Guidance Paper notes that ESC requires businesses to achieve at least a 1% productivity improvement on business as usual (BAU) expenditure.

Our approach to assessing operating expenditure for each business can be briefly summarised as follows:

1. **Assess 2011-12 BAU and adjust where necessary** – In general, we have removed one off expenditure, drought and other water conservation expenditure and other defined benefits, ultimately reaching an adjusted BAU expenditure for 2011-12.
2. **Assess business identified operating expenditure items increasing from 2011-12 levels and identify cuts consistent with prudent and efficient expenditure** – We have reviewed key areas of expenditure and where we are not satisfied that the expenditure is prudent or efficient we have removed it from the forecast to determine a revised operating expenditure forecast.

   In making our adjustments there are a number of areas or cost categories where issues are common across businesses – electricity cost increases being one example. We have applied a consistent approach to these areas across the businesses.

   We have not reviewed licence fee payments or environmental contribution levy payments as part of our analysis. We understand the ESC will review these items itself.
3. **Compare revised operating expenditure to target BAU (adjusted where necessary)** – Following our assessment of key areas of expenditure, we compare our total recommended operating expenditure (less recommended expenditure on new or changed service outcomes, or new obligations imposed by Government or technical regulators) with a growth and productivity adjusted BAU target to obtain a view on whether or not the business meets the ESC's 1% productivity hurdle. Where a business

does not meet the productivity hurdle, we identify the further downward adjustment to expenditure required to meet the hurdle.

1.3 Structure of this report

This report describes our approach and sets out our findings from the review of Gippsland Water's Water Plan. It is structured as follows:

- Chapter 2 provides an overview of our methodology for conducting the review, the process followed and key timelines
- Chapter 3 briefly summarises Gippsland Water's Water Plan with respect to expenditure forecasts and outlines key drivers of expenditure such as government obligations, service standards and demand forecasts
- Chapter 4 provides our analysis, conclusions and recommendations on key issues with respect to Gippsland Water's operating expenditure forecast
- Chapter 5 provides our analysis, conclusions and recommendations on key issues with respect to Gippsland Water's capital expenditure forecast.

2 Overview of approach

2.1 Process for review

Our approach to undertaking the review has involved the following key steps.

2.1.1 Initial planning and workshop with the ESC

The following steps were taken in the initial planning phase of the project:

- An initial review of Water Plans, financial model templates and associated documentation was undertaken to identify key issues
- A workshop was held with ESC staff to identify and discuss key issues for the focus of the review
- A detailed review of Water Plans and templates was undertaken, with an initial set of queries produced to guide our site visits with the businesses.

2.1.2 Questions to business and site visits

Following the planning phase, we prepared questions for the businesses and arranged site visits:

- We conducted our site visit with Gippsland Water on 14 and 15 November 2012
- The site visits were used to hold discussions with Gippsland Water and receive further information on key issues as required. We also inspected sites including the Gippsland Water Factory, biosolids recovery facility and Sale water treatment plant

2.1.3 Preparation of Draft Report

A Draft Report was prepared and provided to the ESC on 11 December 2012. The ESC subsequently provided the Draft Report to Gippsland Water.

2.1.4 Response from Gippsland Water

We held discussions with Gippsland Water personnel regarding the Draft Report. A formal response to the Draft Report was provided by Gippsland Water on 29 January 2013. This response accepted some elements of our Draft Report, but disagreed with other elements.

We have closely examined Gippsland Water's response and the information it provided to support its views. We subsequently held additional discussions with Gippsland Water to clarify certain aspects of the forecasts and its response.

2.1.5 Final Report

This Final Report sets out our views of whether Gippsland Water's operating and capital expenditure forecasts meet the requirements of the ESC/WIRO. Where we do not believe this is the case we have prepared alternative forecasts or recommended adjustments.

2.2 Approach to assessing forecasts

Our approach to reviewing many items of capital and operating expenditure is set out in our companion *Overview* document which should be read in conjunction with this report.

3 Summary of Gippsland Water's forecasts

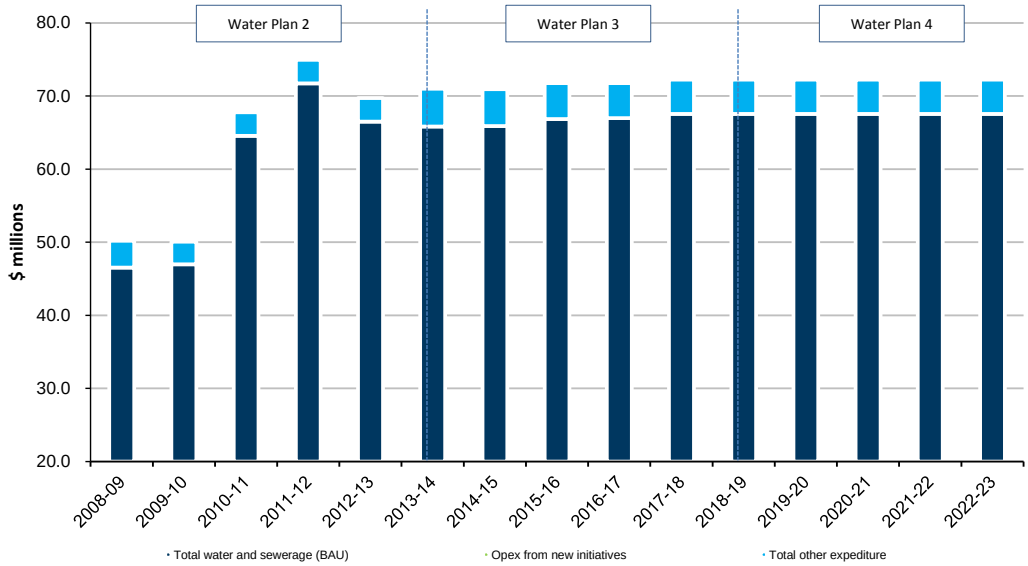
Gippsland Water provides water and wastewater services across four municipalities in central Gippsland. It has a large industrial customer base with around 70% of water being supplied to large customers including power generators and Australian Paper. The remaining 30% of supply is provided to more than 63,000 customers across 17 different water supply systems. Major cities served include Sale, Moe, Morwell and Traralgon in central Gippsland, as well as a number of fast-growing towns on Melbourne's outer fringe such as Drouin and Warragul.

Note that throughout this report, unless indicated otherwise, references to Gippsland Water's 'forecast' or 'proposal' refer to its original September Water Plan proposal and not any subsequent proposal or adjustments that have been received.

3.1 Operating expenditure

Figure 3-1 shows Gippsland Water's proposed operating expenditure over the WP2, WP3 and WP4 periods. Gippsland Water's operating costs (excluding licence fees and environmental contribution) are forecast to be a total of $337.3m over WP3, which is an increase of 14% from WP2 (total of 296.3$m).

Figure 3-1 Gippsland Water actual and forecast operating expenditure ($m, 01/01/2013)

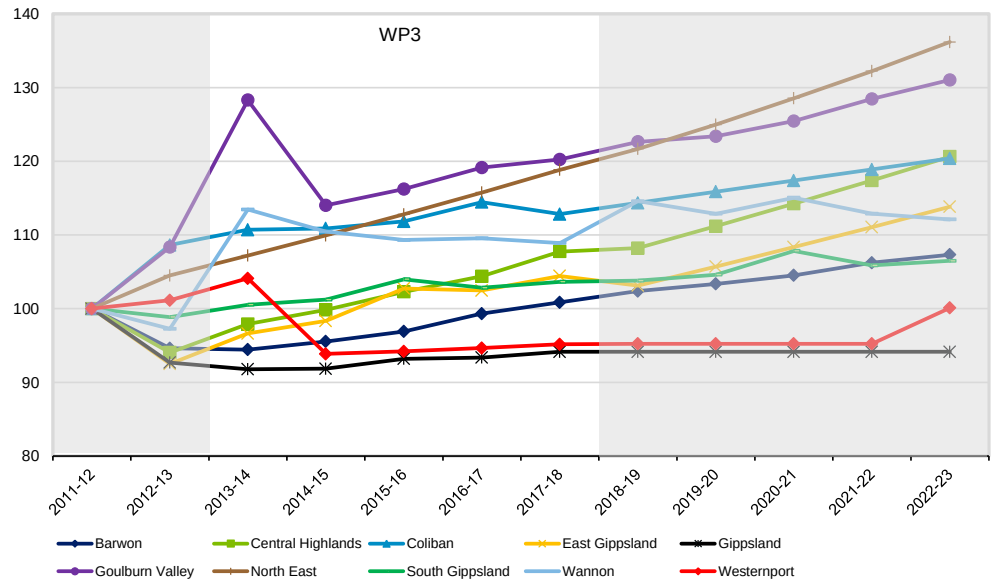


Note: The figure above does not include Gippsland Water's omitted licence fees.

As can be seen above, Gippsland Water's operating costs experienced a 'step' increase in 2010-11 with the operation of the Gippsland Water Factory (GWF).

Gippsland Water has forecast the lowest increase (in fact a decrease) in operating expenditure from 2011-12 over WP3 compared to the other businesses that we have reviewed. As discussed below a key reason is that its cost base in 2011-12 was unusually high, including due to defined benefits superannuation payments made in that year.

Figure 3-2 Operating expenditure (excluding licence fees and environmental contribution) for 2011-12, 2012-13, WP3 and WP4 periods (Index 2011-12 = 100)

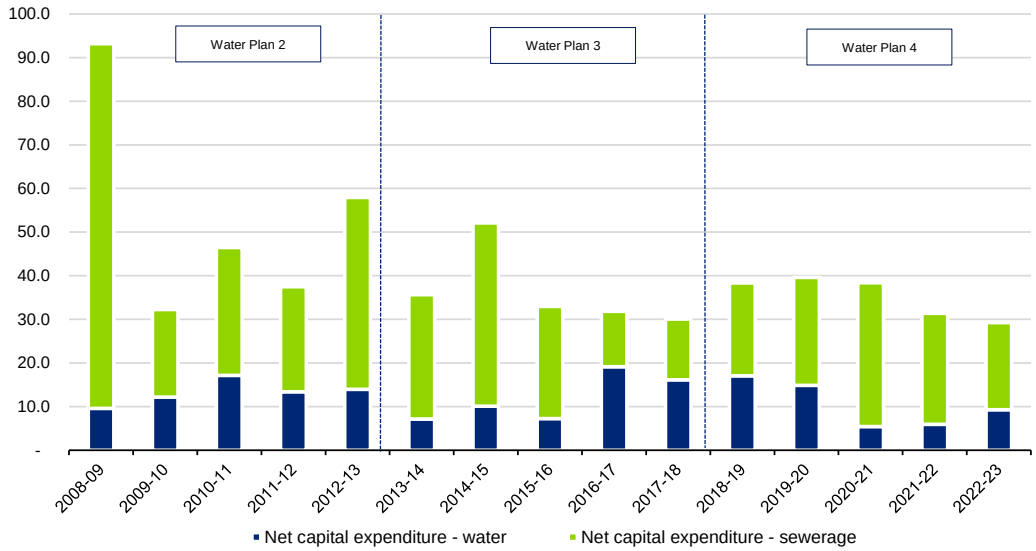


Note: The figure above does not include Gippsland Water's omitted licence fees.

3.2 Capital expenditure

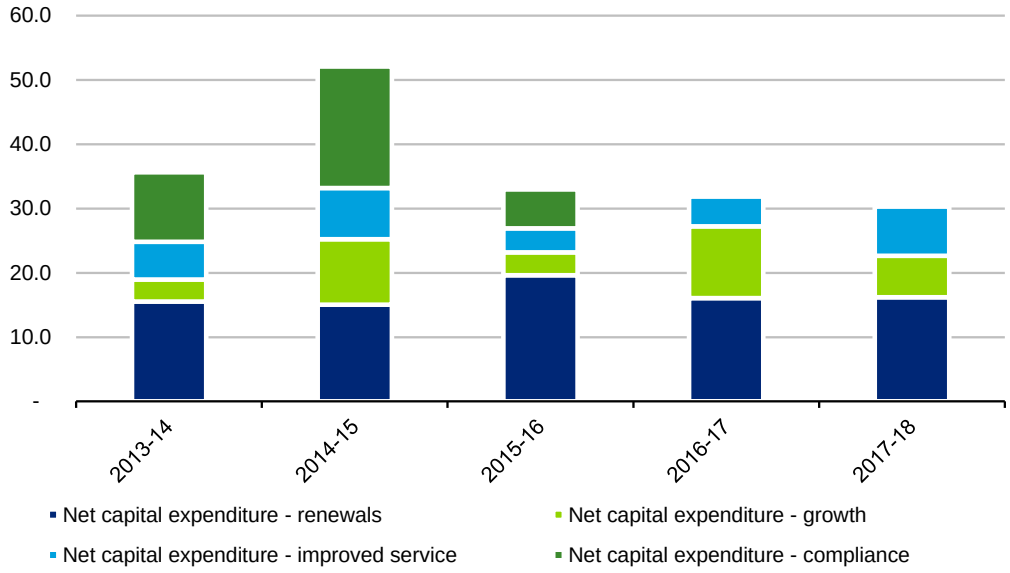
The figure below shows Gippsland Water's actual and forecast water and sewerage capital expenditure. On average capital expenditure is well below WP2 levels as WP2 was influenced by the construction of the GWF.

Figure 3-3 Gippsland Water actual and forecast capital expenditure ($m, 01/01/2013)



The key drivers of capital expenditure for WP3 are shown in Figure 3-4, below.

Figure 3-4 Forecast capital expenditure by cost driver ($m, 01/01/2013)



3.3 Key drivers and obligations

3.3.1 Service standards

Gippsland Water has defined 29 service standards for WP3.

Performance targets appear to be appropriate and in many cases we note that the targets for WP3 are tighter than the WP2 targets.

Gippsland Water has not proposed any new GSLs will apply in the WP3 period.

3.3.2 Demand

Customer growth is forecast to average 1.6% across WP3, although growth in demand for water is expected to average a more modest 0.5% with growth in residential consumption being offset by decreases in non-residential use.

We note however advice from Gippsland Water that the number of new property connections has slowed significantly in the past six months.

4 Assessment of operating expenditure

This chapter sets out our assessment of operating expenditure including:

- An assessment of the 2011-12 baseline expenditure (which forms the basis of the growth adjusted BAU for WP3)
- Assessment of individual expenditure items. Our approach to assessing many of the expenditure items, including labour, electricity and superannuation guarantee costs, is set out in our *Overview* document
- Assessment of business specific expenditure items that are increasing and are above BAU (i.e. new initiatives or large increases in BAU items).

4.1 Business As Usual (BAU) expenditure

As outlined in the *Overview* document our approach to assessing BAU expenditure is firstly to define efficient expenditure in the base year of 2011-12.

In its submission Gippsland Water identified that for the purposes of calculating a BAU baseline it had removed:

- $4.6m associated with unfunded superannuation requirement
- $1.95m associated with one-off events at the GWF, specifically capex cost write-offs and an investigation into membrane failures.

To calculate the 'true' BAU expenditure is somewhat problematic given the effect of the GWF. During 2011-12 the operations of the GWF were still being refined and as a result expenditure in some areas – chemicals[1] and maintenance contracts being key examples – was high.

Operation of the GWF is still being fine tuned and a two year proving and optimisation period at the facility is only now coming to an end. The Alliance set up to construct and operate the plant ceases on 1 January 2013. Staff from the Alliance have been transitioning to Gippsland Water over an extended period. The major maintenance payment to the Alliance ends on 1 January but will be replaced to some extent by in-house maintenance.

For the purposes of calculating a BAU estimate, in addition to the adjustments made by Gippsland Water we have also subtracted:

- $1.932m of 'once-off' chemical costs, calculated as the difference between 2011-12 and budget 2012-13 chemical costs
- $0.425m in insurance premiums, which reflect the requirement for contract works insurance at the GWF which ended in 2011-12
- $0.239m for an asset impairment expense.

As Gippsland Water proposed in its response to our Draft Report, we have not excluded the inventory deficit from the baseline amount in this Final Report.

These adjustments result in a BAU baseline forecast as shown in the table below, and which totals $322.8m across WP3.

[1] For example, increased membrane cleaning and flushing was required.

Table 4-1 Gippsland Water 2011-12 BAU and growth adjusted forecast ($m, 01/01/2013)

Operating expenditure item	Actual	Water Plan forecast					Total WP3
	2011-12	2013-14	2014-15	2015-16	2016-17	2017-18	
Actual BAU	72.468						
Deloitte adjustments to BAU	9.214						
BAU baseline forecast	63.254	63.901	64.226	64.554	64.883	65.214	322.779

Note: excludes licence fees and environmental contribution expenditure

The ESC's Guidance Paper notes that the ESC will require all businesses to achieve a minimum of 1% per year productivity improvement on customer growth adjusted business as usual (BAU) operating expenditure for the WP3 period.

In the remainder of this chapter we assess the individual items of expenditure that Gippsland Water has identified as increasing over the WP3 period. Following our assessment of each individual item, we compare our total recommended operating expenditure (less recommended expenditure on new or changed service outcomes, or new obligations imposed by Government or technical regulators) with the growth and productivity adjusted BAU target set out in Table 4-1 to obtain a view on whether or not Gippsland Water is meeting the ESC's productivity hurdle.

This approach ensures that our assessment of Gippsland Water's performance against the productivity hurdle takes into account the extent to which expenditure above the BAU target is the result of new or changed service outcomes, or new obligations imposed by Government or technical regulators (i.e. is either driven by required service outcomes from customers or largely outside the control of the business).

4.2 Individual expenditure items

Individual expenditure items have been assessed for prudency and efficiency using the approach set out in the Overview document. We have reported these items on a 'by exception' basis, i.e. in most cases we have only provided commentary for those items where we have recommended adjustments.

In this section, and where the context requires, references to Gippsland Water's 'original' forecasts reflect forecasts contained in its Water Plan of September 2012. References to Gippsland Water's 'revised' forecasts reflect adjustments proposed by Gippsland Water in response to our Draft Report.

4.2.1 Labour costs

Gippsland Water's forecast of total labour costs are based upon:

- Wage increases of 4% per year in nominal terms until the expiration of the current EBA October 2013
- Wage increases of 3.75% per year plus a 1.15% career progression increase following the expiration of the EBA
- A reduction of 4.5 FTEs from 2012-13 to 2017-18.

Our approach to reviewing labour forecasts is set out in the *Overview* document and involves:

- Applying wage increases set out in existing EBAs to apply until the EBA expires.
- Once a new EBA applies, applying a real growth in wages per FTE of 0%

- Reviewing FTE numbers on a case-by case basis.

In response to our Draft Report Gippsland Water argued that we should reinstate the career progression outcomes of 1.15% per annum given they do not form part of the EBA process. However, we have not done so on the advice of Government that any such increases need to be managed within the overall context a total wages bill not increasing by more than 2.5%.

Although Gippsland Water's FTEs fall from 2012-13 to 2017-18 there is an increase of 9 FTEs from 2011-12 to 2012-13. This increase reflects a combination of:

- Temporary staff associated with construction at Coongulla/Glenmaggie
- Staff brought in to improve capital planning
- Staff transfers from the Alliance to Gippsland Water.

We are satisfied that these changes in staff numbers are reasonable and note that the customers:staff ratio for Gippsland Water is one of the higher of the businesses we have reviewed – although in part this is due to the contracting out of mechanical and electrical maintenance.

Our recommended labour figures in the table below reflect an adjustment to Gippsland Water's proposed labour expenditure to correct an error in our Draft Report.

Table 4-2 Gippsland Water labour expenditure ($m, 01/01/2013)

Operating expenditure item	Actual	Water Plan forecast				
	2011-12	2013-14	2014-15	2015-16	2016-17	2017-18
Proposed labour expenditure	22.600	24.656	25.105	25.496	26.053	26.574
Recommended adjustments		-0.456	-0.953	-1.457	-2.035	-2.498
Revised labour expenditure		24.200	24.152	24.039	24.018	24.076

4.2.2 Electricity costs

Unlike most of the other businesses Gippsland Water does not use Procurement Australia to tender for its electricity supply. Gippsland Water considers that its volumes are sufficiently large to achieve economies of scale in purchasing.

Also unlike other businesses it has not used the WSAA electricity report for forecasting future electricity costs, and instead has built its forecast up from 'first principles' by considering changes in pool prices and other inputs.

Gippsland Water's electricity forecasts are set out below. Beyond a once-off increase in costs in 2011-12 minimal changes are predicted. Volumes are assumed to be constant at 2011-12 levels across WP3.

Table 4-3 Water Plan electricity forecasts ($m, 01/01/2013)

	Actual	Water Plan forecast					
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Large sites	2.324	2.925	2.883	2.882	2.882	2.882	2.881
Small sites	1.008	1.152	1.160	1.162	1.178	1.178	1.178
Total	**3.332**	**4.077**	**4.044**	**4.045**	**4.060**	**4.060**	**4.059**
% Change		22.37%	-0.82%	0.02%	0.38%	0.00%	-0.02%

As noted in our *Overview* document Gippsland Water has the lowest cost per kWh in 2011-12 and this is forecast to continue across WP3. The forecast average charge in 2017-18 is around half that proposed by some other businesses.

Gippsland Water's forecast costs are consistent with, if not marginally lower, than the prices in the Procurement Australia tender. We therefore consider its forecasts to be prudent and have therefore made no adjustments to its electricity forecasts.

4.2.3 Intelligent Water Networks (IWN)

Gippsland Water does not have any expenditure associated with the Intelligent Water Networks program in its forecasts.

4.2.4 Defined benefits superannuation

Gippsland Water has not included any defined benefits superannuation payments in its forecast.

However Gippsland Water is required to make a payment of $4.706m to Vision Super by 1 July 2013.

As set out in our *Overview* document we believe it is reasonable for businesses to recover a defined benefits superannuation payment over WP3, even where they have not proposed to do so. Our methodology for calculating the payments is set out in the *Overview* document.

We have therefore increased Gippsland Water's expenditure forecast as set out in the Table below. As noted in the *Overview* document we have applied a borrowing rate of 5.75% in this Final Report rather than the 5.5% we used in our Draft Report.

Table 4-4 Gippsland Water defined benefits superannuation expenditure ($m, 01/01/2013)

Operating expenditure item	Actual	Water Plan forecast				
	2011-12	2013-14	2014-15	2015-16	2016-17	2017-18
Proposed superannuation payment		0	0	0	0	0
Recommended adjustments		0.464	0.452	0.439	0.428	0.416
Revised superannuation payment		0.464	0.452	0.439	0.428	0.416

4.2.5 Chemical costs

Gippsland Water has forecast a step change in chemical costs in 2013-14 with stable expenditure beyond this point.

Table 4-5 Gippsland Water proposed chemicals expenditure ($m, 01/01/2013)

	Actual	Water Plan forecast					
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Total	5.093	3.161	3.536	3.541	3.546	3.551	3.551
% Change		-37.93%	11.84%	0.14%	0.14%	0.14%	0.00%

As noted above, chemical costs were high in 2011-12 as a result of requirements at the Gippsland Water Factory. This is also the prime reason for the increase in 2013-14.

We are satisfied with the chemical expenditure forecast and have made no adjustments.

4.2.6 GSL costs

Gippsland Water does not propose to introduce any new GSLs in WP3. Its forecasts do not include any allowance for payments under the Hardship GSL.

4.2.7 IT costs

Compared to other businesses Gippsland Water has relatively high IT costs. These costs are expected to continue to grow over WP3.

Table 4-6 Gippsland Water IT costs ($m, 01/01/2013)

	Actual	Water Plan forecast					
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Total IT costs	4.535	5.104	5.280	5.424	5.448	5.513	5.570
% change	6.36%	12.54%	3.44%	2.73%	0.44%	1.19%	1.04%

Much of these costs are wage-related, and in particular the increase between 2012-13 and 2013-14 is related to contract labour for experienced SCADA personnel. According to Gippsland Water SCADA skills are in short supply in regional Victoria and contractor prices are at a premium.

Gippsland Water has an extensive SCADA capital works program totalling some $7.35m over WP3 which we have not adjusted. A key justification for the SACDA program is the improved efficiency that will be realised in fault detection, training, site developments and upgrades, and reduced maintenance costs.[2] In our Draft Report we expressed concern that cost reductions had not been built into the projections. We therefore provided for a reduction in operating costs of $50,000 per annum to reflect these efficiencies.

In response to our Draft Report Gippsland Water agreed that savings in excess of $50,000 per annum would be achieved, but this would not occur until the program of works outlined in WP3 had been completed. We have accepted this argument.

4.2.8 Payments to Southern Rural Water

Gippsland Water has forecast increased payments to Southern Rural Water for bulk water and other services provided at Blue Rock Dam. Gippsland Water currently makes payments to Southern Rural Water as storage operator, and for recreational facilities at the dam. Current and forecast costs, as included in the Water Plan forecasts, are set out below.

Table 4-7 Gippsland Water bulk water costs ($m, 01/01/2013)

	Actual	Water Plan forecast					
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Storage fees	0.124	0.124	0.254	0.254	0.254	0.254	0.254
Recreational facilities fee	0.257	0.257	0.300	0.300	0.300	0.300	0.300
Total	**0.381**	**0.381**	**0.554**	**0.554**	**0.554**	**0.554**	**0.554**

Subsequent to submitting the Water Plan, Gippsland Water has been in further discussions with Southern Rural Water and updated estimates of the bulk costs have been made, with slightly higher recreation facilities costs and lower storage fees.

[2] Memo to D Mawer from Ray Baillie, 19 September 2011.

Table 4-8 Gippsland Water bulk water costs ($m, 01/01/2013)

	Actual	Water Plan forecast					
	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Storage fees	0.124	0.124	0.218	0.218	0.218	0.218	0.218
Recreational facilities fee	0.257	0.257	0.314	0.314	0.314	0.314	0.314
Total	**0.381**	**0.381**	**0.532**	**0.532**	**0.532**	**0.532**	**0.532**

There is some uncertainty regarding the level of both fees going forward as Southern Rural Water's charges are the subject of this regulatory review process. However Gippsland Water's storage fee is expected to increase as a result of increased costs being incurred by Southern Rural Water, as well as a likely increase in Gippsland Water's share of the storage.

We have accepted Gippsland Water's revised expenditure projections in this area.

Table 4-9 Gippsland Water bulk water costs ($m, 01/01/2013)

Operating expenditure item	Actual	Water Plan forecast				
	2011-12	2013-14	2014-15	2015-16	2016-17	2017-18
Proposed cost	0.381	0.554	0.554	0.554	0.554	0.554
Recommended adjustments		-0.022	-0.022	-0.022	-0.022	-0.022
Revised expenditure		0.532	0.532	0.532	0.532	0.532

4.2.9 Other items

In our Draft Report we identified a range of other items where forecast expenditure is greater than in 2011-12 and for which the reason for the increase was not clear. We therefore reduced expenditure for a range of items including:

- Auditors' remuneration
- Non deductable meal entertainment
- Meal entertainments
- Regional Development
- Research and Development
- Advisory Committee
- Meter Reading Services
- Rewards and Recognitions
- Computer Costs
- Freight

In response to our Draft Report Gippsland Water:

- Accepted the majority of our reductions in respect of auditors remuneration and meter reading costs
- Objected to our reductions to research and development and computer costs
- Accepted without further discussion the remainder of the reductions we proposed.

We have reviewed Gippsland Water's response and believe the revised forecast for these items suggested by Gippsland Water is reasonable.

Table 4-10 Gippsland Water other items ($m, 01/01/2013)

Operating expenditure item	Actual	Water Plan forecast				
	2011-12	2013-14	2014-15	2015-16	2016-17	2017-18
Proposed cost	0.771	1.233	1.181	1.232	1.192	1.232
Recommended adjustments		-0.302	-0.293	-0.273	-0.303	-0.273
Revised expenditure		0.930	0.888	0.958	0.888	0.958

4.3 Recommended changes to operating expenditure

Recommended operating expenditure

The table below summarises our recommended changes to forecast operating expenditure. Overall we recommend reducing Gippsland Water's operating expenditure from $337.3m to $330.5m – a 2% reduction.

Table 4-11 Gippsland Water forecast controllable operating expenditure and recommended adjustments ($m, 01/01/2013)

Operating expenditure item	2011-12	2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Proposed controllable operating expenditure ($m)	72.468	66.651	66.731	67.691	67.824	68.371	**337.268**
Recommended adjustments							
Labour		-0.456	-0.953	-1.457	-2.035	-2.498	**-7.398**
Defined benefits superannuation costs		0.464	0.452	0.439	0.428	0.416	**2.199**
Payments to Southern Rural Water		-0.022	-0.022	-0.022	-0.022	-0.022	**-0.110**
Other items		-0.302	-0.293	-0.273	-0.303	-0.273	**-1.445**
Total recommended adjustments		**-0.317**	**-0.816**	**-1.312**	**-1.932**	**-2.377**	**-6.754**
Recommended operating expenditure		**66.334**	**65.915**	**66.379**	**65.892**	**65.994**	**330.514**

Notes: Operating expenditure excludes licence fees and environmental contribution. Adjustments have been made to Gippsland Water's proposed controllable operating expenditure to re-include licence fees which it considers were erroneously removed from its forecasts by the ESC.

Performance against productivity hurdle

The ESC's Guidance Paper notes that the ESC will require all businesses to achieve a minimum of 1% per year productivity improvement on customer growth adjusted business as usual (BAU) operating expenditure for the WP3 period (the productivity hurdle).

We have interpreted BAU operating expenditure as being all operating expenditure other than expenditure that is the result of new or changed service outcomes, or new obligations imposed by Government or technical regulators.

In the case of Gippsland Water, we have assessed the following increases in operating expenditure above the 2011-12 baseline as meeting this definition:

- Electricity
- Defined benefits superannuation contributions
- Additional bulk water costs.

The following table summarises the expenditure above the 2011-12 BAU for these items that we have assessed as meeting the ESC's requirements for prudency and efficiency.

Table 4-12 Prudent and efficient new initiatives and obligations expenditure above the 2011-12 baseline ($m, 01/01/2013)

Operating expenditure item	2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Electricity	0.644	0.628	0.625	0.608	0.589	3.094
Additional bulk costs	0.151	0.151	0.151	0.151	0.151	0.755
Defined benefits superannuation	0.464	0.452	0.439	0.428	0.416	2.199
Total	**1.259**	**1.230**	**1.216**	**1.186**	**1.157**	**6.048**

Note: Electricity encompasses carbon price impacts.

Table 4-13 below calculates a "recommended BAU expenditure" using our total recommended operating expenditure less recommended expenditure on new or changed service outcomes, or new obligations imposed by Government or technical regulators above the BAU target. This amount is then compared with the growth and productivity adjusted BAU target to obtain a view on whether or not Gippsland Water's operating expenditure, following our adjustments, meets the ESC's productivity hurdle.

Table 4-13 Productivity hurdle assessment ($m, 01/01/2013)

Operating expenditure item	Actual	Water Plan forecast					Total
	2011-12	2013-14	2014-15	2015-16	2016-17	2017-18	WP3
Recommended operating expenditure		66.334	65.915	66.379	65.892	65.994	330.514
Less prudent and efficient new initiatives expenditure		1.259	1.230	1.216	1.186	1.157	6.048
Recommended BAU expenditure		**65.075**	**64.685**	**65.163**	**64.705**	**64.837**	**324.465**
Adjusted BAU target	63.254	63.901	64.226	64.554	64.883	65.214	322.779
Amount above BAU target		1.174	0.458	0.609	-0.178	-0.377	1.687

As shown in the table, following our recommended adjustments, and accounting for expenditure above the BAU target that is the result of new or changed service outcomes, or new obligations imposed by Government or technical regulators, Gippsland Water falls $1.7m short of meeting the ESC's productivity hurdle.

5 Capital expenditure

This chapter sets out our assessment of Gippsland Water's capital expenditure proposal for WP3 including:

- An assessment of generic issues relevant to the overall prudency, efficiency and deliverability of the proposed capital expenditure program.
- A summary of major projects with a significant impact on the capital expenditure proposal (top ten by total expenditure) and assessment of each project
- A summary of our recommendations.

Our approach to assessing generic capital expenditure issues and project specific issues that are common to a number of businesses is set out in our *Overview* document.

5.1 Generic issues

In undertaking our review of Gippsland Water's capital expenditure forecast, we have focussed on the major projects that comprise a significant proportion of the total capital expenditure forecast.

In doing so, we have also undertaken a high-level assessment of generic issues that may have an impact on the prudency, efficiency and deliverability of multiple projects or Gippsland Water's capital expenditure program as whole.

5.1.1 Capital expenditure planning

Gippsland Water has stated that a risk-based prioritisation process was used to provide an initial priority listing of projects. Discussions with Gippsland Water indicated that other capital projects, which were not included in the initial list, were added to the priority list without necessarily being risk assessed with the structured approach that was initially adopted. This has been verified by the total expenditure of projects included in the initial priority list in comparison to the total capital expenditure proposed for WP3.

Gippsland Water's proposed major projects and programs have generally been supported by a strategic assessment, consulting engineers report and/or strategy/plan.

Gippsland Water has acknowledged that its capital planning processes could be refined and it has engaged additional staff to work on improvements in this area.

5.1.2 Cost estimation and escalation

Consultants with specialist expertise in quantity surveying and major project construction have been engaged to determine accurate cost estimates for projects expected to exceed $2m. Base cost estimates have included materials and services costs, design and project management, deliverability of the project and construction sequencing. @Risk software has been used to generate a cost with a P50 level of confidence, that is, the cost with a 50% probability that the actual cost is less than the estimate. [3]

Gippsland Water has elected to present capital project costs on the following basis[4]:

- All major projects that have passed the tender stage have been recorded at the current estimated cost (assumed P95 level of confidence)

[3] Gippsland Water 2012, *Gippsland Water – Water Plan 3 Proposal*, p.161
[4] Gippsland Water 2012, *Gippsland Water – Water Plan 3 Proposal*, p.69

- All major projects above $2m that have not passed the tender stage have been reviewed in a risk workshop and have been recorded at the estimated cost derived from the work (assumed P50 level of confidence)
- All minor projects that have not passed the tender stage have been recorded at current estimated cost (assumed P50 level of confidence)
- All capital programs have been recorded at current estimated cost (assumed P95 level of confidence).

Whilst it is evident that there has been some confusion regarding the definition of P5, P50 and P95 cost estimates, it appears that Gippsland Water has generally estimated what it believes to be the most likely cost.

It does not appear that Gippsland Water has applied construction cost escalation factors beyond CPI.

5.1.3 Deliverability of the capital expenditure program

Gippsland Water proposes to invest $202.9m during WP3, which equates to an average annual capital expenditure of $40.6m. This is less than the actual average annual capital expenditure in WP2 of $57.7m.

ESC's most recent Water Performance Report[5] indicates that Gippsland Water's largest project in WP2 (Gippsland Water Factory) was delivered behind schedule and actual expenditure significantly exceeded forecast expenditure.[6] We understand the issues with this project have been documented elsewhere. Despite the challenges faced in WP2, Gippsland Water has demonstrated that it is capable of delivering a capital works program consistent with that proposed for WP3.

5.2 Major projects

Table 5-1 provides an overview of the top 12 projects (by capital expenditure), showing the primary driver and forecast expenditure over WP3.

[5] Essential Services Commission 2011, *Water Performance Report – Performance of urban water and sewerage businesses in 2010-11*
[6] Gippsland Water 2012, *Gippsland Water – Water Plan 3 Proposal*, p.131

Table 5-1 Gippsland Water top ten projects and forecast expenditure ($m, 01/01/2013)

		Water Plan forecast expenditure						
Capital expenditure item	**Primary Driver**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**Total**	**Proportion of total expenditure**
Loch Sport sewerage scheme	Compliance	9.16	17.70	5.21	0.21	-	**32.28**	16%
Shared assets - wastewater program	Growth	1.89	3.15	1.80	2.53	2.32	**11.69**	6%
Regional outfall system renewal program	Asset renewal	2.44	2.10	2.70	1.37	1.13	**9.74**	5%
Warragul - Moe water supply interconnect - stage two	Growth	0.34	-	-	8.60	-	**8.94**	4%
SCADA asset upgrade program	Asset renewal	1.51	1.44	1.56	1.47	1.37	**7.35**	4%
Water reticulation system renewals program	Asset renewal	1.02	1.02	1.02	1.52	1.52	**6.10**	3%
Water treatment plant enhancements	Compliance	1.04	1.09	1.09	1.25	1.25	**5.72**	3%
Wastewater reticulation system renewals program	Asset renewal	1.02	1.02	1.02	1.02	1.02	**5.10**	3%
GWF membrane replacement works	Asset renewal	0.94	1.09	0.99	0.99	0.99	**5.00**	2%
GWF minor improvement works	Asset renewal	0.94	1.09	0.99	0.99	0.99	**5.00**	2%
Sale water treatment plant upgrade	Asset renewal	0.75	4.25	-	-	-	**5.00**	2%
Warragul-Hazel Creek trunk sewer (stage three)	Growth	0.20	4.76	-	-	-	**4.96**	2%
Sub-Total - Top 12 Projects		**21.25**	**38.71**	**16.38**	**19.95**	**10.59**	**106.88**	53%
Other projects		20.38	16.19	21.75	14.74	23.00	96.06	
Total		**41.63**	**54.90**	**38.13**	**34.69**	**33.59**	**202.94**	
Proportion of annual expenditure		21%	27%	19%	17%	17%		

Notes: The figures in the table above reflect Gippsland Water's original forecasts

5.3 Loch Sport sewerage scheme

5.3.1 Business proposal

This project relates to the delivery of a reticulated sewerage scheme for the lakeside township of Loch Sport.

Key drivers

Gippsland Water has identified compliance as the primary driver for this project. Gippsland Water has a requirement to deliver the Loch Sport sewerage scheme under its Statement of Obligations.

Options analysis

A pressure sewer system has been selected as the preferred solution for this project because of its environmental, economic, health and service quality benefits. It was also considered the lowest cost and best technical solution. A transfer main will pump wastewater to Gippsland Water's existing wastewater treatment facility at Dutson Downs.[7]

Proposed cost and timing

A P50 cost estimate has been determined for the total project ($40.9m). However, Gippsland Water has adopted its own cost estimate from the Loch Sport Business Case ($40.3) for WP3.

Proposed timing

Gippsland Water indicated that the project is progressing in accordance with schedule and forecast expenditure. Gippsland Water has recently received tenders for the construction of the transfer main (Loch Sport to the wastewater treatment facility at Dutson Downs) and reported that planning approvals have been progressing well.

Construction is expected to commence in early 2013 and be completed in 2015-16.

5.3.2 Analysis and recommended adjustments

The project appears to be progressing in accordance with its schedule, and recent tender prices for the construction of the transfer main provide confidence in the accuracy of the cost forecasts.

Recommendation

We recommend that proposed expenditure for the Loch Sport sewerage scheme be accepted unchanged, as shown below.

Table 5-2 Proposed and recommended expenditure for Loch Sport sewerage scheme ($m, 01/01/2013)

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Loch Sport sewerage scheme	Proposed	9.16	17.70	5.21	0.21	0.00	32.28
	Recommended	9.16	17.70	5.21	0.21	0.00	32.28
	Net change	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

[7] Gippsland Water 2012, *Gippsland Water – Water Plan 3 Proposal*, p.58

5.4 Shared assets - wastewater program

5.4.1 Business proposal

This program relates to forecast expenditure associated with the construction of shared wastewater assets. Large infrastructure assets that will be utilised by more than one existing or new development are called 'shared assets'.[8]

Key drivers

Gippsland Water has identified growth as the primary driver for this project.

The central Gippsland region is experiencing high levels of growth, especially in the towns of Warragul, Drouin and Traralgon. Catering for this growth requires a significant investment in shared assets.[9]

Program description

Gippsland Water uses this program to support future development in the region by investing in shared wastewater infrastructure, as it is required. Gippsland Water advised that its primary shared assets planning document (*Shared Assets for WP-2, WP-3 and WP-4 and Beyond – Asset Planning*) is used to determine investment requirements. The report is formally revised annually and is used to determine funding allocation by developers and Gippsland Water for future shared assets in accordance with ESC guidelines.

Proposed costs and timing

Gippsland Water has identified developments that are expected to progress during WP3 and determined specific assets required to service these developments. It works closely with local councils and base its infrastructure sequence plans on councils' future structure plans. Gippsland Water has incorporated asset requirements with unit rates from recent relevant works and consulting engineers' reports to determine the potential cost of the program. Gippsland Water advised that it applies a confidence factor to each itemised development to estimate the likelihood of a development occurring as planned, and forecast expenditure during WP3.

Gippsland Water advised that growth rates used in the shared assets plan are consistent with WP3 growth forecasts.

5.4.2 Analysis and recommended adjustments

Gippsland Water appears to have taken a strategic, risk-based approach to forecasting expenditure in shared wastewater assets. The application of a confidence factor to each individual development likely to occur is a sound approach to address the uncertainty between planned and actual development. This results in the distribution of forecast expenditure over a number of years according to the likelihood.

Recommendation

We recommend that proposed expenditure for the shared assets - wastewater program be accepted unchanged, as shown below.

[8] Gippsland Water 2012, *Gippsland Water – Water Plan 3 Proposal*, p.64
[9] Ibid, p.64

Table 5-3 Proposed and recommended expenditure for the Shared assets - wastewater program ($m, 01/01/2013)

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Shared assets - wastewater program	Proposed	1.89	3.15	1.80	2.53	2.32	11.69
	Recommended	1.89	3.15	1.80	2.53	2.32	11.69
	Net change	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

5.5 Regional outfall system renewal program

5.5.1 Business proposal

This program relates to capital expenditure associated with the ongoing preventative works required to extend the serviceable life of the regional outfall system (ROS).

Key drivers

Gippsland Water has identified asset renewal as the primary driver for this program.

Gippsland Water considers the ROS to be a critical asset, which requires high level of reliability as it is the only disposal route for treated wastewater for several large towns and industries. There have been an increasing number of asset failures in recent years and condition monitoring indicates that other critical components are close to failure.[10]

Program description

The ROS was constructed in the 1950s and consists of 46 km of pre stressed concrete pipe and 40 km of unlined earthen channel. The expenditure program outlined in this program has been allocated for selective renewal of ageing sections of concrete pipeline, creek crossings, culverts, siphons and other associated structures along the ROS that are reaching the end of their serviceable life. Annual expenditure is prioritised according to condition reports and risk assessments. [11]

Proposed costs and timing

Gippsland Water has forecast $9.7m expenditure for this program during WP3. Forecast expenditure is slightly higher during the first three years of WP3.

Gippsland Water has provided cost estimates for each of the sub-programs within the overarching strategic assessment. The total forecast expenditure for each of these sub-programs over WP3 is set out below. Further detail and assumptions has been provided in strategic assessments for each of the sub-programs.

- $3.42m ROS siphon replacement program (six siphons, 3.42 km in total)
- $1.75m ROS creek crossings program (13 creek crossings)
- $1.25m AP55 storage program (desludge and dredge to increase capacity)
- $1.16m ROS fencing program (replace 75 km of 90 km fence)
- $1.01m ROS fittings program (28 vent stack/valves)
- $1.00m ROS pump station program (upgrade – variable speed drive pumps, increased wet well capacity).

[10] Ibid, p.65
[11] Ibid, p.65

Aquenta determined the P50 cost estimate for the replacement of the Dutson siphon to be $3.6m. Gippsland Water has estimated replacement cost for this siphon to be $1.3m. Gippsland Water has used its own (lower) cost estimates to forecast expenditure, rather than the Aquenta estimate.

5.5.2 Analysis and recommended adjustments

The ROS has been used to convey untreated wastewater for nearly 60 years. Given the strength of the wastewater and its detention time in the ROS the asset failures observed by Gippsland Water are not unexpected. Today, the ROS is used to convey effluent from the Gippsland Water Factory to the Dutson treatment facility and is a critical asset that needs to be maintained.

Gippsland Water has provided a targeted program of works to renew components of the asset that it considers risks associated with asset failure to be high (e.g. creek crossings) and other works that would reduce the risk of failure (e.g. pump station renewal and upgrade). A breakdown of cost estimates for proposed works within the program has been provided, which generally appear reasonable.

However, a blanket replacement of over 80% of the 90 km fence that runs adjacent to the ROS channel may not be the most prudent approach. Given that the condition of aboveground assets is generally easier to assess than belowground assets, due to accessibility, a less risk-averse approach can be adopted.

Gippsland Water has identified priority areas to be fenced (e.g. fencing around pump stations and hazardous emergency storages).

On this basis we recommend spreading expenditure to replace the majority of the 90 km ROS fence over WP3 and WP4, replacing priority sections in WP3. This would reduce forecast expenditure for the program by ($0.41m). It is agreed that other priority areas identified should be fenced in WP3 (e.g. fencing around pump stations and hazardous emergency storages).

Recommendation

In accordance with our analysis above, we recommend reducing forecast expenditure by $0.41m across WP3. This adjustment is shown below.

Table 5-4 Proposed and recommended expenditure for Regional outfall system renewal program ($m, 01/01/2013)

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Regional outfall system renewal program	Proposed	2.44	2.10	2.70	1.37	1.13	9.74
	Recommended	2.36	2.02	2.62	1.29	1.05	9.33
	Net change	**-0.08**	**-0.08**	**-0.08**	**-0.08**	**-0.08**	**-0.41**

5.6 Warragul - Moe water supply interconnect - stage two

5.6.1 Business proposal

This project relates to the construction of the second stage of the Warragul-Moe pipeline, which would complete the water supply connection between the two towns.

Key drivers

Gippsland Water has identified growth as the primary driver for this project.

This project would allow for future population growth, improve long-term water supply security and operational flexibility. [12]

Options analysis

The need to connect the Warragul and Moe water supplies has been identified in Gippsland Water's Water Supply Demand Strategy (WSDS) to ensure the agreed level of service (95% annual reliability) can be provided to customers connected to the Tarago water supply system (includes Warragul) in the future.

Gippsland Water currently has an agreement with Melbourne's retail water companies that provide a 400 ML p.a. share of Tarago Reservoir for contingency supply to the Warragul WTP.[13] Gippsland Water advised that this agreement expires on 30 June 2018 and there is uncertainty whether this agreement would be extended.

The outlook for the Tarago system shows that the 400 ML p.a. storage agreement should provide for forecast growth until about 2024.[14] An extension of this agreement has been identified as the preferred option.[15] An internal peer review of the WSDS options assessment results led to the recommendation that the Warragul - Moe water supply interconnect - stage two be delivered in WP3, due to the uncertainty associated with obtaining an extension of the agreement. [16]

Proposed costs

A detailed breakdown of cost items associated with the project has been provided by Aquenta, which has been used to determine a P50 cost estimate ($9.19m). This is slightly more than expenditure forecast in WP3 ($8.94m).

Proposed timing

Gippsland Water proposes to complete the project in 2016-17, a year ahead of the agreement expiring.

5.6.2 Analysis and recommended adjustments

In our Draft Report we recommended that the proposed project (Warragul - Moe water supply interconnect - stage two) be removed from the program, on the basis that the 'uncertainty' associated with the renewal of the agreement does not justify its inclusion in the capital program or the higher prices for customers that will result.

In response, Gippsland Water disagreed with our recommendation, citing that:

- It would be unacceptable for Gippsland Water to not take action to ensure the long-term security of supply for the Warragul Drouin system and the project must be completed to ensure the long-term security is maintained for two of the region's fastest growing towns (Warragul and Drouin - growth rates of 3.4% and 6.5%, respectively)
- This project was the second stage of the interconnection between the Moe water supply system and the Warragul/Drouin water supply system. The overall project to connect Moe and Warragul (both stages 1 and 2) was approved as part of Gippsland Water's WP2
- Should the remaining stage 2 works not proceed; then as well as having $1.28m in 'stranded assets', Gippsland Water would face the significant risk of not being able to maintain security of supply to Warragul and Drouin. As set out in Gippsland Water's

[12] Gippsland Water 2012, *Gippsland Water – Water Plan 3 Proposal*, p.58
[13] Ibid, p.53
[14] Gippsland Water 2012, *Water Supply Demand Strategy*, p.104
[15] Ibid, p.133
[16] Ibid, p.135

2012 Water Supply Demand Strategy, the Tarago system (which includes Warragul/Drouin sub-system) has a level of service below target, should the return to dry inflow scenario occur

- The need to provide additional water has been long recognised by Gippsland Water. The draft Bulk Entitlement for the Tarago System dating from 2005 to 2008 indicated that Gippsland Water was to be provided with a right to 400 ML p.a., however this was removed in the final Bulk Entitlement implemented by DSE
- Whilst the Melbourne retailers have been generous in allowing Gippsland Water a short-term agreement for access to 400 ML p.a., there is absolutely no certainty that this agreement will continue beyond 2018. Gippsland Water is concerned that this agreement will not be extended on the basis that:
    - Melbourne Water commissioned a new (70 ML/d) water treatment plant downstream of Tarago Reservoir in 2009
    - Melbourne Water has recently completed repairs to bring the dam wall into compliance with ANCOLD guidelines and ensure the dam be used at full supply levels
    - The cost of water from the desalination plant provides a strong impetus for retailers to use water from alternative cheaper sources, such as Tarago Reservoir
- Under previous Statement of Obligations, Gippsland Water was expected to plan its systems to provide security for the coming seven years. Completion of stage 2 would be in line with this expectation and failure to do so would be irresponsible
- Gippsland Water has determined that completion of the project, in the timeline proposed, would result in a maximum tariff impact per customer of less than $4 p.a. in 2017-18.

We note Gippsland Water's views but having spoken to a representative of the Melbourne businesses we are still not satisfied that there is sufficient uncertainty regarding the non-renewal of the agreement to justify the additional capital expenditure. No decision has been made as to whether to continue the agreement with Gippsland Water or not.

It is clearly in the interests of the wider community that Warragul continue to be supplied from existing sunk assets (i.e. Tarago), rather than construction additional supply sources. The Melbourne supply system is, with the advent of the desalination plant, now highly secure, and Gippsland Water's draw on Tarago is very small compared to total Melbourne system demand.

Given that an extension of this agreement is likely to be the most efficient outcome for Victorian water users, we would encourage the use of existing resources and infrastructure, and cooperation between Government owned water businesses to achieve water security outcomes at the lowest cost to the Victorian community.

Recommendation

In accordance with our analysis above, we recommend that the proposed project (Warragul - Moe water supply interconnect - stage two) be removed from the program. This adjustment is shown below.

Table 5-5 Proposed and recommended expenditure for Warragul - Moe water supply interconnect - stage two ($m, 01/01/2013)

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Warragul - Moe water supply interconnect - stage two	Proposed	0.34	0.00	0.00	8.60	0.00	8.94
	Recommended	0.00	0.00	0.00	0.00	0.00	0.00
	Net change	**-0.34**	**0.00**	**0.00**	**-8.60**	**0.00**	**-8.94**

5.7 SCADA asset upgrade program

5.7.1 Business proposal

This program relates to capital expenditure associated with Gippsland Water's SCADA system.

Key drivers

Gippsland Water has identified asset renewal as the primary driver for this project.

Gippsland Water also believes the need for the program is also driven by process efficiency, service reliability and security enhancements to reduce the risk of inappropriate access.

Program description

Gippsland Water has indicated the main focus of the program would be the replacement of redundant SCADA components (programmable logic controllers, remote terminal units and radios). However, it would also be used to address process efficiency, service reliability and security risks.[17] Gippsland Water indicated the proposed program has been developed in accordance with recommendations identified in its SCADA strategy and other relevant reports.[18]

Proposed costs and timing

Gippsland Water has forecast expenditure of $7.35m for the SCADA asset upgrade program during WP3, with relatively even expenditure across the period. Gippsland Water's strategic assessment indicates that the majority of expenditure is associated with five major upgrade projects at large treatment facilities. Gippsland Water stated that cost estimates for this program have been based on the works expected to be required.

5.7.2 Analysis and recommended adjustments

Gippsland Water appears to have taken a strategic approach to determine SCADA upgrade requirements during WP3 and beyond. Its approach appears sound and the specific items to be upgraded across the business have been clearly identified and costed in the information provided. We agree that there is a need to renew and upgrade SCADA components and the itemised breakdown of costs appears sound.

Recommendation

We recommend that proposed expenditure for the SCADA asset upgrade program be accepted unchanged, as shown below.

[17] Gippsland Water 2012, *Gippsland Water – Water Plan 3 Proposal*, p.65
[18] Victorian Auditor-General's Report 2010, *Security of Infrastructure Control Systems for Water and Transport*

Table 5-6 Proposed and recommended expenditure SCADA asset upgrade program ($m, 01/01/2013)

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
SCADA asset upgrade program	Proposed	1.51	1.44	1.56	1.47	1.37	7.35
	Recommended	1.51	1.44	1.56	1.47	1.37	7.35
	Net change	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

5.8 Water reticulation system renewals program

5.8.1 Business proposal

The program relates to the replacement of water mains.

Key drivers

Gippsland Water has identified asset renewal as the primary driver for this project.

Program description

Gippsland Water's water mains asset management plan recommends that funding be increased to $6.3m p.a. This has been based on the average service life of asbestos cement (AC) water mains and other factors, such as risk management, completion year of all AC pipes and workload. Gippsland Water has opted to deliver a water mains renewals program that is significantly less than that recommended in its asset management plan, indicating that the program has been based on an analysis of service life and asset performance.

Proposed costs and timing

Gippsland Water has forecast expenditure of $6.10m in water mains renewals during WP3. Forecast expenditure is relatively even during WP3 and equates to $1.22m p.a.[19] This is significantly less than historical expenditure in water mains renewals ($2.10m p.a. during WP2).[20]

Gippsland Water has indicated that cost estimates for this program have been based on historical costs for similar upgrades and replacements that have occurred in previous periods.[21]

5.8.2 Analysis and recommended adjustments

Gippsland Water's forecast expenditure for water mains renewals during WP3 is significantly less than historical and 'recommended' expenditure. Gippsland Water indicated that it has made extensive improvements in its asset management capability over the past six years.

Given the significant reduction in forecast expenditure, we have assumed that Gippsland Water will be relying heavily on its asset management system to prioritise renewals according to asset service life and performance.

[19] Gippsland Water 2012, *Gippsland Water – Water Plan 3 Proposal*, p.66
[20] Ibid, p.133
[21] Ibid, p.66

We have also noted that expenditure in this program is forecast to increase to $2.0m p.a. during WP4. It is imperative that Gippsland Water collect asset performance data and review asset failure rates to inform future investment decisions, including WP4 expenditure.

Recommendation

We note that Gippsland Water's reduced expenditure during WP3 will provide an opportunity to gather further asset performance data and recommend that proposed expenditure for the program be accepted unchanged, as shown below.

Table 5-7 Proposed and recommended expenditure for Water reticulation system renewals program ($m, 01/01/2013)

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Water reticulation system renewals program	Proposed	1.02	1.02	1.02	1.52	1.52	6.10
	Recommended	1.02	1.02	1.02	1.52	1.52	6.10
	Net change	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

5.9 Water treatment plant enhancements

5.9.1 Business proposal

This program relates to capital expenditure associated with the renewal, replacement and upgrade of minor components of water treatment plants to maintain ongoing compliance with regulatory and corporate objectives.

Key drivers

Gippsland Water has identified compliance as the primary driver for this program.

The existing water treatment plants and raw water supply mains require renewal and upgrading to meet current and future regulatory and operational requirements and prevent loss of service.

Program description

This program is generally used to address issues that require immediate attention and/or are not addressed in an asset class management strategy. It is proposed that the program be used to deliver works identified in Gippsland Water's site improvement plan. The site improvement plan includes a prioritised list of projects (typically less than $0.2m). The project list is re-prioritised annually by Gippsland Water to develop an annual works program in line with budget constraints.

Proposed costs and timing

The cost estimates for this program have been based on historical costs for similar upgrade/ replacements that have occurred in previous periods. This is an ongoing program, and expenditure is even across the first three years, with a step increase in year four.[22] Forecast expenditure is slightly higher than historical expenditure ($0.97m in 2012-13).

5.9.2 Analysis and recommended adjustments

We recognise that water businesses generally take a 'no tolerance' approach to safe drinking water risks and there is a need to address issues that may not already be identified in asset class management strategies.

[22] Gippsland Water 2012, *Gippsland Water – Water Plan 3 Proposal*, p.67

In our Draft Report we recommended that planned activities, such as sludge removal ($0.57m), be removed from the program and the proposed program be divided into three programs at a minimum (i.e. safe drinking water, environmental obligations and OHS), and projects grouped according to the compliance obligation being addressed. We also noted that:

- The strategic assessment stated that larger projects (typically > $0.1m) were extracted and included into the long-term Asset Planning process, however there were a number of projects included in the 2011-12 annual program that exceeded $0.1m
- The site improvement plan for 2011-12 and individual site improvement plans indicate that a wide variety of projects (e.g. a new office) are delivered under water treatment plant enhancements program. Given that the program is titled water treatment plant enhancements, it would be clearer if proposed projects were grouped into programs according to the compliance requirement
- Desludging had been included as a capital project. We believed it would be more appropriate to classify desludging as an operational expense unless the works change the capacity or life of the asset.

In response, Gippsland Water has reshaped the water treatment plant enhancements program by compliance obligation (Safe Drinking Water Act, Occupational Health and Safety, Environmental Management System, and other) and cited the following:

- The program is critical to maintain ongoing compliance with regulatory and corporate objectives for the provision of safe drinking water to its customers
- Projects identified in the program were not duplicated in any Gippsland Water projects
- It is an iterative program and new projects identified are risk assessed and ranked within the program. In extreme circumstances a project would be added to the program where the risk is deemed high enough
- Gippsland Water has identified $5.9m of capital works would be required under this program, according to its risk management approach
- Desludging at four identified sites has been included as a capital expense as it will change the capacity or life of the asset.

Gippsland Water has provided a much clearer breakdown of the projects and their drivers included in the water treatment plant enhancements program. Gippsland Water has clarified that projects represent a wide range of high risk / high consequence projects which provide for the renewal / replacement / upgrade of minor plant and equipment across Gippsland Water's 17 water treatment plants, and justified the inclusion of specific projects.

We are satisfied that the projects included in the program, and associated expenditure, is reasonable.

Recommendation

In accordance with our analysis above, we recommend that the water treatment plant enhancements program be accepted unchanged, as shown below.

Table 5-8 Proposed and recommended expenditure for Water treatment plant enhancements ($m, 01/01/2013)

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Water treatment plant enhancements	Proposed	1.04	1.09	1.09	1.25	1.25	5.72
	Recommended	1.04	1.09	1.09	1.25	1.25	5.72
	Net change	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

5.10 Wastewater reticulation system renewals program

5.10.1 Business proposal

The program relates to sewer relining and rehabilitation.

Key drivers

Gippsland Water has identified asset renewal as the primary driver for this project.

Program description

Gippsland Water has established a comprehensive program for monitoring its wastewater reticulation system. This program has been used to develop a long-term program for the replacement and rehabilitation of poor condition pipework, and forecast expenditure in during WP3. The final annual wastewater rehabilitation/renewal program is only determined following completion of detailed CCTV inspection of identified pipelines. [23]

Proposed costs and timing

Gippsland Water's has forecast annual expenditure of $1.0m p.a. for the wastewater reticulation system renewals program during WP3. [24] This is slightly lower than expenditure in the wastewater reticulation system renewals program during WP2. Gippsland Water has indicated that cost estimates for this program have been based on historical costs for similar upgrades and replacements that have occurred in previous periods. [25]

5.10.2 Analysis and recommended adjustments

Gippsland Water's forecast expenditure for WP3 is generally consistent with historical expenditure but less than half the average annual expenditure required ($2.4m p.a.) over a 40-year timeframe, according to the assets service life. Expenditure has been forecast to increase to $2.6m p.a. during WP4.

Gippsland Water has undertaken extensive CCTV investigations during WP2 during to gain a better understanding of asset condition and risk of failure to guide investment decisions.

Gippsland Water appears to have taken a balanced approach to managing wastewater reticulation assets. It has adopted a mixture of operative/reactive, inspection/condition based and proactive/preventative approaches.

Recommendation

We have noted Gippsland Water's balanced approach to managing wastewater reticulation assets and recommend that proposed expenditure for the wastewater reticulation system renewals program be accepted unchanged, as shown below.

Table 5-9 Proposed and recommended expenditure for Wastewater reticulation system renewals program ($m, 01/01/2013)

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Wastewater	Proposed	1.02	1.02	1.02	1.02	1.02	5.10

[23] Gippsland Water 2012, *Gippsland Water – Water Plan 3 Proposal*, p.67
[24] Ibid, p.67
[25] Ibid, p.67

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
reticulation system renewals program	Recommended	1.02	1.02	1.02	1.02	1.02	5.10
	Net change	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

5.11 GWF membrane replacement works

5.11.1 Business proposal

This program relates to the replacement of ultrafiltration membranes at the Gippsland Water Factory (GWF).

Key drivers

Gippsland Water has identified asset renewal as the primary driver for this project.

The integrity and operability of the ultrafiltration membranes is required to meet hydraulic flow requirements and Gippsland Water's EPA licence.

Program description

Gippsland Water has proposed that the membrane replacement program be an ongoing program to routinely replace a percentage of the membranes annually to spread expenditure over WP3. Gippsland Water undertakes ongoing monitoring and assessment of process data with routine visual inspection, to establish the membrane integrity and performance. Decisions to replace membranes are based upon these assessments.

Proposed costs and timing

Gippsland Water has forecast expenditure of $1m p.a. during WP3. The cost estimate is based on the costs required to install the original membranes during WP2. There has been some allowance for price increases in the future.

An email from consulting engineers CH2MHill indicated that about 20% of the membrane inventory should be replaced each year, as it best balances maintenance cost and treatment integrity risk. This equates to expenditure of approximately $1.0m p.a.

5.11.2 Analysis and recommended adjustments

The GWF was commissioned in late 2010. Gippsland Water has a three-year warranty from the supplier for the ultrafiltration membranes used at the GWF. However, an email from consulting engineers CH2MHill indicated that it would probably not be feasible to attain the predicted seven years' service from the membranes, due to the onerous operating service conditions at the GWF,[26] and five years would appear more feasible.

Based on cost information provided by Gippsland Water, we have calculated the replacement cost of the membranes to be $4.88m in 2012-13 dollars. This figure excludes allowances made for price increases in the future. The allocation of expenditure evenly over the five years appears to be a sound approach.

[26] The operating service conditions are particularly onerous at the GWF due to the need to maintain consistently high integrity filtration performance in the domestic system, to meet Department of Health requirements. In the industrial system conditions are more onerous due to high temperature and extra cleaning required because of heavier fouling conditions.

Recommendation

In accordance with our analysis above, we recommend reducing forecast expenditure by $0.12m. This adjustment is shown below.

Table 5-10 Proposed and recommended expenditure for GWF membrane replacement works ($m, 01/01/2013)

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
GWF membrane replacement works	Proposed	0.94	1.09	0.99	0.99	0.99	5.00
	Recommended	0.98	0.98	0.98	0.98	0.98	4.88
	Net change	**0.04**	**-0.11**	**-0.01**	**-0.01**	**-0.01**	**-0.12**

5.12 GWF minor improvement works

5.12.1 Business proposal

This program relates to expenditure associated with minor improvement works at the GWF.

Key drivers

Gippsland Water has identified asset renewal as the primary driver for this project.

Program description

The objective of the program is the renewal/replacement/upgrade of minor plant and equipment at the GWF to improve functionality and operation, and maintain ongoing compliance. Gippsland Water has a detailed list of potential projects for the GWF that have been identified as part of daily operation and maintenance. The project list has been prioritised according to a risk assessment and is reviewed regularly by Gippsland Water. However, Gippsland Water advised that the entire program's forecast expenditure would be related to relining (e.g. painting) the 12 ultrafiltration membrane cells.

Proposed costs and timing

It is unclear how forecast expenditure was determined for the program. The Water Plan forecasts expenditure of $5.0m for this program during WP3. However, discussions with Gippsland Water indicate that the cost of relining the ultrafiltration membrane cells could be up to $6.0m. This is based on a very preliminary estimate.

5.12.2 Analysis and recommended adjustments

There appears to be a need to undertake minor works at the GWF to maintain ongoing compliance. At the time of preparing our Draft Report, Gippsland Water was in the early stages of investigations to determine the most cost effective and appropriate approach to reline the 12 ultrafiltration membrane cells. There was significant uncertainty regarding the preferred approach and associated cost.

Three potential solutions that had been identified at that stage ranged from running patch repairs ($0.05m/cell), full strip and re-coat ($0.5m/cell) to a high-grade stainless steel liner ($1.0m/cell). CH2MHill recommended that cost allowance be made for the full strip and re-coat option ($0.5m/cell), on the basis that it was the mid-point.

Given the high level of uncertainty regarding the preferred solution at this stage, we considered that adopting the mid-point of very preliminary set of estimates not to be appropriate. For the purpose of the Draft Report we based our forecast expenditure on the patch repairs approach – a total of $0.6m.

In response, Gippsland Water sought the reinstatement of all funding proposed for the GWF minor works program. Gippsland Water stated that the minor improvement works program is critical for ongoing refinement and long-term reliability of the GWF. The projects identified in the GWF Strategic Projects List are assessed and prioritised based on risk. The list contains all projects that have been identified for action and the membrane cell liner repair project was in addition to these projects, not in place of them. The total cost of projects listed for action is more than $7.0m.

Gippsland Water has also completed investigations to determine the most cost effective and appropriate approach to reline the 12 ultrafiltration membrane cells. Gippsland Water has indicated that the preferred solution is likely to cost $1.0m to repair all 12 membrane cells.

In Gippsland Water's response they provided a clear breakdown and justification of the four most significant project costs (by cost) included in the program. The other projects included in the program are generally less than $0.5m. The four most significant projects include:

- Membrane operating system cell liners ($1.00m)
- Reverse osmosis permeate Tank for CIPs ($1.00m)
- Centrate/CFAT tank scrubber ($0.85m)
- Emergency storage lagoon action plan ($0.98m).

We are satisfied that the minor improvement works program is required for ongoing refinement and long-term reliability of the GWF. The quantum of the program appears reasonable and the four most significant projects, by cost, in the program appear to be justified.

Recommendation

In accordance with our analysis above, we recommend that the GWF minor improvement works program be accepted unchanged, as shown below.

Table 5-11 Proposed and recommended expenditure for GWF minor improvement works ($m, 01/01/2013)

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
GWF minor improvement works	Proposed	0.94	1.09	0.99	0.99	0.99	5.00
	Recommended	0.94	1.09	0.99	0.99	0.99	5.00
	Net change	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

5.13 Sale water treatment plant upgrade

5.13.1 Business proposal

This project primarily relates to the replacement of aeration towers and chemical contact tanks, and upgrade of chemical delivery and dosing systems at the Sale water treatment plant (WTP).

Key drivers

Gippsland Water has identified asset renewal as the primary driver for this project.

Options analysis

The Sale WTP was constructed in 1934 to treat water from the Thomson River. In 1970 the raw water supply was changed to ground water, which required aeration towers to be incorporated into the treatment process. In 2010 KBR was engaged to assess the condition

and process of the plant and recommend an upgrade plan. Gippsland Water also looked at other broader options, which included changing the raw water supply source and moving the treatment plant. However, Gippsland Water considered the option to renew and upgrade the existing asset as the most cost effective solution.

Proposed costs

In accordance with the upgrade plan prepared in 2010, KBR prepared a design and cost estimate for the proposed works. Gippsland Water engaged UGL to assess the design and construction sequencing and determine a P50 cost estimate to deliver the works. UGL reported the P50 cost estimate as $4.15m for the project, exclusive of provisional items. Provisional items include a second aeration tower ($0.47m), scrubber ($0.35m) and pilot carbon dioxide dosing equipment ($0.04m). Gippsland Water has included provisional items in the proposed scope of works, which is reflected in forecast expenditure of $5.0m during WP3.

Proposed timing

Forecast expenditure indicates planning and design will commence in 2013-14 and construction will be completed by 2014-15. Works are required in early WP3 to control the risk of failure of the aeration towers.

5.13.2 Analysis and recommended adjustments

In our Draft Report we acknowledged that the existing aeration towers required replacement, however we recommended the following adjustments:

- Exclude additional aeration tower ($0.47m). Whilst it was recognised that there would be efficiencies gained by installing both aeration towers together, there is insufficient information that demonstrates when the additional tower would be required in the future. The need for the second aeration tower was not identified in the KBR or the initial cost estimate provided by UGL. It appears to have been added subsequently. Whilst it is recognised that each aeration tower has a capacity of 15 ML/d and the WTP has capacity of 30 ML/d, forecast demand information is required to demonstrate when demand would exceed capacity.
- Exclude scrubber ($0.35m). Gippsland Water's strategic assessment indicates that there was uncertainty whether an odour mitigation biofilter would be required.
- Exclude refurbishment of the original treatment plant building and as an office and laboratory complex ($0.22m). The existing facilities appear adequate.
- Reduce the provisional sums item by $0.49m. An allowance has been made for provisional sums ($0.75m for engineering costs and $0.23m for Gippsland Water administration). Given the planning and design that has already been completed and relatively short duration of the project, an allocation of $0.98m appears excessive. We recommendation reducing the provisional sums item by 50%.

In response, Gippsland Water disagreed with our recommendation and provided stronger justification for the reinstatement of the abovementioned items. More specifically:

- The second aeration tower would be required to meet forecast demand prior to the end of WP3 and there is insufficient clear water storage to buffer water treatment plant capacity constraints. Construction of the second aeration tower could be deferred from 2014-15 to 2017-18, however the efficiencies and cost savings ($0.25m) gained by constructing both towers together would not be realised
- Sulphide monitoring and modelling carried out in January 2013 indicates that when two bores are operating (during summer) there is a significant risk that odour complaints would be made to the EPA. Therefore odour removal infrastructure is required

- KBR identified that the existing facilities were inadequate. It is used as a chemical laboratory, office and lunchroom. It poses a significant occupational health and safety risk and there is a compliance risk associated with the separation of areas within a workspace. In addition, the toilet facilities will be fenced off under the proposed upgrades and will not be readily available for treatment operators. Gippsland Water and UGL have determined that it would be more cost effective to refurbish the existing building than provide a new, purpose-built office, laboratory, lunchroom and toilet
- Engineering and admin costs are appropriate for a project of this size and complexity. The strategic assessment has been prepared from the results of significant planning, but to date, only functional designs sufficient to enable P50 cost estimates have been completed. For a brown-field site where continuous operation of the plant is required, detailed design and construction sequencing costs are typically 20% of the project cost. Gippsland Water's administration costs are to cover engineering supervision and environmental and geotechnical investigations.

Based on the information provided by Gippsland Water's in their response to our draft, we are now satisfied that it is reasonable to include the abovementioned items (additional aeration tower, odour scrubber, building refurbishment and provisional sums) in the overall project.

Recommendation

In accordance with our analysis above, we recommend that the proposed project be accepted unchanged, as shown below.

Table 5-12 Proposed and recommended expenditure for Sale water treatment plant upgrade ($m, 01/01/2013)

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Sale water treatment plant upgrade	Proposed	0.75	4.25	0.00	0.00	0.00	5.00
	Recommended	0.75	4.25	0.00	0.00	0.00	5.00
	Net change	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

5.14 Warragul-Hazel Creek trunk sewer (stage three)

5.14.1 Business proposal

The project relates to the construction of a new gravity trunk sewer from the west side of Warragul (sewer pump station No.2) to the Warragul wastewater treatment plant.

Key drivers

Gippsland Water has identified growth as the primary driver for this project.

Warragul is experiencing high growth and this requires the wastewater system to be upgraded to cater for current and future development. [27]

Options analysis

The Warragul-Hazel Creek trunk sewer has been in three stages. Stage one was completed in 2010-11 and construction of stage two began during 2011-12. Stage three is the final stage of the project, and is expected to cater for projected population growth in Warragul

[27] Ibid, p.59

over the next 50 years.[28] The preferred option involves the construction of 700mm diameter and 600mm diameter pipes over 0.5km and 1.2km, respectively.

The preferred option has been based on the results of detailed sewer hydraulic modelling and a sewerage system strategy prepared for Warragul in 2007. Other options assessed included construction of emergency storages and construction of new pump stations and rising mains.

Proposed costs

Aquenta and Gippsland Water used existing reports, designs and expenditure from recent relevant works (stage one and two) to prepare a detailed breakdown of cost items for the proposed trunk sewer and determine a P50 cost estimate. The P50 cost estimate has been used to forecast expenditure for this project in WP3.

Proposed timing

Detailed design and planning for stage three is currently underway and construction is planned to commence in 2014-15.[29] Gippsland Water advised that the planning permit issued for stages one to three would need to be extended, however did not believe this would delay the project.

5.14.2 Analysis and recommended adjustments

Gippsland Water appears to have taken a strategic approach to determine sewerage augmentation requirements to address the risk of sewer spills and accommodate forecast growth in Warragul. Gippsland Water also advised that the proposed trunk sewer would also allow high-risk and aged assets to be decommissioned, which provides additional benefit.

On the surface 50 years may appear an overly generous planning horizon. However, given that the proposed trunk sewer would be 5-7 m deep in some sections, the pipeline capacity is relatively immaterial in the context of the total project cost.

Recommendation

We recommend that proposed expenditure for the Warragul-Hazel Creek trunk sewer (stage three) project be accepted unchanged, as shown below.

Table 5-13 Proposed and recommended expenditure for Warragul-Hazel Creek trunk sewer (stage three) ($m, 01/01/2013)

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Warragul-Hazel Creek trunk sewer (stage three)	Proposed	0.20	4.76	0.00	0.00	0.00	4.96
	Recommended	0.20	4.76	0.00	0.00	0.00	4.96
	Net change	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

5.15 Summary of our recommendations

Our recommendations on adjustment to Gippsland Water's capital expenditure forecast over the next five-year regulatory period are outlined below.

Table 5-14 Gippsland Water's forecast capital expenditure and recommended adjustments ($m, 01/01/2013)

Capital expenditure item	Water Plan forecast					
	2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3

[28] Ibid, p.59
[29] Gippsland Water 2012, *Gippsland Water – Water Plan 3 Proposal*, p.59

Capital expenditure item		Water Plan forecast					
		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Loch Sport sewerage scheme	Proposed	9.16	17.70	5.21	0.21	0.00	**32.28**
	Recommended	9.16	17.70	5.21	0.21	0.00	**32.28**
	Net change	0.00	0.00	0.00	0.00	0.00	**0.00**
Shared assets - wastewater program	Proposed	1.89	3.15	1.80	2.53	2.32	**11.69**
	Recommended	1.89	3.15	1.80	2.53	2.32	**11.69**
	Net change	0.00	0.00	0.00	0.00	0.00	**0.00**
Regional outfall system renewal program	Proposed	2.44	2.10	2.70	1.37	1.13	**9.74**
	Recommended	2.36	2.02	2.62	1.29	1.05	**9.33**
	Net change	-0.08	-0.08	-0.08	-0.08	-0.08	**-0.42**
Warragul - Moe water supply interconnect - stage two	Proposed	0.34	0.00	0.00	8.60	0.00	**8.94**
	Recommended	0.00	0.00	0.00	0.00	0.00	**0.00**
	Net change	-0.34	0.00	0.00	-8.60	0.00	**-8.94**
SCADA asset upgrade program	Proposed	1.51	1.44	1.56	1.47	1.37	**7.35**
	Recommended	1.51	1.44	1.56	1.47	1.37	**7.35**
	Net change	0.00	0.00	0.00	0.00	0.00	**0.00**
Water reticulation system renewals program	Proposed	1.02	1.02	1.02	1.52	1.52	**6.10**
	Recommended	1.02	1.02	1.02	1.52	1.52	**6.10**
	Net change	0.00	0.00	0.00	0.00	0.00	**0.00**
Water treatment plant enhancements	Proposed	1.04	1.09	1.09	1.25	1.25	**5.72**
	Recommended	1.04	1.09	1.09	1.25	1.25	**5.72**
	Net change	0.00	0.00	0.00	0.00	0.00	**0.00**
Wastewater reticulation system renewals program	Proposed	1.02	1.02	1.02	1.02	1.02	**5.10**
	Recommended	1.02	1.02	1.02	1.02	1.02	**5.10**
	Net change	0.00	0.00	0.00	0.00	0.00	**0.00**
GWF membrane replacement works	Proposed	0.94	1.09	0.99	0.99	0.99	**5.00**
	Recommended	0.98	0.98	0.98	0.98	0.98	**4.88**
	Net change	0.04	-0.11	-0.01	-0.01	-0.01	**-0.12**
GWF minor improvement works	Proposed	0.94	1.09	0.99	0.99	0.99	**5.00**
	Recommended	0.94	1.09	0.99	0.99	0.99	**5.00**
	Net change	0.00	0.00	0.00	0.00	0.00	**0.00**
Sale water treatment plant upgrade	Proposed	0.75	4.25	0.00	0.00	0.00	**5.00**
	Recommended	0.75	4.25	0.00	0.00	0.00	**5.00**
	Net change	0.00	0.00	0.00	0.00	0.00	**0.00**
Warragul-Hazel Creek trunk sewer (stage three)	Proposed	0.20	4.76	0.00	0.00	0.00	**4.96**
	Recommended	0.20	4.76	0.00	0.00	0.00	**4.96**
	Net change	0.00	0.00	0.00	0.00	0.00	**0.00**
Total proposed		41.63	54.90	38.13	34.69	33.59	**202.94**
Recommended capital expenditure		41.25	54.71	38.03	26.00	33.49	**193.47**
Recommended adjustments from proposed		-0.39	-0.20	-0.10	-8.70	-0.10	**-9.47**

Notes: The proposed figures in the table above reflect Gippsland Water's original forecasts

6 Limitation of our work

General use restriction

This Report is prepared solely for the internal use of the Essential Services Commission. This report is not intended to and should not be used or relied upon by anyone else and we accept no duty of care to any other person or entity. It has been prepared for the purpose of the Essential Services Commission's review of Water Plans. You should not refer to or use our name or the advice for any other purpose.