



**Essential Services  
Commission**

**2013-18 Review of Water Prices**

**Assessment of expenditure forecasts  
for regional urban businesses**

**East Gippsland Water**

**Final Report**

**20 February 2013**

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

20 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 East 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

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# 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, 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 East Gippsland Water to the ESC
- We submitted a request for further information and prepared a number of questions for East Gippsland Water
- We visited East 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 our Draft Report we held further discussions with East Gippsland Water on particular aspects of the Water Plan
- We held discussions with East Gippsland Water regarding our Draft Report and reviewed a written response from East Gippsland Water dated 25 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

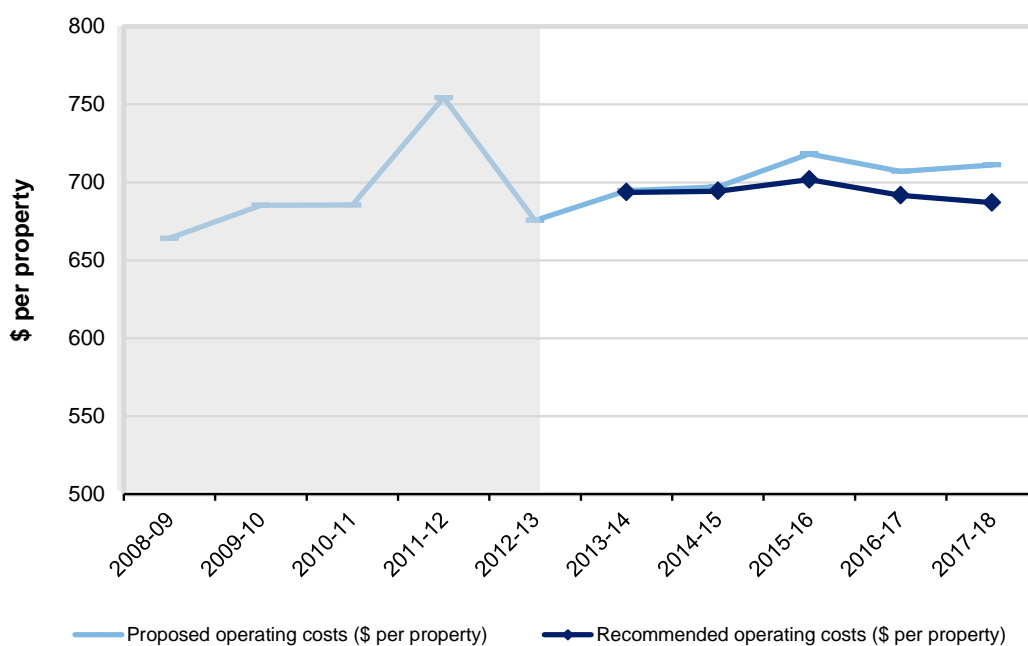
We have recommended the changes set out below to East Gippsland Water's forecast operating expenditure. Our recommended reductions provide for a 2% decrease compared to East Gippsland Water's forecasts. Note that throughout this report, unless indicated otherwise, references to East Gippsland Water's 'forecast' or 'proposal' refer to its original September Water Plan proposal and not any subsequent proposals or adjustments that have been received.

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

Operating expenditure item	Water Plan forecast					Total
	2013-14	2014-15	2015-16	2016-17	2017-18	
Proposed controllable operating expenditure (\$m)	15.666	15.942	16.656	16.612	16.931	<b>81.807</b>
<b>Recommended adjustments</b>						
Labour	0.104	0.001	-0.144	-0.287	-0.435	<b>-0.761</b>
Electricity	-0.019	-0.023	-0.049	-0.078	-0.140	<b>-0.309</b>
Carbon price	-0.075	-0.085	-0.099	-0.110	-0.104	<b>-0.473</b>
Defined benefits superannuation costs	0.145	0.141	0.137	0.133	0.130	<b>0.686</b>
Chemical costs	-0.004	-0.010	-0.016	-0.021	-0.027	<b>-0.078</b>
Special O&M costs	-0.175	-0.088	-0.214	0.000	0.000	<b>-0.477</b>
<b>Total recommended adjustments</b>	<b>-0.025</b>	<b>-0.064</b>	<b>-0.385</b>	<b>-0.362</b>	<b>-0.576</b>	<b>-1.412</b>
<b>Recommended operating expenditure</b>	<b>15.641</b>	<b>15.878</b>	<b>16.271</b>	<b>16.250</b>	<b>16.355</b>	<b>80.395</b>

Notes: Controllable operating expenditure excludes licence fees, environmental contribution and bulk water costs

Figure E1 below compares our recommended operating expenditure for East Gippsland Water (on a per connection basis) with East Gippsland Water's proposal.

**Figure E1 Proposed and recommended operating expenditure per property (\$, 01/01/2013)**

### 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 East Gippsland Water, we have assessed the following increases in operating expenditure above the 2011-12 BAU baseline as meeting this definition:

- Electricity
- Defined benefits superannuation contributions
- Intelligent Water Networks
- Operating expenditure that is required as a result of major new capital expenditure projects - notably the Woodglen water treatment plant
- Desludging expenditure

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 prudence and efficiency.

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

Operating expenditure item	Actual 2011-12	Water Plan forecast					Total WP3
		2013-14	2014-15	2015-16	2016-17	2017-18	
Electricity		0.224	0.274	0.305	0.336	0.336	1.476
Intelligent Water Networks		0.020	0.020	0.020	0.020	0.020	0.100
Defined benefits superannuation		0.145	0.141	0.137	0.133	0.130	0.686
Operating expenditure new capital projects		0.200	0.200	0.200	0.200	0.200	1.000
Desludging		0.000	0.172	0.172	0.172	0.150	0.666
<b>Total</b>		<b>0.589</b>	<b>0.807</b>	<b>0.834</b>	<b>0.861</b>	<b>0.836</b>	<b>3.928</b>

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 East 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 2011-12	Water Plan forecast					Total WP3
		2013-14	2014-15	2015-16	2016-17	2017-18	
Recommended operating expenditure		15.641	15.878	16.271	16.250	16.355	80.395
Less prudent and efficient new initiatives expenditure		0.589	0.807	0.834	0.861	0.836	3.928
<b>Recommended BAU expenditure</b>		<b>15.052</b>	<b>15.070</b>	<b>15.437</b>	<b>15.389</b>	<b>15.519</b>	<b>76.467</b>
Adjusted BAU target	14.909	14.885	14.873	14.862	14.850	14.838	74.308
Amount above BAU target		0.167	0.197	0.575	0.539	0.681	2.159

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, East Gippsland Water falls slightly short of the ESC’s productivity hurdle. This is mainly due to increases in labour expenditure.

For East Gippsland Water to meet the productivity hurdle, a further reduction of \$2.2m in total over WP3 would be required.

## Capital expenditure

We have recommended a \$1.2m reduction to East Gippsland Water’s proposed capital expenditure, mainly associated with Wy Yung service basin.

**Table E4 East Gippsland Water’s forecast capital expenditure and recommended adjustments (\$m, 01/01/2013)**

Capital expenditure item		Water Plan forecast					Total WP3
		2013-14	2014-15	2015-16	2016-17	2017-18	
Bairnsdale WWTP upgrade	Proposed	0.00	0.00	0.00	1.02	4.19	<b>5.21</b>
	Recommended	0.00	0.00	0.00	1.02	4.19	<b>5.21</b>
	Net change	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>
Corporate vehicles	Proposed	0.76	0.51	0.67	0.66	0.69	<b>3.31</b>

Capital expenditure item	Water Plan forecast					Total WP3	
	2013-14	2014-15	2015-16	2016-17	2017-18		
	Recommended	0.76	0.51	0.67	0.66	0.69	<b>3.31</b>
	Net change	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>
Wastewater lagoon desludge	Proposed	0.59	0.59	0.59	0.59	0.59	<b>2.95</b>
	Recommended	0.15	2.19	0.17	0.17	0.17	<b>2.83</b>
	Net change	-0.44	1.60	-0.42	-0.42	-0.42	<b>-0.11</b>
IT hardware/software	Proposed	0.79	0.47	0.43	0.61	0.44	<b>2.73</b>
	Recommended	0.79	0.47	0.43	0.61	0.44	<b>2.73</b>
	Net change	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>
SCADA upgrade and support	Proposed	0.44	0.48	0.50	0.60	0.52	<b>2.55</b>
	Recommended	0.44	0.48	0.50	0.60	0.52	<b>2.55</b>
	Net change	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>
Sarsfield-additional tank or liner	Proposed	0.19	2.30	0.00	0.00	0.00	<b>2.49</b>
	Recommended	0.19	2.30	0.00	0.00	0.00	<b>2.49</b>
	Net change	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>
Bairnsdale Sewer Master Plan Bridge SPS	Proposed	0.00	0.25	2.01	0.00	0.00	<b>2.26</b>
	Recommended	0.00	0.25	2.01	0.00	0.00	<b>2.26</b>
	Net change	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>
Water renewals	Proposed	0.32	0.33	0.34	0.35	0.36	<b>1.69</b>
	Recommended	0.32	0.33	0.34	0.35	0.36	<b>1.69</b>
	Net change	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>
Paynesville main supply pipeline (stage 2)	Proposed	0.00	0.12	1.37	0.00	0.00	<b>1.49</b>
	Recommended	0.00	0.12	1.37	0.00	0.00	<b>1.49</b>
	Net change	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>
Wy Yung basin tank or liner	Proposed	0.00	0.00	0.00	0.21	0.90	<b>1.11</b>
	Recommended	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>
	Net change	0.00	0.00	0.00	-0.21	-0.90	<b>-1.11</b>
Total proposed		7.77	11.52	9.06	7.70	10.01	<b>46.06</b>
<b>Recommended capital expenditure</b>		7.33	13.11	8.64	7.07	8.69	<b>44.84</b>
Recommended adjustments from proposed		-0.44	1.60	-0.42	-0.63	-1.32	<b>-1.22</b>



# 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 will 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 East 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 East 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 East Gippsland Water's operating expenditure forecast
- Chapter 5 provides our analysis, conclusions and recommendations on key issues with respect to East 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 East Gippsland Water on 12 and 13 November 2012
- The site visits were used to hold discussions with East Gippsland Water and receive further information on key issues as required.

#### 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 East Gippsland Water.

#### 2.1.4 Response from Gippsland Water

We held discussions with East Gippsland Water personnel regarding the Draft Report. A formal response to the Draft Report was provided by Gippsland Water on 25 January 2013. This response accepted some elements of our Draft Report, but disagreed with other elements.

We have closely examined East 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 East 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.

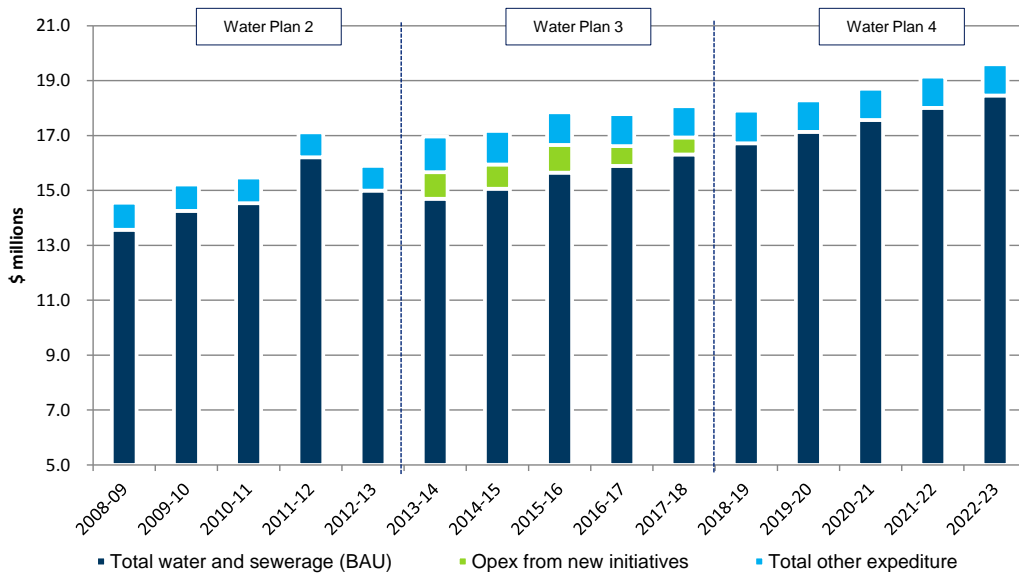
# 3 Summary of East Gippsland Water’s forecasts

East Gippsland Water provides water and wastewater services from Bairnsdale to the NSW border, including some communities in the Victorian Alps. It operates nine separate water supply systems and 11 wastewater systems, with major towns served including Bairnsdale, Lakes Entrance and Omeo. East Gippsland Water has around 22,500 customers.

## 3.1 Operating expenditure

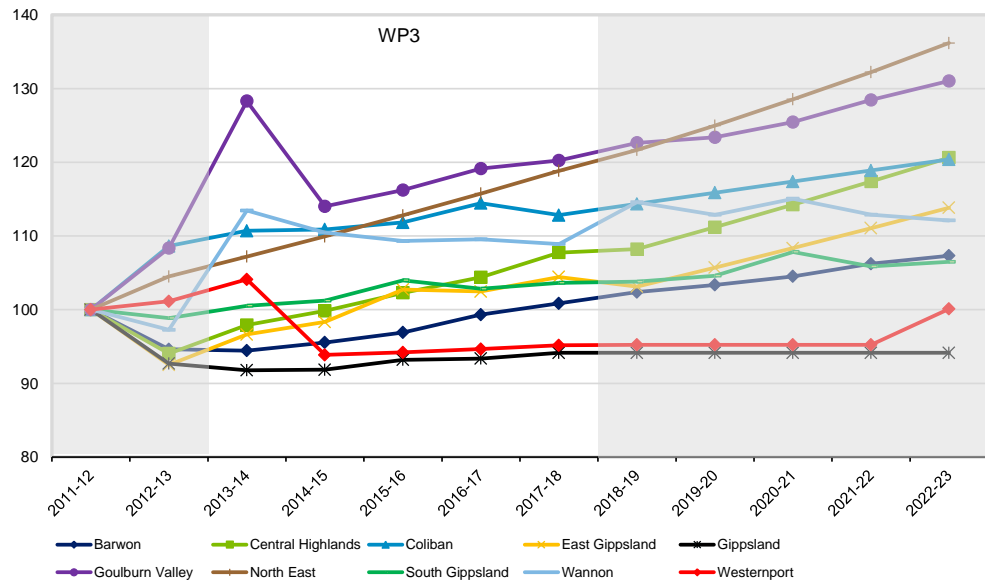
Figure 3-1 shows East Gippsland Water’s proposed operating expenditure over the WP2, WP3 and WP4 periods. East Gippsland Water’s operating costs (excluding licence fees and environmental contribution) are forecast to be a total of \$81.8m over WP3, which is an increase of 11% from WP2 (total of \$73.6m).

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



East Gippsland Water has forecast a mid-range increase in operating expenditure over WP3 compared to the other businesses that we have reviewed.

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



Total operating costs (including licence fees and environmental contribution) are forecast to be \$17.0m in 2013-14. In its Water Plan, East Gippsland Water has identified that key drivers of increased operating expenditure across WP3 compared to WP2 include:

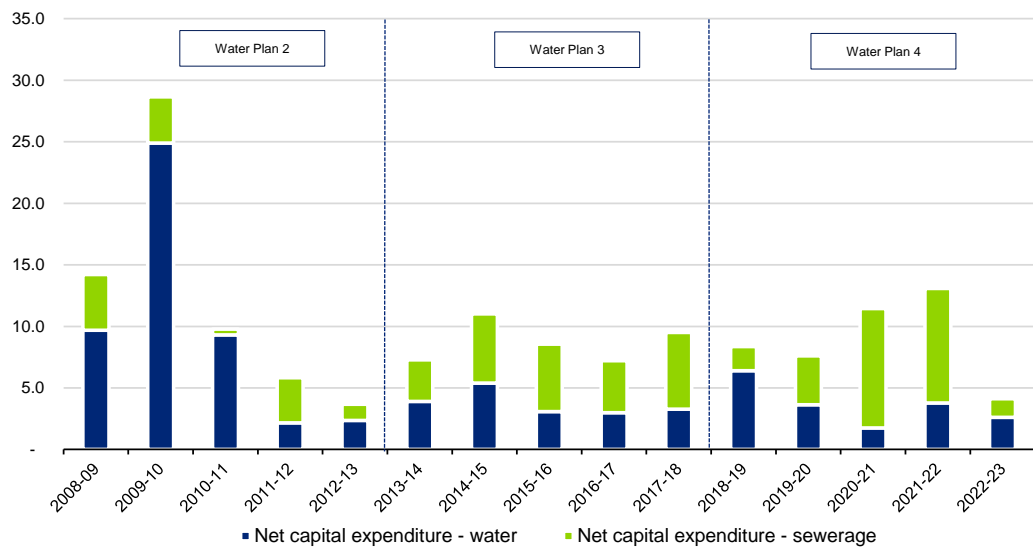
- Operational costs of running the Woodglen water treatment plant
- Higher electricity costs
- Desludging of wastewater treatment lagoons
- Additional environmental contributions
- Higher employee costs
- Additional IT/SCADA costs.

East Gippsland Water's operating expenditure per connection is in the mid-range of the businesses we have reviewed.

## 3.2 Capital expenditure

The figure below shows East Gippsland Water's actual and forecast water and sewerage capital expenditure. East Gippsland Water proposes to invest \$46.1m during WP3, which equates to an average annual capital expenditure of \$9.2m. This is less than the actual average annual capital expenditure in WP2 of \$13.3m.

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



## 3.3 Key drivers and obligations

### 3.3.1 Service standards

East Gippsland Water advises that it has defined core service standards consistent with a range of factors including historic performance, customer feedback and changes in its operating environment.

Performance targets appear to be appropriate and we note that in some cases the targets are set at a higher performance level than was achieved over the past five years.

East Gippsland Water has also proposed four new GSLs (in addition to the Hardship GSL required by the ESC) will apply in the WP3 period.

### 3.3.2 Demand

East Gippsland Water has forecast that the strong growth in property numbers it has experienced in recent years will continue at around 1.4% per annum, with slightly higher growth in the early part of WP3 compared to the latter.

East Gippsland Water forecast that demand for water would grow slightly, but remain at or below 2011-12 usage for most of the period. However we understand that Frontier Economics' draft review of demand suggests that East Gippsland Water's forecasts of volumes are 2-3% too low.

# 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 to define efficient expenditure in the base year of 2011-12. Therefore we have removed material once-off items that were incurred in 2011-12, as well as adding back any material items that are normally incurred but were not in 2011-12. In addition, we have specifically removed any once-off and cyclical costs related to the drought in 2011-12, consistent with the ESC Guidance paper.

We have made the following adjustments to East Gippsland Water's expenditure to calculate a BAU baseline:

- We have removed once-off flood costs of \$100,000
- We have removed the once-off payment of superannuation guarantee costs of \$1.5m
- We have 'added back' deferred maintenance expenditure of \$297,000.

These adjustments result in a BAU baseline forecast as shown in the table below. In calculating this baseline forecast we have adopted a growth in connections of 0.92% as advised by the ESC.

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

Operating expenditure item	Actual	Water Plan				
	2011-12	2013-14	2014-15	2015-16	2016-17	2017-18
Actual BAU	16.212					
<b>Deloitte adjustments to BAU</b>	-1.303					
BAU baseline forecast	14.909	14.885	14.873	14.862	14.850	14.838

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 East 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 East Gippsland Water is meeting the ESC's productivity hurdle.



This approach ensures that our assessment of East 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 prudence and efficiency using the approach set out in the *Overview* document. We have reported these items on a 'by exception' basis, i.e. we have generally only provided commentary for those items where we have recommended adjustments.

### 4.2.1 Labour costs

#### East Gippsland Water's Proposal

East 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 in December 2013
- Wage increases of 2.5% per year following the expiration of the EBA
- The impact of increases in the superannuation guarantee
- An increase of 4 FTEs from 2011-12 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. In East Gippsland Water's case this is December 2013
- Once a new EBA applies, applying a real growth in wages per FTE of 0%
- Reviewing FTE numbers on a case-by case basis.

Using this approach, and accepting East Gippsland Water's forecasts of FTEs as reasonable, results in real wages costs that are significantly lower than those forecast by East Gippsland Water. Accordingly we have made reductions totalling \$0.76m across WP3.

**Table 4-2 East Gippsland Water proposed 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	7.200	7.575	7.678	7.823	8.052	8.200
Recommended adjustments		0.104	0.001	-0.144	-0.287	-0.435
Revised labour expenditure		7.679	7.679	7.679	7.765	7.765

### 4.2.2 Electricity costs

East Gippsland Water has eight large sites and a large number of small sites. It has used Procurement Australia (PA) to tender for its electricity supply.

The Water Plan forecasts are based on an assumption of prices increasing at 4% per annum over WP3. Combined with an assumed 1% increase in usage means that total electricity costs are forecast to increase 5% annually over WP3. This is in addition to a 24% increase in electricity costs in 2012-13.

**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	0.309	0.453	0.476	0.500	0.525	0.551	0.579
Small sites	0.510	0.565	0.593	0.623	0.654	0.687	0.721
<b>Total</b>	<b>0.819</b>	<b>1.019</b>	<b>1.069</b>	<b>1.123</b>	<b>1.179</b>	<b>1.238</b>	<b>1.300</b>
% Change		24.3%	5.0%	5.0%	5.0%	5.0%	5.0%

As noted in our *Overview* document Procurement Australia has recommended that AGL be selected to provide electricity services and a new three year quote has been provided to East Gippsland Water.

In response to our Draft Report, East Gippsland Water provided an updated forecast of its electricity costs which reflected the Procurement Australia quote but also:

- Increased electricity forecasts by approximately \$50,000 per annum to reflect higher water consumption recommended by Frontier Economics
- Added electricity costs at three sites which were not included in its original forecasts

We have reviewed East Gippsland Water's revised forecasts and consider them to be reasonable. Accordingly our adjustments from the East Gippsland Water's original forecasts are set out below.

**Table 4-4 Electricity 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 electricity cost	0.819	1.069	1.123	1.179	1.238	1.300
Recommended adjustments		-0.019	-0.023	-0.049	-0.078	-0.140
Revised cost allocation		1.050	1.100	1.130	1.160	1.160

### 4.2.3 Real price increases

East Gippsland Water has forecast that the carbon price and other factors will have cost impacts across a wide range of inputs, including uniforms, accommodation and meals, small tools, registration, freight, contractors, cleaning, materials, licences and analysis fees, postage, printing, telecommunications, stationary, subscriptions and memberships, advertising, fees, audit costs and other expenditure. The total amount of additional costs across WP3 is \$473,000.

As noted in our *Overview* document we have only included broader carbon price impacts in forecasts (other than those flowing through energy and chemical costs) where businesses are able to demonstrate material carbon price impacts on individual cost categories - for example, by providing documentation from suppliers outlining cost increases. East Gippsland Water has not done so. Further, many of the cost areas identified by East Gippsland Water (for example subscriptions, advertising, fees, audit costs, postage, licences, accommodation, registration) are likely to have a near-zero impact from the carbon price.

As set out in the *Overview* document it is not appropriate to factor in real cost increases for some items without also factoring in real cost decreases for other items.

We have therefore removed the entire amount of the real price increases sought by East Gippsland Water from its forecast.

**Table 4-5 East Gippsland Water real price changes (\$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	0.000	0.075	0.085	0.099	0.110	0.104
Recommended adjustments		-0.075	-0.085	-0.099	-0.110	-0.104
Revised expenditure		0.000	0.000	0.000	0.000	0.000

#### 4.2.4 Defined benefits superannuation

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

However SGW is required to make a payment of \$1.469m to Vision Super by 1 July 2013. It has already paid this amount.

As set out in our *Overview* document we believe it is reasonable for businesses to recover a defined benefits superannuation payment over a 15 year period, including WP3, even where they have not proposed to do so. Our methodology for calculating the payments is set out in the *Overview* document, noting that we have adopted an interest rate of 5.75% (compared to 5.5% in our Draft Report) to calculate the return required.

We have therefore increased East Gippsland Water's expenditure forecast as set out in the Table below.

**Table 4-6 East 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		0.145	0.141	0.137	0.133	0.130
Revised superannuation payment		0.145	0.141	0.137	0.133	0.130

#### 4.2.5 Chemical costs

East Gippsland Water Water Plan provided for a steady increase in chemical costs across WP3, as shown in the table below.

**Table 4-7 East 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
Forecast expenditure	0.359	0.370	0.419	0.430	0.441	0.452	0.464
% Change	-13.91%	3.06%	13.24%	2.63%	2.56%	2.49%	2.65%

According to East Gippsland Water:

- The increase in expenditure in 2013-14 reflects both higher chemical prices, as well as additional chemical volumes associated with the Bemm River sewerage scheme
- Future cost increases primarily reflect price increases, including those associated with the carbon price.

In response to our Draft Report East Gippsland Water provided a revised chemical cost forecast based on higher forecast volumes. We consider this revised forecast is appropriate.

We have therefore decreased East Gippsland Water's expenditure forecast as set out in the Table below, consistent with the revised forecast.

**Table 4-8 Recommended chemical 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 chemicals expenditure	0.359	0.419	0.430	0.441	0.452	0.464
Recommended adjustments		-0.004	-0.010	-0.016	-0.021	-0.027
Revised chemicals expenditure		0.415	0.420	0.425	0.431	0.437

## 4.2.6 GSL costs

East Gippsland Water proposes to introduce four new GSLs in the WP3 period:

- Failure to respond to written correspondence from a customer within 10 working days (\$30)
- Planned interruptions for longer than set out in notice (\$65)
- Failure to update billing details after being requested to do so (\$30)
- Sewage spill into house caused by East Gippsland Water (\$1000 plus clean up)

In addition, the hardship GSL has been in place since 1 January 2011.

East Gippsland Water has forecast that it will make 54 GSL payments in 2013-14 (1 sewer spill, 3 failures to update customer information, 50 instances of failure to respond to written correspondence). If realised this will cost \$2590, although we note East Gippsland Water has not included any amounts in its forward forecasts.

## 4.2.7 Special operating projects

East Gippsland Water has identified a large number of 'special operating projects' in WP3 which are set out in the table below.

**Table 4-9 Special project expenditure (\$'000, 01/01/2013)**

Project	2013-14	2014-15	2015-16	2016-17	2017-18	Total
Dam upgrades	74	74	74	74	74	370
Bruces Track House Demolition	0	25	0	0	0	25
GHG reduction strategy / sustainability strategy	75	0	0	0	0	75
Development Servicing Plan	20	20	20	0	0	60
Asset management system development etc.	0	50	0	0	0	50
Town planning, protection of EGW facilities	0	0	50	0	0	50
Develop Sewerage Master Plans (SMPs)	50	50	0	50	50	200
Dinner Plain Reuse Arrangements	0	0	132	0	0	132
LEWWTP Viability assessment and options	0	100	0	0	0	100
B'dale, P'ville, Lakes and Dinner Plain infiltration	150	100	50	50	50	400
STP Lagoon desludge	172	172	172	172	150	838
CCTV - Sewerage Renewals (below ground)	85	48	112	99	0	344
WW Reuse Schemes general provision	0	20	0	0	0	20
BWWTP, LEWWTP, P'ville, STWWTP	70	20	50	0	50	190
SPS odour control	0	10	0	10	0	20
Update and review Mitchell Water Master Plan	0	0	50	0	0	50

Project	2013-14	2014-15	2015-16	2016-17	2017-18	Total
Cann River and Omeo Hydrogeological Review	0	30	0	0	0	30
Water Plan preparation	0	0	0	100	0	100
Update WSDS' & WSPs (water shortage plans)	0	50	150	50	0	250
Prepare Small town WMPs	20	0	20	0	20	60
Dinner Plain - Elevated Tank - decommission	0	0	15	0	0	15
Toorloo Reservoir - decommission	0	0	0	0	35	35
Replacement Cast Iron Pipe (inv & modelling component)	0	0	0	0	100	100
Replacement of Concrete MSPL & vents (Stage 2)	120	0	0	0	0	120
WTP facility master plans	40	20	20	20	0	100
<b>Total</b>	<b>876</b>	<b>789</b>	<b>915</b>	<b>625</b>	<b>529</b>	<b>3734</b>

For the Draft Report we reviewed this list of projects and formed the view that it contains a large number of smaller projects of an ongoing nature. We noted that some of these projects, or very similar projects (e.g. preparation of plans) will have been undertaken in 2011-12 and should be able to be managed as part of the normal expenditure cycle. In any given year some one-off projects will need to be undertaken, but they will not be required in the next year and will be replaced with new one-off tasks.

Accordingly, in our Draft Report we suggested that we did not consider that many of the projects should represent 'additional' expenditure over and above ongoing budgets. We therefore removed the following items from the forecast:

- Bruces Track House Demolition
- GHG reduction strategy/sustainability strategy
- Development Servicing Plan
- Asset management system development etc.
- Town planning, protection of EGW facilities
- Develop Sewerage Master Plans (SMPs)
- LEWWTP Viability assessment and options
- WW Reuse Schemes general provision
- BWWTP, LEWWTP, P'ville, STWWTP
- SPS odour control
- Update and review Mitchell Water Master Plan
- Cann River and Omeo Hydrogeological Review
- Water Plan preparation
- Update WSDS' & WSPs (water shortage plans)
- Prepare Small town WMPs
- Dinner Plain - Elevated Tank – decommission
- Toorloo Reservoir - decommission
- Replacement Cast Iron Pipe (inv & modelling component)
- Replacement of Concrete MSPL & vents (Stage 2)
- WTP facility master plans.

In response to our Draft Report, East Gippsland Water indicated that during base year 2011-12 special O&M expenditure was reduced to \$404,000 from a budgeted average in WP2 of \$701,000. East Gippsland Water advised that actual special O&M expenditure from 2005-06 to 2009-10 was \$841,000 per annum. Hence East Gippsland Water did not consider it was possible to undertake the projects within existing BAU expenditure.

We have noted East Gippsland Water's comments and accept that an increase in expenditure over baseline amounts is desirable. At the same time we remain unconvinced that some of the projects will be required or are high priority. Nevertheless we have increased the Special O&M expenditure to WP2 budget levels (\$701,000 per annum) for the first three years of WP3, and then accepted East Gippsland Water's original forecasts for expenditure beyond these years. See Table 4-10.

We note that the reduction in expenditure in 2013-14 equates to the proposed operational costs associated with desludging, which we have deferred from this year as outlined in Table 5-4.

**Table 4-10 Special operating 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 cost	0.404	0.876	0.789	0.915	0.625	0.529
Recommended adjustments		-0.175	-0.088	-0.214	0.000	0.000
Revised expenditure		0.701	0.701	0.701	0.625	0.529

#### 4.2.8 Recommended changes to operating expenditure

We have recommended the changes set out below to East Gippsland Water's forecast operating expenditure. Our recommended reductions provide for a 2% decrease compared to East Gippsland Water's forecasts.

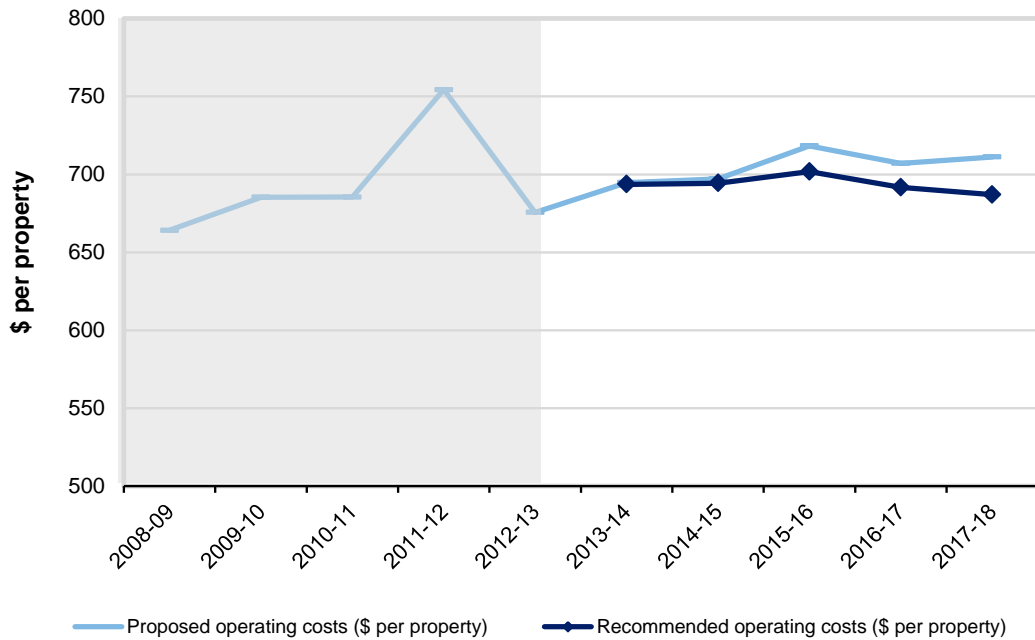
**Table 4-11 East Gippsland Water forecast controllable operating expenditure and recommended adjustments (\$m, 01/01/2013)**

Operating expenditure item	Water Plan forecast					Total
	2013-14	2014-15	2015-16	2016-17	2017-18	
Proposed controllable operating expenditure (\$m)	15.666	15.942	16.656	16.612	16.931	<b>81.807</b>
<b>Recommended adjustments</b>						
Labour	0.104	0.001	-0.144	-0.287	-0.435	<b>-0.761</b>
Electricity	-0.019	-0.023	-0.049	-0.078	-0.140	<b>-0.309</b>
Carbon price	-0.075	-0.085	-0.099	-0.110	-0.104	<b>-0.473</b>
Defined benefits superannuation costs	0.145	0.141	0.137	0.133	0.130	<b>0.686</b>
Chemical costs	-0.004	-0.010	-0.016	-0.021	-0.027	<b>-0.078</b>
Special operating projects	-0.175	-0.088	-0.214	0.000	0.000	<b>-0.477</b>
<b>Total recommended adjustments</b>	<b>-0.025</b>	<b>-0.064</b>	<b>-0.385</b>	<b>-0.362</b>	<b>-0.576</b>	<b>-1.412</b>
<b>Recommended operating expenditure</b>	<b>15.641</b>	<b>15.878</b>	<b>16.271</b>	<b>16.250</b>	<b>16.355</b>	<b>80.395</b>

Notes: Controllable operating expenditure excludes licence fees, environmental contribution and bulk water costs

Figure 4-1 below compares our recommended operating expenditure for East Gippsland Water (on a per connection basis) with East Gippsland Water's proposal.

**Figure 4-1 Proposed and recommended operating expenditure per property (\$, 01/01/2013)**



### 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 East 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
- Intelligent Water Networks
- Operating expenditure that is required as a result of major new capital expenditure projects - notably the Woodglen water treatment plant
- The major new expenditure on desludging.

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 prudence 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	Actual 2011-12	Water Plan forecast					Total WP3
		2013-14	2014-15	2015-16	2016-17	2017-18	
Electricity		0.224	0.274	0.305	0.336	0.336	1.476
Intelligent Water Networks		0.020	0.020	0.020	0.020	0.020	0.100
Defined benefits superannuation		0.145	0.141	0.137	0.133	0.130	0.686
Operating expenditure new capital projects		0.200	0.200	0.200	0.200	0.200	1.000
Desludging		0.000	0.172	0.172	0.172	0.150	0.666
<b>Total</b>		<b>0.589</b>	<b>0.807</b>	<b>0.834</b>	<b>0.861</b>	<b>0.836</b>	<b>3.928</b>

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 East 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 2011-12	Water Plan forecast					Total WP3
		2013-14	2014-15	2015-16	2016-17	2017-18	
Recommended operating expenditure		15.641	15.878	16.271	16.250	16.355	80.395
Less prudent and efficient new initiatives expenditure		0.589	0.807	0.834	0.861	0.836	3.928
<b>Recommended BAU expenditure</b>		<b>15.052</b>	<b>15.070</b>	<b>15.437</b>	<b>15.389</b>	<b>15.519</b>	<b>76.467</b>
Adjusted BAU target	14.909	14.885	14.873	14.862	14.850	14.838	74.308
Amount above BAU target		0.167	0.197	0.575	0.539	0.681	2.159

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, East Gippsland Water falls slightly short of the ESC’s productivity hurdle. This is mainly due to increases in labour expenditure.

For East Gippsland Water to meet the productivity hurdle, a further reduction of \$0.2.1m in total over WP3 would be required.



# 5 Capital expenditure

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

- An assessment of generic issues relevant to the overall prudence, 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 East 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 prudence, efficiency and deliverability of multiple projects or East Gippsland Water's capital expenditure program as whole.

### 5.1.1 Capital expenditure planning

East Gippsland Water has developed a ten-year capital works program using a dynamic method that is supported by a robust risk assessment framework.

East Gippsland Water commenced planning for WP3 in October 2010 and undertook 157 Issue Response Optioneering Assessments (IOR) by April 2011.

In many cases an operational change can be identified as the preferred solution to address the issue. However, the IOR assessment process can also result in capital works projects to be delivered in WP3.

East Gippsland Water's capital works planning and prioritisation process is sound and it is anticipated that it will continue to evolve and be used to inform the development of future Water Plans.

### 5.1.2 Cost estimation and escalation

East Gippsland Water has determined P5, P50 and P95 cost estimates for six of their largest capital projects using Monte Carlo simulations. East Gippsland Water successfully sought exemption from applying this cost estimation approach to their four largest capital programs from the ESC.<sup>12</sup>

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

### 5.1.3 Deliverability of the capital expenditure program

East Gippsland Water has proposed to invest \$46.1m during WP3, which equates to an average annual capital expenditure of \$9.2m. This is less than the actual average annual capital expenditure in WP2 of \$13.3m.

<sup>1</sup> East Gippsland Water 2011, *Email from Marcus Crudden to Mathew Scott (3 April 2012)*

<sup>2</sup> AECOM 2012, *Memorandum: Water Plan 3 - P5 and P95 cost estimates (28 March 2012)*

Subsequent to our Draft Report, East Gippsland Water's has recommended that an additional project (Mitchell River water main crossing, Lind Bridge) be included in their WP3 capital expenditure program. East Gippsland Water formally proposed that this unplanned expense be added to their WP3 capital expenditure program. This would result in an additional \$3.2m in capital expenditure.

East Gippsland has consistently performed well in the delivery of its capital expenditure program in WP2. This is supported by the status of its major projects in the ESC's most recent Water Performance Reports.<sup>3,4</sup>

East Gippsland Water has utilised an alliance-type arrangement with AECOM to deliver capital projects in WP2, however it is unclear whether this approach will continue. East Gippsland Water has demonstrated that it is capable of delivery a capital works program in excess of that proposed for WP3.

## 5.2 Major projects

Table 5-1 provides an overview of the top ten projects (by expenditure), showing the primary driver and forecast expenditure over the current and next regulatory period.

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<sup>3</sup> Essential Services Commission 2010, *Water Performance Report – Performance of urban water and sewerage businesses in 2009-10*

<sup>4</sup> Essential Services Commission 2011, *Water Performance Report – Performance of urban water and sewerage businesses in 2010-11*

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

Capital expenditure item	Primary Driver	Water Plan forecast expenditure					Total	Proportion of total expenditure
		2013-14	2014-15	2015-16	2016-17	2017-18		
Bairnsdale WWTP upgrade	Asset renewal	-	-	-	1.02	4.19	<b>5.21</b>	11%
Corporate vehicles	Asset renewal	0.76	0.51	0.67	0.66	0.69	<b>3.31</b>	7%
Wastewater lagoon desludge	Compliance	0.59	0.59	0.59	0.59	0.59	<b>2.95</b>	6%
IT hardware/software	Asset renewal	0.79	0.47	0.43	0.61	0.44	<b>2.73</b>	6%
SCADA upgrade and support	Service improvement	0.44	0.48	0.50	0.60	0.52	<b>2.55</b>	6%
Sarsfield-additional tank or liner	Growth	0.19	2.30	-	-	-	<b>2.49</b>	5%
Bairnsdale Sewer Master Plan Bridge SPS	Compliance	-	0.25	2.01	-	-	<b>2.26</b>	5%
Water renewals	Asset renewal	0.32	0.33	0.34	0.35	0.36	<b>1.69</b>	4%
Paynesville main supply pipeline (stage 2)	Growth	-	0.12	1.37	-	-	<b>1.49</b>	3%
Wy Yung basin tank or liner	Growth	-	-	-	0.21	0.90	<b>1.11</b>	2%
<b>Sub-Total - Top 10 Projects</b>		<b>3.09</b>	<b>5.06</b>	<b>5.92</b>	<b>4.04</b>	<b>7.69</b>	<b>25.79</b>	<b>56%</b>
Other projects		4.69	6.46	3.14	3.66	2.32	20.27	
<b>Total</b>		<b>7.77</b>	<b>11.52</b>	<b>9.06</b>	<b>7.70</b>	<b>10.01</b>	<b>46.06</b>	
Proportion of annual expenditure		17%	25%	20%	17%	22%		

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

## 5.3 Bairnsdale WWTP upgrade

### 5.3.1 Business proposal

This project relates to the replacement of the anaerobic digester at the Bairnsdale wastewater treatment plant (WWTP).

#### Key drivers

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

The anaerobic digester is currently offline due to operational and OHS concerns and cannot be returned to service without extensive refurbishment or replacement. Current sludge management practices have been deemed unsustainable. It is believed that current practices could lead to the business breaching its EPA licence (i.e. through offensive odour beyond the site boundary) due to undigested sewage sludge accumulating in a sludge lagoon. East Gippsland Water considers that renewing the anaerobic digester will improve the performance of the Bairnsdale WWTP and the reliability of achieving compliance into the future.

#### Options analysis

Three scenarios were developed to determine the best strategy to adopt based on the current business drivers and to ensure that any short-term decisions are consistent with the longer-term asset plan for the plant. A number of options have been identified within each of these scenarios.

1. **Phased build** – New sludge handling works, UV disinfection, tertiary filtration in Water Plan 3, existing asset maintenance, with nitrogen removal solution in Water Plan 4
2. **New build** – New activated sludge plant, sludge handling works and UV in Water Plan 3
3. **Part build** – New sludge handling works, UV disinfection, tertiary filtration, existing asset maintenance in Water Plan 3.

Option 1a (scenario 1) was identified as the preferred option based on the net present value analysis, environmental considerations and its ability to address short-term operations/maintenance issues, whilst catering for growth. Option 1a includes the delivery of a new anaerobic sludge digester and associated dewatering infrastructure and maintenance in WP3, followed by an augmentation in WP4 to address Total Nitrogen and wet weather events (if required).

#### Proposed costs

The cost estimate was initially prepared by AECOM in the Concept Design Report and subsequently reduced to reflect the exclusion of UV disinfection and tertiary filtration. AECOM and East Gippsland Water used these references to determine a P50 cost estimate for the project.

#### Proposed timing

An internal memo indicated that renewal of the anaerobic digester was urgent. However, the project has been scheduled for delivery in 2016-17 to 2017-18, with the next stage scheduled for delivery in the early years of WP4. This will also allow East Gippsland Water to complete the project holistically whilst spreading the investment over two Water Plans.

### 5.3.2 Analysis and recommended adjustments

The anaerobic digester is an integral component of the Bairnsdale WWTP. Whilst the treatment plant is currently achieving compliance, the current arrangements are unsustainable in the long term and renewal is required to maintain compliance and cater for growth.

There is an expectation from the EPA that, should East Gippsland Water continue to discharge to the Morass, the Bairnsdale treatment facility will need to be upgraded, to achieve 'acceptable quality of treated wastewater'. Whilst the future licence conditions for the Bairnsdale WWTP are unknown, it is understood that a new anaerobic digester will not become redundant if the treatment facility is upgraded in the near future.

The cost estimate breakdown shows that a significant allowance has been made for construction risk, which is appropriate given the age of the treatment facility (circa late 1930) and the uncertainty associated with the location of underground infrastructure.

In our Draft Report we recommended reducing forecast expenditure by \$0.32m to reflect the stated 10% allowance allocated to AECOM (design, construction supervision, project management and admin), not the calculated allowance (18%). In response, East Gippsland Water advised that the 10% allowance was a typing error and the calculated quantum is correctly based on an 18% allowance, and requested that proposed expenditure be retained.

Given that 18% is a typical allowance allocated for AECOM (design, construction supervision, project management and admin) for East Gippsland Water's other major projects we are satisfied that the proposed expenditure for this project is appropriate.

#### Recommendation

The need to renew the anaerobic digester is clear and the scheduled delivery of the project is prudent. We recommend that East Gippsland Water's proposed Bairnsdale WWTP upgrade project be accepted unchanged, as shown in Table 5-2 below.

**Table 5-2 Proposed and recommended expenditure for Bairnsdale WWTP Upgrade (\$m, 01/01/2013)**

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Bairnsdale WWTP upgrade	Proposed	0.00	0.00	0.00	1.02	4.19	5.21
	Recommended	0.00	0.00	0.00	1.02	4.19	5.21
	<b>Net change</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 5.4 Corporate vehicles

### 5.4.1 Business proposal

This project relates to the ongoing replacement of corporate vehicles.

#### Key drivers

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

#### Program description

East Gippsland Water generally trade in executive vehicles at 80,000 km and operational vehicles at 120,000 km, based on a recommendation from its fleet service provider, Webfleet.

East Gippsland Water determined that purchasing vehicles outright is currently a more cost effective approach than leasing vehicles, based on an analysis prepared by SG Fleet Australia P/L.

### Proposed costs and timing

The cost of the program is based on the gross cost of maintaining the current fleet in accordance with the abovementioned assumptions. Revenue gained from trading-in vehicles has been captured in the revenue component of the financial model.

The cost of the program has been based on the expected replacement frequency (based on current mileage) and current market rates.

East Gippsland Water successfully sought exemption from using the P50 cost analysis to determine the cost of this program due to the renewal nature of the program.

### 5.4.2 Analysis and recommended adjustments

The need to maintain a safe, reliable fleet of corporate vehicles is clear, and the proposed replacement program is sound.

### Recommendation

We recommend that East Gippsland Water's proposed corporate vehicles program be accepted unchanged, as shown in Table 5-3 below.

**Table 5-3 Proposed and recommended expenditure for Corporate vehicles (\$m, 01/01/2013)**

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Corporate vehicles	Proposed	0.76	0.51	0.67	0.66	0.69	3.31
	Recommended	0.76	0.51	0.67	0.66	0.69	3.31
	<b>Net change</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 5.5 Wastewater desludge

### 5.5.1 Business proposal

This project relates to the capital expenditure associated with desludging East Gippsland Water's wastewater treatment lagoons.

### Key drivers

East Gippsland Water has identified compliance as the primary driver for this project. East Gippsland Water's wastewater lagoons require desludging to ensure they have sufficient treatment capacity to ensure compliance with its EPA licence. According to sludge survey work conducted by East Gippsland Water in 2007, many of its wastewater lagoons are currently at, or over, their sludge holding capacity.

### Options analysis

East Gippsland Water has undertaken an analysis to determine the options and associated costs to undertake desludging activities in-house, which identified a mobile belt press as the preferred option. This was used as a basis to compare the net present value of undertaking these activities in-house against outsourcing to a contractor. The net present value assessment identified in-house desludging to have the lowest net present cost.

East Gippsland Water recognises that the mobile belt press will not be the most suited approach for all their sites, and other techniques may be more appropriate (e.g. Geobags).

Discussions with East Gippsland Water indicate that they are unclear what technology they will use and the approach they will take to undertake the works.

### Proposed costs

The cost estimate has been based on procuring required infrastructure (e.g. mobile belt press, truck, hopper) and constructing required bunding at the sites.

The cost estimate has been determined using the detailed cost estimated in the In-house Dewatering Technology Options Report prepared by AECOM and bunding construction costs estimated by East Gippsland Water. AECOM and East Gippsland Water used these references to determine a P50 cost estimate for the project.

### Proposed timing

East Gippsland Water has allocated expenditure evenly over the five-year Water Plan. East Gippsland Water indicated that the proposed expenditure profile reflects a lease-to-buy approach, to maintain flexibility if the technology (e.g. mobile belt press) if proving unsuitable. There was no documentation provided to support this approach.

## 5.5.2 Analysis and recommended adjustments

Desludging is generally outsourced to contractors and East Gippsland Water has taken a prudent approach by assessing the benefits of bringing this activity in-house. However, it is difficult to reconcile the proposed expenditure profile and the supporting documentation.

In our Draft Report we recommended that:

- Capital expenditure be deferred by one year, given that in-house desludging with mobile technology (e.g. belt press) is a relatively new activity for East Gippsland Water and the uncertainty surrounding the preferred technology and delivery approach
- The expenditure profile be adjusted to reflect the approach shown in the supporting documentation (i.e. purchase equipment in 2014-15 and construction of bunding evenly over the final four years of WP3)
- The provisional sum item be removed on the basis that an allowance for uncertainty should already be included in the P50 cost estimate and the investigations undertaken
- An allowance for overheads and contingencies only be applied to the following items; dredge pipework; centrate collection tank; conditioning tank; dewatering unit pipework; and bunding, given the other items are off the shelf units (e.g. truck).

In response, East Gippsland Water acknowledged that there was some uncertainty surrounding the preferred technology and would acquiesce to the proposed deferral, provided a sum of \$0.15 million was provided in 2013-14, to facilitate the planning and tendering process, so that appropriate desludging equipment could be purchased in 2014-15. East Gippsland Water also stated that a provisional sum of \$0.26m was appropriate given the stage of the project and risks associated with the proposed technology.

Following further discussions, East Gippsland Water provided a revised cost estimate and forecast expenditure during WP3. This included a cost breakdown for AECOM activities (planning, design and project management) and only applied an allowance for overheads and contingencies to a number of specific and justified items. Their revised cost estimate was \$0.1m less than their initial proposal.

We are satisfied that East Gippsland Water's revised forecast expenditure for this project is reasonable. We also believe that the provisional sum (\$0.26m) should now be included in the cost estimate, given that there is a risk of failure with the proposed technology and an allowance for this risk has not already been incorporated in the P50 cost estimate.

## Recommendation

In accordance with our analysis above we recommend that East Gippsland Water's revised forecast expenditure for this project be accepted. This adjustment is shown in Table 5-4 below.

**Table 5-4 Proposed and recommended expenditure for Wastewater desludge (\$m, 01/01/2013)**

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Wastewater desludge	Proposed	0.59	0.59	0.59	0.59	0.59	2.95
	Recommended	0.15	2.19	0.17	0.17	0.17	2.83
	<b>Net change</b>	<b>-0.44</b>	<b>1.60</b>	<b>-0.42</b>	<b>-0.42</b>	<b>-0.42</b>	<b>-0.11</b>

## 5.6 IT hardware/software

### 5.6.1 Business proposal

This project relates to the capital expenditure proposed to maintain and upgrade East Gippsland Water's Information Technology (IT) infrastructure.

#### Key drivers

East Gippsland Water has identified asset renewal as the primary driver for this project. Current IT hardware and software is required to meet BAU obligations.

#### Program description

East Gippsland Water has assumed that the systems currently in place today will be catered for in the future by a system similar to what is currently in place for a similar cost to what has been previously experienced. Proposed expenditure has been based on maintaining and replacing IT software and hardware components as per traditional replacement life cycles.

#### Proposed costs

A breakdown of the forecast expenditure associated with the project has been outlined in the IOR and its supporting MS Excel spreadsheet. These references show that forecast expenditure is related to maintaining the current IT hardware and software components and upgrades to the network infrastructure (\$0.14m).

East Gippsland Water successfully sought exemption from using the P50 cost analysis to determine the cost of this program due to the renewals nature of the program.

#### Proposed timing

Forecast expenditure has been based on the replacement of IT components at the end of their service life.

### 5.6.2 Analysis and recommended adjustments

East Gippsland Water's IT capital expenditure program appears reasonable for a business of its size. We recognise that there is a significant degree of uncertainty in the future direction of IT, considering the rapid rate of change in software development and user expectations. It appears that East Gippsland Water has taken a sound approach in forecasting IT hardware/software related capital expenditure by assuming replacement costs will be similar to previous experience.



## Recommendation

We recommend that East Gippsland Water's proposed IT hardware/software program be accepted unchanged, as shown in Table 5-5 below.

**Table 5-5 Proposed and recommended expenditure for IT hardware/software (\$m, 01/01/2013)**

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
IT hardware/ software	Proposed	0.79	0.47	0.43	0.61	0.44	2.73
	Recommended	0.79	0.47	0.43	0.61	0.44	2.73
	<b>Net change</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 5.7 SCADA upgrade and support

### 5.7.1 Business proposal

This project relates to the capital expenditure proposed to maintain and upgrade East Gippsland Water's SCADA system.

#### Key drivers

East Gippsland Water has identified service improvement as the primary driver for this project.

SCADA is a key risk management tool for East Gippsland Water in the delivery of their water and wastewater services. According to East Gippsland Water investment in SCADA during WP3 will allow East Gippsland Water to collect more accurate data to manage their operations, gain efficiencies, reduce OHS risks and improve decision making during emergency events (e.g. fire and flood).

#### Program description

East Gippsland Water has taken a strategic approach to develop its SCADA upgrade and support program. East Gippsland Water's Strategic Risk Register was used to identify capital projects that would be included in Water Plan 3. A series of workshops were undertaken and areas where SCADA can have a positive impact on the strategic risks were highlighted. From these highlighted areas, specific projects were identified and prioritised based on the degree of impact they will have on the risks. This led to the development of the SCADA Strategy and Business Case for WP3.

#### Proposed costs and timing

A breakdown and forecast timing of proposed expenditure associated with the program has been outlined in the SCADA Strategy and Business Case for WP3.

East Gippsland Water successfully sought exemption from using the P50 cost analysis to determine the cost of this program as it is made up of many small components that have been well itemised.

### 5.7.2 Analysis and recommended adjustments

SCADA is an integral component in the delivery of water and wastewater services, however it is questionable whether service improvement is the primary driver for the program. Upgrading the SCADA system will lead to more efficient service delivery, however the service improvement for the customer is difficult to ascertain. Other drivers for the program include asset renewal and compliance.

The strategic approach taken to develop the program and associated expenditure requirements shows the link between corporate strategic risks and proposed upgrades to the SCADA system.

### Recommendation

The need for East Gippsland Water to upgrade its SCADA system and associated requirements has been clearly defined in its SCADA Strategy. We recommend that the proposed SCADA upgrade and support program be accepted unchanged, as shown in Table 5-6 below.

**Table 5-6 Proposed and recommended expenditure for SCADA upgrade and support (\$m, 01/01/2013)**

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
SCADA upgrade and support	Proposed	0.44	0.48	0.50	0.60	0.52	2.55
	Recommended	0.44	0.48	0.50	0.60	0.52	2.55
	<b>Net change</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 5.8 Sarsfield-additional tank or liner

### 5.8.1 Business proposal

This project relates to the proposed increase in the capacity of the Sarsfield storage.

#### Key drivers

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

An increase in storage capacity at the Sarsfield reservoir is required to ensure that the system can maintain supply in the event of emergency or routine maintenance work on the main supply pipeline.

#### Options analysis

The draft Mitchell River Master Plan stated that the Sarsfield storage required an additional 6 ML in capacity (12 ML in total) to maintain adequate emergency supplies for both Bairnsdale and Lakes Entrance.

The IOR, which preceded the draft Mitchell River Master Plan identified the need for additional storage at Sarsfield, however the quantum was unknown and stated that this detail be would provided in the soon to commence Mitchell River Master Plan. Three options were assessed in the IOR; do nothing; additional 10 ML tank; lining and covering a portion of the existing 160 ML storage. The final option (lining and covering a portion of the existing storage) was identified as the preferred option as it was deemed to provide greater security through additional storage and was more cost effective than constructing a second tank.

The draft Mitchell River Master Plan identified an additional 6 ML tank as the preferred solution. However, it did not provide an assessment against lining and covering a portion of the existing storage. It stated that all costs provided are indicative only and sourced from Issues Optioneering Reports (IORs) prepared for EGW's Water Plan 3. No NPV analysis has been performed.

#### Proposed costs

AECOM and East Gippsland Water prepared a detailed breakdown of cost items for the proposed 6 ML tank, which has been used to determine a P50 cost estimate. This estimate supersedes cost estimates provided in the IOR and draft Mitchell River Master Plan.

## Proposed timing

The draft Mitchell River Master Plan states that the construction of a new 6 ML storage is required during WP3. However the recommendations section of this report notes that design and investigation associated with the Sarsfield storage capacity increase was required during WP3 but construction could be deferred to WP4 if necessary.

East Gippsland Water stated that the subsequent review of the draft document (draft Mitchell River Master Plan) by operations staff identified some deficiencies in the approach and in response the upgrade is now required in WP3. These details are currently being finalised as part of the Mitchell River Water Master Plan process.

### 5.8.2 Analysis and recommended adjustments

East Gippsland Water has experienced emergency events (flood or fire) on an almost annual basis in recent years and emergency storage is a key consideration in maintaining the delivery of their water services. East Gippsland Water has identified that an additional 6 ML storage is required at Sarsfield.

In our Draft Report we noted that the timing and requirement for an additional 6 ML storage was unclear. There were inconsistencies in the draft Mitchell River Master Plan and it was unclear whether the most cost effective solution was a new 6 ML tank or lining and covering a portion of the existing 160 ML storage.

Since our Draft Report, East Gippsland Water has finalised the Mitchell River System Drinking Water Master Plan, which clearly and consistently states that additional storage is required at Sarsfield. East Gippsland Water has also confirmed that a new 6 ML tank is the preferred solution.

We are now satisfied that that additional storage is required at Sarsfield in WP3 and a new 6 ML tank is the preferred solution.

## Recommendation

The need for East Gippsland Water to maintain services during emergency events to meet supply requirements is clear. In accordance with our analysis above, we recommend that the proposed 6 ML tank at Sarsfield be accepted unchanged, as shown in Table 5-7 below.

**Table 5-7 Proposed and recommended expenditure for Sarsfield-additional tank or liner (\$m, 01/01/2013)**

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Sarsfield-additional tank or liner	Proposed	0.19	2.30	0.00	0.00	0.00	2.49
	Recommended	0.19	2.30	0.00	0.00	0.00	2.49
	<b>Net change</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 5.9 Bairnsdale Sewer Master Plan Bridge SPS

### 5.9.1 Business proposal

This project involves the construction of a dedicated sewer rising main from the Bridge sewer pump station (SPS) to the inlet of the Bairnsdale wastewater treatment plant (WWTP) to achieve compliance and accommodate growth in the Bridge SPS catchment.

### Key drivers

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

East Gippsland is required to comply with the requirements of the EPA State Environment Protection Policy (SEPP) and demonstrate that its sewerage systems contain the flows generated during a 1 in 5 year Average Recurrence Interval (ARI) rainfall event. Augmentation of the Bairnsdale sewerage system is required to achieve compliance and accommodate growth.

### Options analysis

The Bairnsdale Sewerage Master Plan shows the results from the whole-of-system analysis that was undertaken to determine the optimal solution to augment the Bairnsdale sewerage system to achieve environmental compliance and accommodate forecast growth. Three options were analysed using a calibrated hydraulic model and assessed using a net present value assessment. Each option comprised a different arrangement of augmentations throughout the system.

A dedicated sewer rising main from the Bridge SPS to the inlet of the Bairnsdale WWTP was one of the augmentation requirements identified in the suite of works included in the preferred option identified in the Master Plan.

### Proposed costs

AECOM and East Gippsland Water prepared a detailed breakdown of cost items for the proposed dedicated sewer rising main (375 mm diameter, 3.3 km), which has been used to determine a P50 cost estimate. Many material and construction costs have been based on similar recent works. This estimate supersedes cost estimates provided in the IOR and draft Bairnsdale Sewerage Master Plan.

### Proposed timing

Forecast expenditure shows that the project delivery will commence in 2014-15 and be completed 2015-16. This will allow adequate time to complete the design and obtain planning approvals.

## 5.9.2 Analysis and recommended adjustments

East Gippsland Water has taken a strategic approach to determine augmentation requirements in the Bairnsdale sewerage system to achieve compliance and accommodate growth. The use of a calibrated hydraulic model has allowed East Gippsland Water to objectively confirm the need for works and determine the optimal solution.

In our Draft Report we recommended reducing the forecast expenditure by \$0.12m. This was based on the likelihood that the compounding approach used to determine the AECOM cost (design, construction supervision, project management and admin) and East Gippsland Water's overheads would result in an over-estimation of expenditure.

In response, East Gippsland Water recommended that the proposed expenditure be retained, citing that:

- AECOM has had extensive experience in delivering a wide variety of East Gippsland Water projects, which allows them to estimate expenditure with relatively high accuracy
- Design, construction supervision, project management and admin typically account for 20-25% by industry standards
- A reduction in expenditure would necessitate reduced project management and an unacceptable escalation of project risk.

There is a risk that a compounding approach could lead to expenditure being overestimated. However, further analysis has shown that the total allowances for AECOM costs and East Gippsland Water overheads for this project are similar to other project cost estimates relative

to the total project cost (typically 30%), and we are satisfied that proposed expenditure for this project is reasonable.

### Recommendation

The need for East Gippsland Water to construct a dedicated sewer rising main from the Bridge SPS to the Bairnsdale WWTP to meet regulatory and customer obligations is clear. In accordance with our analysis above, we recommend that the proposed project be accepted unchanged, as shown in Table 5-8 below.

**Table 5-8 Proposed and recommended expenditure for Bairnsdale Sewer Master Plan Bridge SPS (\$m, 01/01/2013)**

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Bairnsdale Sewer Master Plan Bridge SPS	Proposed	0.00	0.25	2.01	0.00	0.00	2.26
	Recommended	0.00	0.25	2.01	0.00	0.00	2.26
	<b>Net change</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 5.10 Water renewals

### 5.10.1 Business proposal

The program relates to the capital expenditure to replace water mains.

#### Key drivers

East Gippsland Water has identified asset renewal as the primary driver for this project. The aggregate age of water mains is increasing, which is resulting in increased failures. This poses a risk of adversely impacting the level of service provided to customers.

#### Program description

East Gippsland Water has adopted a service driven approach to replacing water assets. Forecast renewal expenditure is determined by using an extrapolation of observed failure rates to forecast the risk of failure for different water main materials. It is assumed that only a small fraction of the mains that experience a failure in any year will require renewal.

East Gippsland Water's expenditure for water main renewals over recent years has been in the order of \$0.3m p.a.

#### Proposed costs and timing

East Gippsland Water's forecast expenditure for water main renewals is relatively even during WP3 and equates to \$0.32m p.a. While this is slightly higher than expenditure in recent years (\$0.3m p.a.), it is significantly less than the average annual expenditure forecast under a service life replacement approach (\$1.1m p.a.).

The unit costs adopted for water main replacement have been based on East Gippsland Water's historical replacement works.

### 5.10.2 Analysis and recommended adjustments

East Gippsland Water has adopted a service driven approach to replacing water assets, which is deemed to be appropriate and prudent. Whilst there does not appear to be an increase in water main breaks,<sup>5</sup> we have noted that East Gippsland Water has significantly exceeded its performance target for unplanned water supply interruptions during WP1 and

<sup>5</sup> East Gippsland Water 2012, *Water Plan 2013-2018*, p.14

WP2. It is imperative that East Gippsland Water collects asset performance data and review asset failure rates on an ongoing basis.

### Recommendation

We recommend that proposed expenditure for the water renewals program be accepted unchanged, as shown in Table 5-9 below.

**Table 5-9 Proposed and recommended expenditure for Water renewals (\$m, 01/01/2013)**

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Water renewals	Proposed	0.32	0.33	0.34	0.35	0.36	1.69
	Recommended	0.32	0.33	0.34	0.35	0.36	1.69
	<b>Net change</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 5.11 Paynesville main supply pipeline (stage 2)

### 5.11.1 Business proposal

This project relates to capital expenditure to renew and upgrade the second stage of the main supply pipeline (MSPL) to Paynesville.

#### Key drivers

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

The MSPL to Paynesville is critical infrastructure that supplies Paynesville. Stage 2 of the MSPL comprises 3.5 km of 250 mm AC pipe. The asset will reach the end of its theoretical service life in 2023 and there are large uncertainties regarding the condition of the asset. There is a need to renew and upgrade the Stage 2 of the MSPL to meet service standards and growing demand in Paynesville.

#### Options analysis

The preferred solution identified in the IOR was to replace 3.5 km (stage 2) of the existing 250 mm diameter AC pipe with 375 mm diameter DICL pipe. The risk of doing nothing was deemed too great and it would be premature to replace and upgrade stage 3 of the Paynesville MSPL. The Draft Mitchell River Master Plan supports this recommendation.

#### Proposed costs

AECOM and East Gippsland Water prepared a detailed breakdown of cost items for the works associated with the installation of 3.5 km of 375 mm diameter DICL pipe, which has been used to determine a P50 cost estimate. This estimate supersedes cost estimates provided in the IOR.

#### Proposed timing

The IOR stated that all cultural heritage, native vegetation and planning permits for Stage 2 and 3 sections have previously been obtained prior to construction of Stage 1 works. The detailed design of pipeline had also been prepared. Pending timing of works the planning permit may need to be re-issued.

### 5.11.2 Analysis and recommended adjustments

The MSPL to Paynesville is critical infrastructure that supplies the communities of Paynesville and Eagle Point.

In our Draft Report we recommended that the project be excluded from the WP3 capital expenditure program until there was sufficient evidence to demonstrate its need. Specifically, we required information that:

- Supported the replacement of the asset 12 years ahead of its nominal service life
- Demonstrated there was insufficient transfer capacity in this section of the MSPL.

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

- The project is consistent with recommendations in the Final Mitchell River System Drinking Water Master Plan (finalised after our Draft Report)
- Anecdotal evidence suggests that the MSPL has burst a number of times
- The replacement of the pipeline serves other functions in addition to catering for future growth, including:
  - Significantly lowering the risk of a pipe burst (thereby reducing the reliance on emergency storage at Eagle Point)
  - Deferring the future need to provide additional balancing storage.

After further discussions with East Gippsland Water it became clear that the greatest risk faced by the business was that the MSPL would burst during a flood. East Gippsland Water advised that the area is flood prone and the MSPL was inaccessible for ten days during the flood in June 2012. If the MSPL burst under this scenario the MSPL could be inaccessible and unrepaired for weeks, leaving Paynesville and Eagle Point communities reliant on a stored supply that would run out under five days of average demand.

While we have some reservations about the project and the likelihood of a burst pipeline during a flood, we recommend that it be included in the WP3 capital expenditure program on the basis that the benefit of reducing the risk outweighs the cost of bringing forward an asset replacement by 12 years.

## Recommendation

The MSPL to Paynesville is critical infrastructure that supplies the communities of Paynesville and Eagle Point. In accordance with our analysis above, we recommend that the replacement and upgrade of stage 2 of the Paynesville MSPL be accepted unchanged, as shown in Table 5-10 below.

**Table 5-10 Proposed and recommended expenditure for Paynesville main supply pipeline (stage 2) (\$m, 01/01/2013)**

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Paynesville main supply pipeline (stage 2)	Proposed	0.00	0.12	1.37	0.00	0.00	1.49
	Recommended	0.00	0.12	1.37	0.00	0.00	1.49
	<b>Net change</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

## 5.12 Wy Yung basin

### 5.12.1 Business proposal

This project relates to capital expenditure to line and cover a portion of the existing (off-line) Wy Yung basin to increase clear water storage capacity by 40 ML.

#### Key drivers

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

The Wy Yung Basin is integral to the Mitchell River water supply system, especially in the event that supply is cut off from the Woodglen water treatment plant. East Gippsland Water has proposed to increase the capacity of the Wy Yung basin by an additional 40 ML to provide additional redundancy to provide services during emergency events.

Assuming works are undertaken to improve pump suction, in 2018 the emergency storage available in the Wy Yung Basin is forecast to be sufficient to meet three peak demand days. Whilst East Gippsland Water does not have a policy on emergency storage requirements, staff<sup>6</sup> indicated that it could take up to a week to restore supply to the Wy Yung Basin during a flood event.

East Gippsland Water has experienced emergency events (flood or fire) on an almost annual basis in recent years. Staff<sup>7</sup> indicated that the main supply line was inundated for 4-5 days during the recent flood event in June 2012 and has been inundated for up to 10 days in other floods.

### Options analysis

The draft Mitchell River Master Plan states that additional storage required is between 42 ML and 83 ML, and the final size will be driven by emergency response time required for Woodglen water treatment plant outage and repair of main supply pipeline.

The Wy Yung Basin IOR identified that lining and covering a portion of the existing (off-line) Wy Yung basin to increase capacity by 40 ML as the preferred option. Other options assessed include covering and lining all of the existing (off-line) basin and construction of a tank, and doing nothing.

### Proposed costs

Using the IOR as a basis, AECOM and East Gippsland Water prepared a breakdown of cost items for the proposed 40 ML storage, which has been used to determine a P50 cost estimate. This estimate supersedes cost estimates provided in the IOR and draft Mitchell River Master Plan.

### Proposed timing

The draft Mitchell River Master Plan states that additional storage is not required at Wy Yung Basin until at least WP4. This timing has been confirmed in the Final Mitchell River System Drinking Water Master Plan. East Gippsland Water's ten-year capital program shows that expenditure associated with this project would commence in late WP3 and be completed in early WP4.

## 5.12.2 Analysis and recommended adjustments

East Gippsland Water identified the need to increase clear water storage capacity at Wy Yung basin to provide additional redundancy to meet BAU obligations during emergency events as the main driver for this project in their initial proposal.

In our Draft Report we concluded that there would be adequate emergency storage available in the Wy Yung Basin in 2018 and recommended deferring the project by one year; planning and design be completed in WP3 and proposed works be delivered in WP4. This was determined on the basis that:

- In 2018, the emergency storage available in the Wy Yung Basin is forecast to be sufficient to meet three peak demand days. Given that it is unlikely that peak daily

<sup>6</sup> Robertson, S., pers comm. 28 November 2012

<sup>7</sup> Robertson, S., pers comm. 28 November 2012



demand will coincide with flood events, it is more likely that the Wy Yung basin will have sufficient storage to meet at least six average demand days.<sup>8</sup>

- It is therefore more likely that the Wy Yung Basin would have approximately six days emergency storage in 2018.
- A more prudent approach may be to develop an emergency response procedure and place customers on temporary restrictions until supply from the treatment plant is restored.

The recommendation in our Draft Report was consistent with the recommendation in the draft Mitchell River Master Plan and the final master plan,<sup>9</sup> which was completed after our Draft Report was submitted.

In response, East Gippsland Water stated that deferral of this project represents an unacceptable risk to customer service and the project was brought forward to the latter stages of WP3 for the following reasons:

- A key function of the Wy Yung basin is to provide balancing storage when peak demands exceed the headworks transfer capacity. The current storage bypass arrangements have insufficient capacity to meet demand during peak demand months. Operator experience during the recent peak demand event over the Christmas/New Year holiday period highlighted the vulnerability of the current bypass arrangements in the event that the main Wy Yung Storage is offline
- An alternative balancing storage would mitigate the risk of supply shortages during peak demand periods when the existing Wy Yung basin is out of service. A nearby water business was forced to place a storage offline due to vandalism of the cover and potential contamination to the drinking water supply (N.B. East Gippsland Water advised that it would be more cost effective to construct the proposed storage than augment the storage bypass)
- There are significant economies of scale with the proposed approach. It would be more cost effective to cover and line the proposed storage than construct a smaller tank to provide alternative storage in the short term
- Bringing the construction of the basin forward as proposed provides an adequate compromise between risk management and cost.

We have considered East Gippsland Water's views, but ultimately do not consider that the risks identified by East Gippsland Water warrant the project being undertaken in WP3. It would take a relatively rare set of events for the existing facilities to be unable to cope with a supply failure. Consistent with the Final Mitchell River System Drinking Water Master Plan we agree that additional storage is not required at Wy Yung Basin until at least WP4.

## Recommendation

In accordance with our analysis above we recommend that the Wy Yung project be removed from the capital program, as shown in Table 5-11 below.

**Table 5-11 Proposed and recommended expenditure for Wy Yung basin tank or liner (\$m, 01/01/2013)**

		2013-14	2014-15	2015-16	2016-17	2017-18	Total WP3
Wy Yung basin tank or liner	Proposed	0.00	0.00	0.00	0.21	0.90	1.11
	Recommended	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Net change</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>-0.21</b>	<b>-0.90</b>	<b>-1.11</b>

<sup>8</sup> Peak daily demand is typically 1.8 – 2.3 times average daily demand

<sup>9</sup> AECOM 2013, *Mitchell River System Drinking Water Master Plan*

## 5.13 Other issues

During our site visit East Gippsland Water flagged that a significant project (Mitchell River water main crossing, Lind Bridge) was likely to be added to the WP3 capital expenditure program outlined in their initial proposal. East Gippsland Water formally proposed that this unplanned expense be added to their WP3 capital expenditure program in their response to our Draft Report.

The MSPL is the sole supply for Bairnsdale and Paynesville, failure of this asset would represent a significant risk for East Gippsland Water in supplying 80% of their customer base. East Gippsland Water recently discovered and repaired two leaks on the MSPL from Wy Yung storage to Bairnsdale where it crosses the Mitchell River at Lind Bridge. Repair works identified that the condition of the MSPL at the river crossing was worse than previous investigations indicated and is still leaking at present.

Due to the very high risk presented by the degraded condition of this section of the pipeline and its location, East Gippsland Water has brought forward project delivery to allow urgent replacement of the section of pipeline, ten years ahead of its nominal asset life. East Gippsland Water has awarded contracts (\$3.2m) for this project and works are expected to commence during February and be completed by August 2013.

East Gippsland Water has provided an IOR for this project, which outlines the assessment of a range of options and recommended directional drilling under Mitchell River as the preferred option, as it would allow timely replacement of the asset and numerous long-term advantages, such as asset protection during a flood.

The need for the project and its urgency is clear. We are satisfied with the preferred option that has been recommended due to the long-term advantages, and a 10% contingency on top of the tendered price appears reasonable given the work involved. Accordingly, we recommend that the proposed project be accepted unchanged.

## 5.14 Summary of our recommendations

Our recommended adjustments to East Gippsland Water's capital expenditure forecast over the next Water Plan are outlined in Table 5-12.

**Table 5-12 East Gippsland Water's forecast capital expenditure and recommended adjustments (\$m, 01/01/2013)**

Capital expenditure item	Water Plan forecast					Total WP3	
	2013-14	2014-15	2015-16	2016-17	2017-18		
Bairnsdale WWTP upgrade	Proposed	0.00	0.00	0.00	1.02	4.19	<b>5.21</b>
	Recommended	0.00	0.00	0.00	1.02	4.19	<b>5.21</b>
	Net change	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>
Corporate vehicles	Proposed	0.76	0.51	0.67	0.66	0.69	<b>3.31</b>
	Recommended	0.76	0.51	0.67	0.66	0.69	<b>3.31</b>
	Net change	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>
Wastewater lagoon desludge	Proposed	0.59	0.59	0.59	0.59	0.59	<b>2.95</b>
	Recommended	0.15	2.19	0.17	0.17	0.17	<b>2.83</b>
	Net change	-0.44	1.60	-0.42	-0.42	-0.42	<b>-0.11</b>
IT hardware/	Proposed	0.79	0.47	0.43	0.61	0.44	<b>2.73</b>

Capital expenditure item		Water Plan forecast					Total WP3
		2013-14	2014-15	2015-16	2016-17	2017-18	
software	Recommended	0.79	0.47	0.43	0.61	0.44	<b>2.73</b>
	Net change	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>
SCADA upgrade and support	Proposed	0.44	0.48	0.50	0.60	0.52	<b>2.55</b>
	Recommended	0.44	0.48	0.50	0.60	0.52	<b>2.55</b>
Sarsfield- additional tank or liner	Proposed	0.19	2.30	0.00	0.00	0.00	<b>2.49</b>
	Recommended	0.19	2.30	0.00	0.00	0.00	<b>2.49</b>
Bairnsdale Sewer Master Plan Bridge SPS	Proposed	0.00	0.25	2.01	0.00	0.00	<b>2.26</b>
	Recommended	0.00	0.25	2.01	0.00	0.00	<b>2.26</b>
Water renewals	Proposed	0.32	0.33	0.34	0.35	0.36	<b>1.69</b>
	Recommended	0.32	0.33	0.34	0.35	0.36	<b>1.69</b>
Paynesville main supply pipeline (stage 2)	Proposed	0.00	0.12	1.37	0.00	0.00	<b>1.49</b>
	Recommended	0.00	0.12	1.37	0.00	0.00	<b>1.49</b>
Wy Yung basin tank or liner	Proposed	0.00	0.00	0.00	0.21	0.90	<b>1.11</b>
	Recommended	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>
Total proposed	Proposed	0.00	0.00	0.00	-0.21	-0.90	<b>-1.11</b>
	Recommended	0.00	0.00	0.00	-0.21	-0.90	<b>-1.11</b>
Total proposed		7.77	11.52	9.06	7.70	10.01	<b>46.06</b>
<b>Recommended capital expenditure</b>		7.33	13.11	8.64	7.07	8.69	<b>44.84</b>
Recommended adjustments from proposed		-0.44	1.60	-0.42	-0.63	-1.32	<b>-1.22</b>

Notes: The proposed figures in the table above reflect East 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. The report 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.