# Expenditure Forecast Review for the Victorian Regional Urban Water Businesses

- GIPPSLAND WATER
- Assessment of Water Plan Expenditure Forecasts

  FINAL REPORT
- 27 March 2008

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# Contents

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# 1. Introduction and Background

Sinclair Knight Merz has been engaged by the Essential Services Commission (ESC) to undertake an independent review of the expenditure forecasts provided by the following eleven Victorian regional urban water businesses as part of their Water Plan submissions for the 5 year regulatory period commencing 1 July 2008 and ending on 30 June 2013:

- Barwon Water;
- Central Highlands Water;
- Coliban Water;
- East Gippsland Water;
- Gippsland Water;
- Goulburn Valley Water;
- North East Water;
- South Gippsland Water;
- Wannon Water;
- Western Water;
- Westernport Water.

The key objectives of the reviews are to determine whether the capital and operating expenditure forecasts in the Water Plans are:

- Reasonable and prudent;
- Appropriate in relation to key drivers and obligations;
- Robust and justifiable (with adequate demonstrated supporting analysis and systems); and
- Deliverable over the 5 year regulatory period.

In undertaking these reviews, SKM'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; and
- Where SKM's advice indicates that a proposed expenditure level is not appropriate, propose to the ESC a revised expenditure level.

The key outputs to be provided to the ESC in relation to these reviews are:

- Issues papers: 23 November 2007;
- Draft Reports (one report for each water business): 31 January 2008; and
- Final Report: 5 March 2008,

[or other date agreed with the ESC].

A draft report, presenting the review team's preliminary views on the proposed expenditure forecasts and the further work undertaken to clarify the issues identified in the Issues Paper, was submitted to the ESC for the various businesses between late January and mid February 2008. The Draft Report, including preliminary recommendations, was made available to the relevant regional urban water business for its review and feedback. Gippsland Water provided a written response and a further meeting and discussions with the business were undertaken to clarify any remaining issues, to ensure any factual errors or misinterpretations were corrected and to help the review team formulate its final recommendations.

This Final Report, which constitutes the third key output of this review, presents final recommendations on adjustments to be made to the operating and capital expenditure forecasts from the review.

## 1.1 Report Outline

The following layout has been adopted for this Draft Report:

- **Section 2** briefly describes the approach taken for the expenditure forecast review;
- **Section 3** discusses the key general issues that arose, common to many if not all of the water businesses, that provided a key focus for further more detailed review;
- **Section 4** provides background on the process used by the review team to form its view on the expenditure forecasts and identifies some of the key issues faced by the water business driving expenditure during the second regulatory period;
- **Sections 5 and 6** respectively address the issues identified for Gippsland Water's capital and operational expenditure forecasts, and contain recommendations as to adjustments to be made to the forecasts and capital contributions, as appropriate.

# 2. Approach to the Review

## 2.1 Assessment of Operating Expenditure

The key item in assessing operating expenditure is the evaluation of the additional operating costs relative to actual operating costs incurred in 2006/07. These additional costs were assessed and changes recommended in order to achieve a productivity improvement during the second regulatory period. This is discussed in **Section 2.1.1** below.

### 2.1.1 Evaluating Productivity Improvement

The ESC has recommended that a productivity gain of 1% per annum, growth adjusted, should be assumed. In instances where the forecast level of the OPEX that is controllable by the business does not exhibit the desired level of productivity gain and/or there are increases above the assumed productivity, clarifying explanations for this will be sought.

The procedure proposed to test the increase above appropriately growth adjusted Business As Usual (BAU) operating expenditure is as follows. For each year of the regulatory period:

1) Establish a **Growth Adjusted Target BAU Opex** (BAU refer below for it's determination),
2) Compare the water business' **Forecast Gross Opex** for that year (as identified in its Water Plan) with the Growth Adjusted Target BAU Opex;
3) Establish the **"Variance from Growth Adjusted Target BAU Opex**" [Item (2) less Item (1) above]; and,
4) If the "Variance from Growth Adjusted Target BAU Opex" is positive (i.e. the Growth Adjusted Target BAU Opex is less than the Forecast Gross Opex), seek an explanation of the activities and the related expenditure comprising this difference.

The Variance from Growth Adjusted Target BAU Opex is a starting point for discussions and SKM will be considering the make-up of the positive variances and the justification and reasonableness of them with the water business. There will potentially be a variety of explanations.

Further elaboration of this proposed procedure and determination of the above parameters is provided below:

- The **Growth Adjusted Target BAU Opex** (BAU = business as usual) for a particular year will be determined by taking the actual gross operating expenditure for the business for the most recently audited full year's operation (i.e. Actual Gross Opex in 2006/07), subtracting the expenditure for licence fees, purchases of bulk water and the environmental levy, adjusting the remaining expenditure upwards in proportion to the growth in customer numbers that has

occurred since 2006/07 and then reducing this amount by the ESC's stipulated minimum productivity gain of 1% p.a. year on year.

Thus the formula applied to establish the Growth Adjusted Target BAU Opex is:

- $A = B *( C_{(year\ n)} / C_{(year\ 2006/07)} ) * (1-0.01)^{(year\ n\ -2006)}$ **Equation 1**

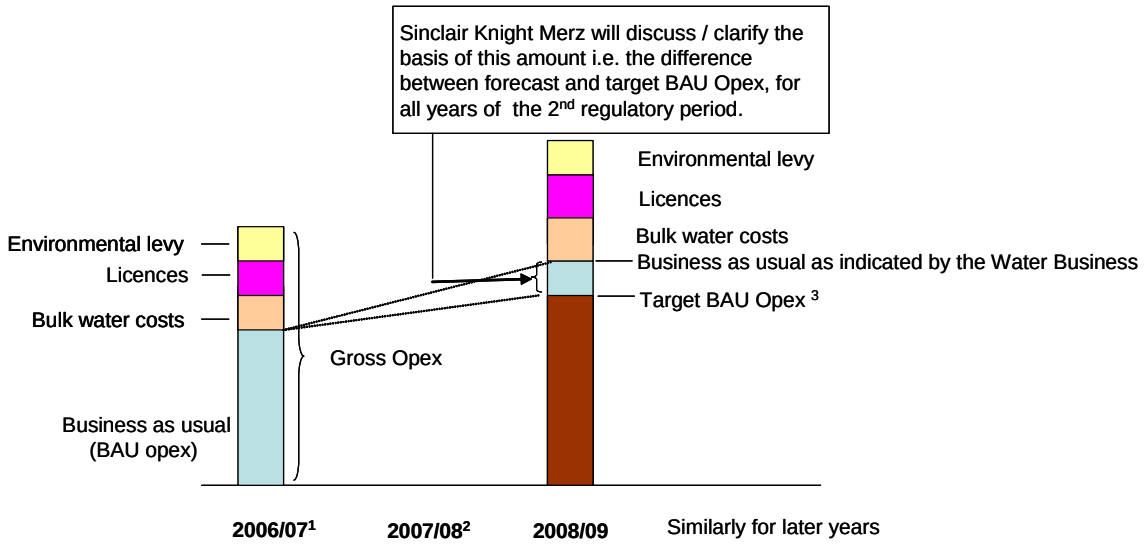
Where **A** is the Growth Adjusted Target BAU OPEX for year n;

**B** is the actual audited Gross Opex in year 2006/07 excluding costs for licence fees, environmental levy and water purchases.

**C** is the number of water supply customers (for the year indicated).

This is illustrated schematically in **Figure 1** below.

- **Figure 1: Illustration of Growth Adjusted Target BAU Opex**




**Notes:**

1. 2006/07 was selected by the ESC as the base year because this is most recent year for which recorded data is available.
2. 2007/08 is outside the 2nd regulatory period and will not be assessed in detail.
3. Target BAU Opex is estimated from BAU Opex in 2006/07 allowing for growth in customer numbers and productivity gains of 1% per annum (cumulative).

### 2.1.2 Issues which the ESC will resolve

The ESC will review and resolve the amounts to be budgeted for Licence fees, Environmental Levy, and the tariffs applicable to bulk water purchases (if any). These issues thus fall outside the scope of SKM's review.

It should be noted however that the forecast volumes of bulk water purchases fall within the scope of the SKM review. In so far as the assessment of bulk water purchases and the related expenditure impacts on Gippsland Water's expenditure forecasts the review team has relied on the outcomes of the preliminary review of the demand forecasts undertaken by PWC.

### 2.1.3 Water Demand Forecasts

Information on the review of the demand forecasts undertaken by PWC for the ESC was made available to the SKM review team and was considered at least to the extent that the outcomes of that review were consistent with the demand forecasts influencing this expenditure review.

## 2.2 Assessment of Capital Expenditure

The process for reviewing capital expenditure forecasts is summarised below:

- A number of projects were selected, on a sample basis, but including any projects comprising a significant proportion of the total forecast capital expenditure;
- The selected projects were reviewed to confirm that the following criteria would be met:
  - **Appropriate in relation to key drivers and obligations** - with evidence provided of such drivers and in accordance with the Statement of Obligations that sets outs the responsibilities of each of the Water Business;
  - **Robust (with adequate demonstrated supporting analysis and systems)** - as may be demonstrated by a report which clearly enunciates the problem faced by the water business, and sets out the analysis undertaken of the options to resolve that problem and identifies the preferred solution. Evidence may also be sought to demonstrate that the preferred solution falls with in the overall strategy adopted by the water business.
  - **Deliverable over the 5 year regulatory period**. Usually evidenced by a Gantt chart, or similar detailed program, demonstrating that the key activities comprising the delivery of the project from planning to construction have been identified and thought through, and assigned an appropriate sequence and duration.
  - **Reasonable Cost Estimate**. The cost estimate is well supported either by a schedule of quantities using typical rates currently being experienced in the industry, or compare favourably with other similar projects or preferably both of the above.

# 3. General Issues

## 3.1 Issues Identified for Capital Expenditure

### 3.1.1 Pressure on Resource Availability

Expenditure on capital works in the Victorian water industry, based on data provided by all (metropolitan and regional) the water businesses in Victoria is expected to increase dramatically as shown in **Table 3-1.**

- **Table 3-1: Historical and Forecast Total Capital Expenditure in the Victorian Water Industry**

| | 1st regulatory period | | | 2nd regulatory period | | | |
|---|---|---|---|---|---|---|---|
| **Year** | **2006/07** | **2007/08** | **2008/09** | **2009/10** | **2010/11** | **2011/12** | **2012/13** |
| **Expenditure ($M / year)** | 950 | 1,680 | 2,800 | 3,220 | 2,150 | 1,000 | 820 |

The aggregate capital expenditure levels for the Victorian water industry are forecast to increase steeply from current capital expenditure levels in the first three years of the second regulatory period and then decrease but remain high for the final two years of the regulatory period. This is expected to place great pressure on available resources - in the water businesses themselves, the consulting sector and the contractors, especially in the first three years of the second regulatory period (RP2). Although this pressure may be mitigated somewhat as some of the large projects, such as the proposed Sugarloaf Pipeline for Melbourne, may not consume such large amounts of resources as the costs of those projects alone may indicate, the pressure is nevertheless expected to be severe. Furthermore, it will be exacerbated by high to very high workload levels in other infrastructure areas such as transport and in the mining sector. A positive aspect is the constructor resources coming off some of the big road projects currently nearing completion (e.g. Eastlink).

The limitations on pipeline supply, particularly steel pipeline, is a particular constraint facing the industry at present requiring businesses to place orders early or face price premiums for accelerated delivery.

In considering project deliverability and in reviewing the expenditure forecasts therefore the review team has considered the urgency of projects whose expenditure is forecast for the first three years of the second regulatory period and in some cases spread this expenditure and/or reassigned the expenditure to later years.

### 3.1.2 Country Towns Water and Sewerage Program

The Country Towns Water Supply and Sewerage Program is a program managed by the Department of Sustainability and Environment in which the Government of Victoria will invest amounts as follows totalling $42 million (including some overlap between categories).

- $21 million in water and sewerage services for priority towns with the most urgent health and environment issues.
- $12 million on towns in the Gippsland Lakes area;
- $6 million on "showcase" towns that will develop innovative solutions that other towns can learn from;
- $4 million in upgrading water supply in towns with the most urgent problems; and
- $3 million in helping councils to prepare domestic wastewater management plans.

In January 2006 the Victorian Government announced the 35 priority country towns which would receive sewerage systems (23 towns) and /or improved water supplies (14 towns). The media announcement of January 9, 2006 states that the "statewide program aims to stop leaking septic tanks polluting rivers, groundwater and other waterways and damaging the environment".

While the obligation to undertake these works, comprising the media announcement concerning the sewerage schemes in the Gippsland Lakes region and "priority towns" is understood, the review team is not aware of any specifications concerning timing associated with this obligation.

The review team recommends that the ESC should seek stronger guidance from DSE and the government on the priority, business decision framework/rules and funding arrangements in the light of current market conditions (and project costs) for these proposed schemes.

In terms of the business case for these projects the review team is not in a position to form a firm view on the business / financial merits of proceeding with these schemes. We understand however that implementing these schemes requires cross subsidy from existing customers. Our general recommendation therefore is to defer the regulatory expenditure concerned so as to minimise the adverse impact on customers and reduce the impact on water price increases.

## 3.2 Issues identified in relation to Opex forecasts

The preliminary reviews of the Water Plans and the operational expenditure forecasts focussed particularly on items brought forward by the businesses to explain the Variance from Target BAU Opex. Effectively this comprised a list of activities where the costs are for new obligations, operating new infrastructure or increased costs for existing activities. In this way the major issues for each business were identified and formed the basis of the reviews producing the outcomes as outlined in **Section 6** of this report. In addition the following key issues were identified that required consideration in relation to some or all of the businesses.

### 3.2.1 Energy (Electricity)

#### 3.2.1.1 Overview

Most water businesses have proposed **additional energy costs** throughout the regulatory period as a factor contributing to the explanation of the variance in BAU Opex. The following considers some of the issues relevant to this increased expenditure.

For a number of businesses, the current energy contracts with electricity suppliers were due to expire and be renewed with effect from around July 2008. In most cases the new agreements or contracts to cover the period beyond 1 July 2008 have not been executed. Consequently new tariffs were not yet established at the time of the Water Plan submission and the expectation was that significant increases throughout the regulatory period would occur.

The cost of electricity in 2006/07 generally ranged from about 5 to 13% of the total operational expenditure for regional urban water businesses in Victoria.

The water businesses, based on broad information provided to them from various sources in mid to late 2007, have in their Water Plans submitted variously put forward real increases in electricity costs over the second regulatory period ranging from

- No or minimal provision for real electricity cost increases relative to 2006/07 excluding new demands (e.g. Goulburn Valley Water, Central Highlands Water), to
- Substantial real electricity cost increases of up to 100% relative to 2006/07 (e.g. Barwon Water, Wannon Water). Such cost increases were a combination of predominantly price effects but also demand effects and other relevant impacting assumptions.

The review team notes that prices in the electricity market (and specifically the wholesale market) have moved considerably since the submission of the Water Plans and continues to have some volatility. However it is clear that the electricity prices have fallen considerably and reconsideration by the water businesses of this issue is appropriate.

The review team also notes that the current electricity contracts were for a three period and the negotiations for these were undertaken in circa early 2005 with effective operation from 1 July 2005. The base year of 2006/07 sits in the middle of the contract period.

In response to the Draft Report most businesses took further advice on the potential real increases in electricity costs. Notably, following provision of the Draft Reports to the respective water businesses, North East Water and Central Highlands Water provided the review team with copies of advice they had received from independent specialists in this area (Key Energy & Resources and Marsden Jacobs respectively). One business is well advanced in obtaining firm electricity prices for the next three years.

Based on circumstances prevailing at late February early March, this advice generally proposed that a likely outcome on real electricity prices (and therefore costs) over the regulatory period would be a flat increase of some 19 to 24 % overall (with the wholesale cost component being the primary influencer of this). [NB: It needs to be confirmed that there are no nominal (versus real) effects to be resolved.]

In summary, and as detailed in the rest of this section, the review team considered that these views took a slightly "pessimistic" or cautious view of the likely outcomes of electricity price increases to be negotiated by the water businesses before 30 June 2008. The methodology used by these advisers is broadly consistent with the strategic overview approach adopted by the review team in assessing likely electricity price outcomes.

The review team has concluded and recommends that the following increases in electricity energy prices should be adopted for regulatory expenditure purposes:

- 2008/09 12% (*relative to costs incurred in the base year, 2006/07)*
- 2009/10 onwards 15% (*relative to costs incurred in the base year, 2006/07).*

The review team notes the differences of views that the water businesses have on real electricity price increases (and their cost impacts). As is natural the water businesses have been cautious from a business management viewpoint in formulating their positions and it is expected that this would be moderated when viewed from a regulatory pricing position and the extent to which such costs should be incorporated into a reset regulatory "BAU" expenditure base. These differences will only be resolved when the water businesses enter into and conclude their respective negotiations with electricity providers. The review team notes that most businesses intend to adopt a similar approach as for the current contracts and use the Strategic Purchasing Unit to negotiate prices.

The review team recommends that the ESC revisit this issue following release of its Draft Pricing Determination and in moving to its final determination. This is prudent because this decision (given its significant impacts) needs to be made with the best and contemporaneous information when making its final determination and the water businesses should be well advanced in its negotiations for new electricity contracts that all will need to be entered into before 30 June 2008.

The review team has formed its views on real electricity price increases (underpinning cost impacts) using the approach described in the remainder of this section.

#### 3.2.1.2 Proposed Increase in Energy Tariffs:

The components of the delivered cost of electricity (which are separated into peak and off-peak components for larger users) are:

- Wholesale forward price

- Profile cost (represents the extent to which the actual load shape is correlated to the NEM pool price over a day/week/month etc)
- Losses adjustment (for transmission losses (MLF) and distribution losses (DLF))
- Transmission Use Of System costs (TUOS)
- Distribution Use of System Costs (DUOS)
- NEMMCO (National Electricity Market Management Company) fees
- Ancillary services charges
- MRET (mandatory renewable energy target) costs
- VRET (Victorian renewable energy target) costs
- Retailer's margin.

The *transmission cost* and the *distribution cost* are the other major components of the delivered cost of electricity, and together with the *wholesale forward price* make up between **80 to 90 %** of the total energy price.

Transmission Use of System costs **(TUOS)** and Distribution Use of System Costs **(DUOS)** are both regulated costs and represent approximately **40 to 50%** of the overall energy price. These cost components of the total energy price are generally constant (i.e. are increasing at CPI) or are declining in real terms. [NB: This is different from 'standing offer customers' where real increases in TUOS and DUOS of up to 17% have been recently experienced.]

Of the balance of the components of the total energy price:

- The retail, which are negotiable, and other costs make up approximately 5 to 13% of the total energy price.
- MRET and VRET charges were minor in 2002 but are rising to become a more significant cost element as these programs transition up to full effect.
- Many of the other charges rise consequentially because they are often determined as a percentage of the other charges (e.g. margins, losses etc).

***Impacts of Carbon Trading Scheme***

From sometime in 2010 to 2012 a carbon trading scheme is expected to be implemented in Australia which will have a material impact on electricity prices but that impact cannot be estimated until the design of the scheme (notably the "glide-path" for emissions reductions) is known (expected to be known in 2009 or 2010). The review team has not considered the impacts of this increase here and have assumed that any material price impacts would be reviewed by the ESC later and, if appropriate, adjustments made.

*Future Price Movements (Aggregate level)*

The ***wholesale forward price*** has risen considerably recently. Some of the drivers for this are seen to be the tightening of the supply/demand balance and the drought (which impacts on the ability of some generators to operate). However the futures market sees the wholesale forward price declining. The ***wholesale forward price*** is the principle variable component of the cost of electricity and currently makes up approximately **40 to 50%** of the total energy cost.

The wholesale forward price of electricity may be obtained from the Futures Market. Although prices are volatile on this market it reflects current market perceptions of the future wholesale forward price. **Table 3.2** provides a market view of wholesale forward prices for Victoria at January 2008 (Draft Report stage), adjusted to real January 2007 prices by assuming a CPI of 2.5%, and averaged to cover financial rather than calendar years. The increase with respect to 2006/07 has then been calculated.

- **Table 3-2: Victorian Electricity Futures - Wholesale Forward Price only (Draft Report Stage, January 2008)**

| Calendar year | Forward unit cost for calendar year ($/MWh – real Jan 07) | Financial year starting | Forward unit cost for financial year | % REAL increase in wholesale forward price - relative to 2006/07 |
|---|---|---|---|---|
| 2006 | 41.89 | | | |
| 2007 | 43.13 | July '06 | 42.51 | |
| 2008 | 59.54 | July '07 | 51.34 | 21% |
| 2009 | 45.95 | July '08 | 52.75 | 24% |
| 2010 | 43.52 | July '09 | 47.73 | 5% |

The market is anticipating that current steep prices will decline in future and this is already reflected in Queensland (see Financial Review article in Appendix A) where drought breaking rains have occurred. There had been further movements in prices by the time of commencing preparation of the Final Report (from those at the Draft Report stage).

In forming its views the review team has been primarily informed by the information in the following:

- **Table 3-3** – which provides a view of the wholesale forward prices now (flat contract forward in nominal $/MWhr as at 4 March, the date of commencing preparation of the review team's Final Reports on the expenditure reviews) and which will provide a backdrop to the current electricity price negotiations of the water businesses; and
- **Table 3-4 –** which provides an indicative view of the wholesale forward prices in late 2004/early 2005 (flat contract forward in nominal $/MWhr) and which provided a backdrop to

price negotiations at the time of entering into the current electricity contracts. [NB: The market appeared to be reasonably stable at that time.]

- **Table 3-3: Wholesale Prices - Flat Contract forward as at 4 March 2008**

| Wholesale Prices - Flat Contract forward as at 4 March 2008 (in nominal $/MWhr) | | | |
|---|---|---|---|
| State | Calendar Year | | |
| | 2008 | 2009 | 2010 |
| NSW | 40.26 | 46.51 | 52.87 |
| Vic | 42.09 | 45.6 | 51.22 |
| QLD | 50.2 | 44.87 | 47.03 |
| SA | 69.8 | 60.51 | 50.03 |

- **Table 3-4: Wholesale Prices - Flat Contract Forward circa 2005 contract negotiations**

| Wholesale Prices - Flat Contract Forward circa 2005 contract negotiations (in Nominal $/MWhr) | | | | |
|---|---|---|---|---|
| State | Calendar Year | | | |
| | 2005 | 2006 | 2007 | 2008 |
| NSW | 35.5 | 36.5 | 37 | 38 |
| Vic | 33 | 34 | 34.5 | 35.5 |
| QLD | 33 | 35 | 35.3 | 36 |
| SA | 39 | 41 | 41 | 42 |

### 3.2.1.3 Overall Approach:

In forming its view the review team has adopted the following overall approach:

- Establish from **Table 3-3** the "average" Victorian wholesale electricity price (flat forward contract) for the period of the current contract based on the generally prevailing market view of prices at the time of the negotiations for the current contract. This is assumed to be the average of the 2006 and 2007 calendar year prices, namely $34.3/MWhr. Fortuitously this also happens to be the base year for the current expenditure review.
- Escalate this price to current day dollars (assuming only 2.5% p.a. escalation). This yields a price for comparison with current view of 2008/09 prices of $36/MWhr.

- Compare this with the 2008/09 (average of calendar prices for 2008 and 2009 from **Table 3-4**, namely $43.9/MWhr). This yields an effective real increase in this wholesale price of 22% for 2008/09 relative to 2006/07.
- This can be repeated for other years. For 2009/10 the point of comparison is with the conversion of the average 2009 and 2010 calendar year prices de-escalated to give comparison in real terms. This yields an effective real increase in this wholesale price of 30% for 2009/10 relative to 2006/07.
- Assume that the real increase for 2009/10 (relative to 2006/07) also applies for the later years of the regulatory period.
- Input these real wholesale price increases into a spreadsheet assessment for the real overall price increases taking into account all components of the price as indicated in **Section 3.1.2** and their real movements, noting that the wholesale price component is the most volatile and represents approximately 40 to 50% of the overall price.

[NB: The real cost increases are relative to 2006/07, not year on year cumulative. Choosing other states and/or a mix of states may give rise to a lower percentage increase, noting that this is a national market. The forward prices also probably include a higher escalation factor than has been assumed by the review team].

For any water businesses demonstrating completed contracts with electricity suppliers covering the second regulatory period the forecast expenditure for energy purchases was based on the tariffs contained in that contract. The review team also understands that contracts being entered into currently appear to be for a three year period.

***Recommendations***: The review team recommends, based on the above approach, that the following increases in energy prices should be adopted for regulatory expenditure purposes:

- 2008/09 12% (*relative to costs incurred in the base year, 2006/07)*
- 2009/10 onwards 15% (*relative to costs incurred in the base year, 2006/07).*

In making these recommendations the review team also:

- Notes that these increases do not include changes in demands (as these are dealt with separately for the respective businesses; and they do not include any future impact of carbon trading on future prices.
- Recommends that the ESC review the real electricity price increases expected on the basis of any further and better information available during the period following release of its Draft Pricing Determination and before the final determination.

The review team has applied these real increases in electricity costs consistently across all the water businesses.

### 3.2.2 Green Energy

The ESC indicated in its' Water Plan Issues Paper (December 2007) that many water authorities had forecast increases in operating expenditure due to implementing greenhouse gas (GHG) management strategies. Water authorities provided a number of reasons for implementing such strategies, including EPA requirements for licensed premises, statement of obligations requirements to develop greenhouse gas reduction strategies and the results of customer consultation which indicated that customers were willing to pay for (or contribute towards) carbon neutrality.

No water authority cited any requirement that set specific targets it was compelled to achieve. Within the regulatory period, reduction targets ranged between 0 percent and 30 percent, with some large new projects such as the Goldfields Superpipe targeting GHG neutrality (as mandated by government for that project).

The review team considered that GHG targets of the businesses should typically be in the range 10 to 15% (for the assessment of expenditure for regulatory pricing purposes). This is understood to be broadly consistent with government expectations at this stage.

The EPA outlines four broad categories of carbon offsets (EPA web site) including, bio-sequestration (e.g. tree planting), energy efficiency, renewable energy and greenhouse gas avoidance, capture and destruction projects. Water authorities who propose to reduce their greenhouse gas emissions and set themselves specific targets propose to undertake a range of activities that fit into these categories. The majority of authorities are proposing to review the energy efficiency of their assets in preference to buying green energy or carbon offsets. Some water authorities propose to buy green energy and carbon offsets.

The price of green energy and carbon offsets can depend on the "quality" of the energy/offset being offered. Some carbon offsets offered by the market are not accredited and even those that are accredited can be of a different "quality". A report produced by RMIT Global Sustainability, "Carbon Offset Providers in Australia 2007" compares products offered by 15 different carbon offset providers. The report found that there is a significant difference in price charged per tonne of offset, with tree planting focussed providers charging approximately $9 to $13 per tonne of $CO_2$ offset and renewable energy oriented providers charging between $20 and $40 per tonne of $CO_2$ offset.

The review of greenhouse gas reduction strategies considered the process that water authorities went through to set targets, strategies and budgets. Budgets which resulted in an effective price per tonne of carbon offset consistent with the RMIT report were considered reasonable.

For the purposes of this assessment the review team considers that an appropriate reasonable benchmark cost for carbon offsets is $20 per tonne of $CO_2$. It is acknowledged that the market is relatively immature and future prices may fluctuate.

### 3.2.3 Labour and staff costs

***"EBA" real increases***: Real increases (i.e. increases in excess of CPI) in overall employment costs were not generally considered as contributing to extraordinary growth in operational costs as they should be offset by improvements in productivity. Thus it could be argued that increased salary costs negotiated in enterprise bargaining agreements (EBA's) above CPI do not form part of the Variance to BAU Opex.

It is acknowledged that high levels of employment nationally may serve to drive up labour costs particularly in areas of skills shortage. In current conditions it is expected that professional technical specialists would be expected to command higher percentage increases than the average, while others lower.

We note the government's directive to its businesses that labour cost increases should be contained to approximately 3.25% per annum in nominal terms.

In summary, for this review labour cost increases of CPI + 1.25% were considered as reasonable. Increases above this are assumed to be absorbed in productivity offsets and not form the basis of increased operating expenditure above the Target BAU Opex. The allowance for a real increase of 1.25% p.a. (cumulative) on base labour costs was applied consistently across all water businesses.

The real labour cost increases of 1.25% p.a. (above CPI) are the only component of labour cost increases (fixed number of personnel) which are considered justifiable in terms of explaining the Variance from Target BAU Opex. The CPI increase does not represent a real cost increase and labour cost increases greater than 1.25% p.a. real are expected to have offsetting productivity gains - and neither have been passed through as justifying explanations of the Variance from Target BAU Opex.

***New personnel resources***: Costs for additional new operators of facilities completed after the base year (2006/07), or staff employed to meet new obligations imposed through the Statement of Obligations were however included, where appropriately justified.

***Band increments***: The review team notes that businesses have an obligation to pay band increments (and other) entitlements under appropriate arrangements. However in the context of this review for regulatory pricing purposes, such amounts are not an explanation of Variance from BAU. Thus in this assessment such amounts are expected to be funded from productivity

improvements and/or already accommodated in the adjustment of Target BAU Opex through the growth rate adjustment and/or are already in the Base BAU Opex at a reasonable amount.

### 3.2.4 Labour on-costs

In addition to the direct salary costs for additional staff, and where appropriately justified, the on-costs of employment such as for superannuation contributions (9%), payroll tax (5.05%) and workers compensation (2%) and other items totalling approximately 19% were included in the costs allowed for additional staff. Overhead costs such as for accommodation were not regarded by the review team as contributing to the increased operating expenditure above the Target BAU Opex.

### 3.2.5 Limit of Materiality

In explaining the variance from Target BAU Opex a number of businesses included numerous items amounting to less than 0.2% of gross operating expenditure. The review team considers that such items would be part of the normal "swings and roundabouts" of variations in operating expenditure from year to year. Such costs are either not material and/or are covered by the allowance for growth (in setting the Target BAU and establishing the Variance from target BAU Opex) and/or are in the base year and/or a part of the "swings and roundabouts" of expenditure which occur from year to year where activities come and drop off.

These have generally not been considered or as justified for inclusion as part of the explanation of the Variance from Target BAU Opex over the regulatory period, unless very clearly identifiable as being related to new infrastructure or new obligations.

### 3.2.6 Demand forecasts

The forecast water demands submitted as part of the Water Plans have been reviewed on a preliminary basis by PWC. The impact of the preliminary review has been considered in the preparation of this Final Report (see **Sections 2.1.3** and **6.1**).

### 3.2.7 Adjustments Principles

Two key principles were applied in establishing any adjustments to be made:

- Any expenditure that was clearly not accepted [e.g. any real increases in the businesses Water Plan electricity expenditure in excess of the electricity costs (price effects) greater than that determined as indicated in **Section 3.2.1**].

The total of any adjustments should not result in an actual recommended regulatory expenditure in any year less than the Target BAU Opex established as indicated in **Section 2**.

# 4. Gippsland Water: Overview

The initial approach to the review of the Water Plan expenditure forecast for Gippsland Water has been as follows:

- Identification of the key issues through the preliminary review of Gippsland Water's Water Plan and associated information templates (submitted to the ESC in October 2007). Information on the key issues was summarised in a memorandum communicated to Gippsland Water on 24 November 2007 in the File Note titled "Water Plan – Operating and Capital Expenditure Review: Gippsland Water".
- Further more detailed examination and investigation of the key issues through:
  - A meeting and discussion of the expenditure forecasts and key issues with relevant Gippsland Water personnel on 7 December 2007.
  - Further responses and the provision of further information by Gippsland Water in December 2007 and January 2008 in response to queries arising out of the meeting on 7 December 2007.
  - A second meeting with Gippsland Water personnel on 3 March 2008.
  - Various telephonic and e-mail communication between the designated contact persons at Gippsland Water and SKM following the second meeting.
  - Gippsland Water's response to the ESC on the Draft Report.

## 4.1 Key Issues

Some of the key issues in relation to Gippsland Water's expenditure forecasts are:

- The estimated average annual price increase for tariffs in Gippsland Water's region, based inter alia on the CAPEX and OPEX forecasts submitted by Gippsland Water is 17.17%. This price increase is at the high end of the spectrum of price increases being sought by regional urban water businesses.
- The average annual price increase contained in the ESC's Final Decision (ESC, 2005) following the review of Water Plans for the first regulatory period from 2005/06 to 2007/08 was 4.7%;
- Gippsland Water's forecasts for the Capex program total $251.27M over the second regulatory period and forecast Opex totals $275.90M. The annual expenditure in both of these categories is substantially higher than the actual and forecast expenditure during the first regulatory period.
- Gippsland Water is nearing completion of the construction phase of the "Gippsland Water Factory" which is designed to treat and recycle domestic and industrial effluent. Commissioning of the new works is expected to commence in October 2008 with normal

operations commencing from 1 January 2009. The operation of this major facility will significantly increase overall operational costs.

- Key drivers for new capital works are the Country Town and Sewerage Scheme and water supply augmentation works arising from recent dry conditions and the *Water Supply Demand Strategy*.
- Various water resource augmentation initiatives.
- Gippsland Water has adopted targets related to sustainability including:
  - Maintaining 100% reuse of stabilised biosolids;
  - Increasing the 10% level of water recycling in 2008/09 to 20% in 2009/10 and maintaining that level thereafter;
  - Achieving a 15% reduction in water use by 2020;
  - No formal targets have been set for greenhouse gas reduction targets.

# 5. Capital Expenditure (Capex)

**Table 5-1** presents Gippsland Water's forecast capital expenditure, both by asset category and by cost driver.

- **Table 5-1: Gippsland Water: Historical and Forecast Capital Expenditure**

| Expenditure in $ millions real (1/1/07) | | FIRST REG PERIOD | | | SECOND REG PERIOD | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 |
| **Capital Expenditure** | | | | | | | | | |
| **Gross capital expenditure** | | **43.08** | **65.88** | **135.79** | **56.93** | **32.26** | **42.45** | **56.89** | **62.74** |
| Gross capex - business as usual | | 43.08 | 65.88 | 135.79 | 56.93 | 32.26 | 42.45 | 56.89 | 62.74 |
| Gross capex - new obligations | | | | | - | - | - | - | - |
| Approved 1st period gross capital expenditure | | 37.30 | 45.25 | 51.67 | | | | | |
| Average annual 1st period capex | 81.59 | | | | | | | | |
| Average annual 2nd period capex | 50.25 | Annual 2nd period capex is on average 38% lower than the 1st period | | | | | | | |
| **Breakdown of business as usual gross capex** | | | | | | | | | |
| Water headworks | | 2.09 | 1.13 | 2.25 | 2.57 | 1.66 | 4.72 | 8.40 | 7.82 |
| Water pipelines / network | | 7.81 | 6.72 | 4.11 | 10.42 | 9.39 | 10.92 | 7.54 | 12.66 |
| Water treatment | | 8.14 | 3.87 | 4.05 | 3.59 | 2.24 | 2.11 | 3.49 | 4.69 |
| Water Corporate | | 1.70 | 1.20 | 0.10 | 1.13 | 1.03 | 1.14 | 1.39 | 1.15 |
| ***Water sub-total*** | | ***19.74*** | ***12.93*** | ***10.51*** | ***17.71*** | ***14.32*** | ***18.88*** | ***20.82*** | ***26.32*** |
| Sewerage pipelines / network | | 6.21 | 10.21 | 7.26 | 10.18 | 8.88 | 9.24 | 11.32 | 12.13 |
| Sewage treatment | | 15.12 | 37.84 | 116.82 | 26.54 | 7.77 | 12.92 | 22.35 | 22.71 |
| Sewerage Corporate | | 2.01 | 4.91 | 1.20 | 2.51 | 1.28 | 1.42 | 2.40 | 1.59 |
| ***Sewerage sub-total*** | | ***23.34*** | ***52.96*** | ***125.28*** | ***39.23*** | ***17.93*** | ***23.58*** | ***36.07*** | ***36.42*** |
| Bulk Water sub-total | | - | - | - | - | - | - | - | - |
| Recycled water | | - | - | - | - | - | - | - | - |
| Rural Water | | - | - | - | - | - | - | - | - |
| **Breakdown of BAU gross capex by cost driver** | | | | | | | | | |
| Renewals | | | | | 40.43 | 20.33 | 23.38 | 19.45 | 20.69 |
| Growth | | | | | 7.88 | 1.90 | 3.36 | 4.82 | 9.22 |
| Improved service | | | | | 5.07 | 1.74 | 1.50 | 4.13 | 5.38 |
| Compliance | | | | | 2.18 | 3.83 | 3.13 | 26.18 | 10.53 |
| Government contributions | | | | | - | 0.39 | 6.80 | 0.39 | - |
| Customer contributions | | | | | 1.37 | 4.07 | 4.29 | 1.91 | 16.92 |

It is noted that renewals comprises approximately half of the gross capital expenditure.

## 5.1 Deliverability of the Capex Program

It is noted in respect of the delivery of Water Plan capital expenditure that:

- average annual capital expenditure across the Water Plan period is forecast to be $50.25M compared to actual annual average delivery of $54.5M over the first two years of the current water plan
- there is a pronounced dip in the Capex profile in 2009/10;
- expenditure in the final two years is expected to be considerably higher than average; and
- there is a pronounced peak to the renewals expenditure in 2008/09.

Gippsland Water is aware of the high levels of capital expenditure forecast in the Victorian water industry and the pressure that this will place on available resources. It does not consider that this poses a threat to the delivery of its capital works program as:

- Local contractors are used on many Gippsland Water projects and maintain a keen interest in the capital works program. They are expected to feature prominently in tendering/sub-

contracting in the second period regulatory program. Almost half of the capital program, amounting to about $25M p.a., is directed towards additions and renewals of existing infrastructure and this rate of expenditure is consistent with historical rates.

- Gippsland Water believes that the major projects in the capital works program are of sufficient scale, value or status, to attract the interest of major contractors.

Notwithstanding the above, the review team considers that there may be opportunity to smooth the capital program where appropriate (both from a practical viewpoint and also acknowledging the potential risks to delivery of its projects in the timeframes envisaged in the current market environment). It has therefore made recommendations to lengthen programs for some key projects as discussed in the following sections. The recommendations of the review team do not necessarily reflect a difference in opinion regarding the need for the projects, but rather the availability of resources to procure the projects and/or other relevant issues impacting timing as discussed in the following sections.

## 5.2 Key Projects

Gippsland Water's Water Plan forecasts $251.27M of capital expenditure over the regulatory period. A selection of major projects (including the top seven projects) which make up $137.76M (55%) of this are listed in **Table 5-2.**

## Table 5-2: Gippsland Water: Key Capital Projects

| Expenditure in $ millions real (1/1/07) | | 1st period | SECOND REG PERIOD | | | | | Total | % of total Capex | 3rd period |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | | | 2013-14 |
| **Capital Expenditure** | | | | | | | | | | |
| **Key projects** | | | | | | | | | | |
| 1 | Loch Sport Sewer Project | 0.28 | 0.48 | 0.48 | 5.75 | 19.15 | 19.15 | **45.00** | ***18%*** | |
| 2 | Coongulla Waste System Project | 0.05 | 0.15 | 0.15 | 1.83 | 6.09 | 6.09 | **14.32** | ***6%*** | 0.76 |
| 3 | Gippsland Water Factory | 115.30 | 13.00 | | | | | **13.00** | ***5%*** | |
| 4 | Water Reticulation Renewals Program | | 2.10 | 2.10 | 2.10 | 2.10 | 2.10 | **10.50** | ***4%*** | |
| 5 | Sewer Pump Station Rehabilitation Program | | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | **10.00** | ***4%*** | |
| 6 | Moe Groundwater Project | | 0.09 | 0.17 | 1.02 | 3.39 | 3.39 | **8.04** | ***3%*** | |
| 7 | Shared Assets (Regional Development) | | - | 0.20 | 1.40 | 1.30 | 4.00 | **6.90** | ***3%*** | |
| 8 | Glenmaggie Waste System Project | 0.09 | 0.76 | 2.54 | 2.54 | 0.32 | | **6.16** | ***2%*** | |
| 9 | Gippsland Water Factory Amenities Facility | | 4.90 | | | | | **4.90** | ***2%*** | |
| 10 | Gippsland Water Factory Micro-Hydro/Bio-Gas | | 4.30 | | | | | **4.30** | ***2%*** | |
| 11 | Warragul Moe Interconnection Project | | | | | | | | ***0%*** | |
| | Stage 1 | | 0.12 | 0.51 | 3.17 | 0.42 | | **4.23** | ***2%*** | |
| | Stage 2 | | | | 0.13 | 0.51 | 3.17 | **3.81** | ***2%*** | |
| 12 | Drouin Waste Water Treatment Upgrade | | 0.10 | 0.41 | 2.54 | 0.34 | - | **3.39** | ***1%*** | |
| 13 | Mirboo North Groundwater Augmentation | - | - | 0.05 | 0.20 | 1.27 | 0.17 | **1.70** | ***1%*** | |
| 14 | Warrugal Groundwater Augmentation | - | - | - | 0.10 | 0.20 | 1.22 | **1.53** | ***1%*** | |
| ***Total*** | | | ***28*** | ***9*** | ***23*** | ***37*** | ***41*** | **137.76** | ***55%*** | |
| % of total Capex in the financial year indicated | | | 49% | 27% | 54% | 65% | 66% | | | |

### 5.2.1 Risk Based Cost Estimating

Arising from its experience with the Gippsland Water Factory project Gippsland Water has moved to a risk based cost estimating system that recognises that project cost estimates are based on assumptions and uncertainties and contain some level of error. Furthermore the estimate should be regarded not as a single point number or cost but as a number within a range of potential cost outcomes. Gippsland Water's cost estimating system therefore requires that cost estimates for the purposes of the capital works program be adjusted to reflect the P50 value, i.e. the value presented should have an equal probability of under-run or over-run of the final completed cost.

The system recognises that cost estimates derived at different project stages (from conceptual or ideas generation, to options analysis, functional and detail design) have varying levels of accuracy. Gippsland Water has developed factors to convert costs estimates developed at these various project stages to P95 and P50 values. These factors are shown in **Table 5-3.**

- **Table 5-3: Gippsland Water: Basis of Capital Cost Estimates (Source: Gippsland Water, 2007)**

**Basis of Capital Cost Estimates for Water Plan 2**
as at 29January 2007

| Solution Stage at which latest Cost Estimate has been taken | | Assumed Cost Estimate Accuracy | Probability that actual cost is less than estimate | Estimate Probability | Multiplication factor for converting current estimate to $P_{95}$ estimate |
|---|---|---|---|---|---|
| A | Idea Generation | +/- 100 % | 10 % | $P_{10}$ | X 2.00 |
| B | Options Study | +/- 50 % | 20 % | $P_{20}$ | X 1.50 |
| C | Functional Design | +/- 30 % | 50 % | $P_{50}$ | X 1.30 |
| D | Detail Design | +/- 15 % | 70 % | $P_{70}$ | X 1.15 |
| E | Tender Strategy | +/- 10 % | 95 % | $P_{95}$ | X 1.10 |

$P_{50}$ estimates were determined by multiplying $P_{95}$ estimates by 0.85 (ie. 1.10/1.30)

The review team understands that the information in **Table5-3** is to be used when the distribution of the probability / cost relationship is not known. Gippsland Water has purchased software (in this case the ***@Risk*** software) to enable the probability / cost relationship to be determined for larger projects and the P50 (or any other, e.g. P80) cost estimate to be determined more accurately. This type of software allows the user to assign cost ranges to the individual components of the cost estimate together with an estimate of the nature or shape of the probability / cost distribution of that component. The software then executes a Monte Carlo simulation to derive the overall probability cost relationship for the project.

The review team strongly supports the use of risk based cost estimating. This is because:

- The cost estimate determined is more likely to closely match the final project cost; and
- It facilitates the identification of the key project risks and the aspects of the projects needing close management.

The review team has some potential concerns in relation to the approach suggested by the data presented in **Table 5-3** as this:

- indicates that minor projects have a fairly uniform probability / cost function – which is not necessarily the case;
- equates to simply applying a factor to the base cost estimate – similar to the conventional "contingency allowance" approach; and
- the factor presented for "tender strategy" needs to be better understood.

### 5.2.2 Country Towns Water and Sewerage Program

**Section 3.1.2** provides a broad overview of the Country Towns Water Supply and Sewerage Program (a program that is managed by the department of Sustainability and Environment) and the review team's broad approach to assessment of the capital expenditure associated with such projects and a view on the implications for inclusion in the regulatory capital expenditure base.

In the Gippsland Water region the towns included in this scheme were:

- **Sewerage** – Coongulla, and Glenmaggie;
- **Water supply** – Loch Sport.

The sewerage system of Loch Sport had previously been identified as one of the towns in the Gippsland Lakes area.

The improvements to the Loch Sport water supply are nearing completion. The three sewerage schemes are included in **Table 5-2** as items 1, 2 and 8.

While the obligation to undertake these works, comprising the media announcement concerning the sewerage schemes in the Gippsland Lakes region and "priority towns is understood", the review team is not aware of any specifications concerning timing associated with this obligation.

Gippsland Water has provided appropriate evidence to justify undertaking the projects/schemes and the broad commitments that it considers obligates it to undertake them. However Gippsland Water acknowledges (refer response to the ESC, 7 March 2008) that the timing of the delivery of these schemes is not settled and there is no definitive timing obligation.

Gippsland water notes that any changes to defer the timing of the capital expenditure on such schemes should also be matched with a deferral of customer contributions and in-property works

In terms of the business case for these projects the review team is not in a position to form a firm view on the business / financial merits of proceeding with these schemes. We understand however that doing so requires cross subsidy from existing customers. Our general recommendation

therefore is to defer the regulatory expenditure concerned so as to minimise the adverse impact on customers and reduce the impact on water price increases.

The review team is of the view that the ESC should seek stronger guidance from DSE and the government on the priority, business decision framework/rules and funding arrangements in the light of current market conditions (and project costs) for Gippsland Water's proposed schemes (and similar schemes for other authorities).

Specific comment on the three projects concerned follows.

***Loch Sport Sewer Project (#1)***

Loch Sport is a coastal community comprising approximately 2,800 properties, with a peak summer population of up to 10,000 people. A key project driver is the desire to eliminate or at least reduce the nutrient load currently entering the Gippsland Lakes from the septic tanks currently servicing the area. The upgrades of the water supply and sewerage systems are integrated in that recycled water is to be used for non potable purposes (toilet, clothes washing machine and garden) and rainwater tanks used to supply water for potable purposes (kitchen and bathroom). The key elements of the scheme and estimated costs are shown in **Table 5-4**.

- **Table 5-4: Loch Sport Sewer Project: Estimate of Base Cost (Maunsell, 2007)**

| Description | Estimated cost $000 |
|---|---|
| Wastewater reticulation | 16,340 |
| Wastewater treatment plant | 5,000 |
| Treated wastewater storage (Class C) (2ML) | 790 |
| Sludge and effluent disposal works (pump and pipeline to Dutson Downs) | 3,430 |
| Recycled water storage (Class A) | 590 |
| Recycled water reticulation | 12,200 |
| Recycled water treatment plant – 362 kl/day | 2,500 |
| **Total** | **40,850** |

The above costs are inclusive of a 25% contingency allowance but exclusive of the 15% administration cost reflected in the schedules provided by Gippsland Water. This cost was adjusted to a 'P50" cost, of $45.28 million using the @Risk software as described in **Section 5.2.1**. The base cost appears conceptual in nature and arose from an options analysis in which alternative water supply and wastewater treatment configurations were assessed. The preferred option, which is lowest in cost, was selected by a Project Control Group including representatives from Gippsland Water, the local shire and DSE.

The review team is not wholly convinced about the reasonableness of the cost estimate and considers that this should be further reviewed when better information is available. The review team notes that

- The information supporting the cost estimates provided in **Table 5-4,** include allowances for planning and design investigations and construction supervision;
- The number of properties understood to be serviced by the scheme is for 1970 properties (with a total at 'ultimate' development of 2800); and
- Documentation of adjustment from the base cost of $40.85M to the P50 cost of $45.28M. It is noted that the information presented in **Table5-3** indicates that adjusting from a P10 estimate to a P50 estimate involves a factor of 1.7 (i.e. 2 x 0.85). This would imply a P50 cost estimate of $55.55M.

The review team notes that this project is the most advanced of Gippsland Water's CTWSS schemes with planning and functional design currently being undertaken and detailed design to follow and planned for completion over the next two years.

The review team concludes that:

- The need for the project is well justified based on reasonable evidence (e.g. impacts on water quality in Gippsland Lakes)
- The scheme adopted represents the least cost option and the expenditure proposed is necessary, reasonable and prudent.
- The program provided indicates that three years have been allowed for the planning phase with implementation commencing at the end of the 2010/11 year and the bulk of construction spread equally between the last two years of the second regulatory period. This program is considered reasonable, especially in view of the extensive involvement of the local shire and DSE in the project planning stages.

The review team that the expenditure and timing of the project remain as proposed by Gippsland Water but that the expenditure estimate be reviewed when more reliable project cost data is available.

***Coongulla and Glenmaggie Waste System Projects (#2 and #8)***

The above towns mostly comprise relatively small residential blocks (1,000 $m^2$) located on impervious material and serviced by septic tanks. The drainage is poor and current sewerage system is considered to pose both health and environmental risks. Glenmaggie South and areas in Coongulla have been excluded from the scheme on account of the larger blocks in those areas.

A draft options analysis (Beca, 2006) has been undertaken on each of the scheme components, namely the reticulation, treatment and reuse/ disposal systems. Options considered include

pressure and gravity sewers, delivery of sewage to the existing Heyfield WWTP, agricultural reuse with lagoon type treatment, and individual or joint WWTPs. The estimated costs of the five options identified did not vary substantially and ranged from $20.5M to $23.5M (Capex) and an even narrower range of net present costs. The cost per block is slightly in excess of $50K.

The review team understands that the concept Study was due for finalisation in December 2007 and thereafter a decision on the scheme(s) configuration would be taken, with the assistance of the Project Control Group, a body representing official interested parties.

The total cost included in the capital expenditure forecast is $21.4M which corresponds to the cost estimate from the draft options analysis. It is noted that this does not appear to include an adjustment based on cost risk considerations.

The cash flow put forward in the capital works program suggests that two separate schemes are preferred. The recommendation of the review team, in accordance with the discussion introducing this Section and **Section 3.1.2** is that significant deferral of regulatory forecast expenditure be assumed. We propose to assume commencement of construction related regulatory expenditure for both these projects (or the combined project) be deferred until 2010/11 (Glenmaggie) and 2011/12 (Coongulla) with the whole of the expenditure being incorporated into the second regulatory period (but backended somewhat).

However the review team reaffirms its view that the ESC should seek stronger guidance from DSE and the government on the priority, business decision framework/rules and funding arrangements in the light of current market conditions (and project costs) for Gippsland Water's proposed schemes (and similar schemes for other authorities).

Overall the review team considers that

- the Loch Sport, Glenmaggie and Coongulla projects are justified and expenditure reasonable and prudent
- some deferral of expenditure on the last two by 12 to 24 months is appropriate given that the timing for delivery is still not certain
- the expenditure should be backended but to allow the projects to be completed in the regulatory period.

### 5.2.3 Gippsland Water Factory

There are three projects in **Table 6-2** (items 3, 9, and 10) for components of the Gippsland Water Factory.

***Gippsland Water Factory (#3)***

The amount shown of $13M is the residual component of the capital cost of this project whose total value is expected to be approximately $193.9M. This amount was approved by Gippsland Water's Board in September 2006. It is inclusive of:

- $160.1 M for capital works
- $14.9M for Opex during the 2 year proving and optimisation phase; and
- $5.2 M P80 project contingency (held by GW).

This expenditure of $13 million in 2008/09 is committed for the completion of the current contract and was assessed as part of the expenditure forecast for the regulatory period (SKM, 2004).

The review team has been provided a status view of expenditure on the project and it appears that the quantum proposed is reasonable given that the project is slightly behind in earned value if not in delivery timing at this stage.

The review team proposes no change to this component of the expenditure.

***Gippsland Water Factory –Amenities Facility (#9)***

The Amenities Facility (previously referred to as an Interpretive Centre) is intended to be an educational centre to promote water conservation and recycling. The original cost estimate for the centre was $7.5M and this amenity together with the micro-hydro facility ($3 million) and biogas power generation facility ($3 million) was removed from the original scope of the GWF project following the recommendation of the Minister for Water that these facilities be subject of a separate business case, in the interest of reducing the overall cost and as these components are not essential to the operation of the GWF.

The review team understands that there is no obligation on Gippsland Water to develop this amenity and that it has a lesser priority than other important capital expenditure in the period (e.g. asset management).

GW has advised the review team that the GW Board has approved the project and contract award has occurred (or is imminent). Not withstanding this, and assuming that it does proceed, the review team considers that only the component of the expenditure that is essential for or directly related to the business function of operating the GWF should be included in the regulatory Capex. The business function in this case would be the laboratory facilities.

Consequently the review team recommends that only half of the expenditure proposed, i.e. $2.50M, be included as allowed regulatory capex for pricing purposes.

***Gippsland Water Factory – Micro Hydro & Biogas (#10)***

The current cost estimate for the micro – hydro and biogas generation facilities now totals $4.3M comprising $2.0 million for the 340 kW micro hydro plant and $ 2.3 million for the 500 kW Bio-gas generation plant.

Gippsland Water indicates (Gippsland Water, 2006) that the project justifications include:

- NPV perspective realising a positive NPV of $0.7 million over the project life;
- Offsets of approximately 5,880 MWh/ year of purchased electricity;
- Approximately 500,000 tonnes of greenhouse gases abated during the life of the project;
- Gippsland Water tariffs reduced by approximately $2.00 per annum.

The business case for the project was reviewed by the Department of Treasury and Finance and approved in its letter dated 20 march 2007.

The review team has not assessed the cost estimate in detail, but in broad terms considers that the forecast expenditure is prudent and project deliverable during the second regulatory period. No amendment is proposed to the expenditure forecast.

### 5.2.4 Water Supply Augmentation Projects

#### 5.2.4.1 Overview

There are four projects included in **Table 5-2** (items 6, 11, 13 and 14) whose purpose is to augment water supplies to the communities concerned.

These projects are identified in the Water Supply Demand Strategy (Gippsland Water, 2007c) to be undertaken within the second regulatory period to meet forecast demands in Moe, Warragul (within the Tarago system) and Mirboo North. This is irrespective of the persistence of current drought conditions or a return to "average, long term" conditions (excepting the supply to Moe whose "life" would extend to 2043 if average conditions returned).

The review team considers it prudent to plan assuming a continuance of current drought conditions and agrees with the need to augment supplies to these towns, although it requires further discussion of the impacts of the recent rains (late 2007 and early 2008) and the state of its storages on the timing and urgency to undertake the works proposed. [NB: The recommendations of PWC concerning the growth in forecast demands, particularly for Moe, could potentially influence this view.]

The Water Supply Demand Strategy includes an Appendix describing the Options assessment undertaken of the options that were included in the study. This appendix includes the net present cost of the options within the context of the social, environmental and environmental assessment which was undertaken. The cost information summarised from that assessment is presented in the

table below together with the overall assessment of the option which classified options as "preferred", acceptable" or "not acceptable".

- **Table 5-5: Net Present Cost of Water Conservation and Supply Options (Gippsland Water 2007b)**

| Option name | Net present cost ($/ML) | Yield (ML/year) | Overall assessment |
|---|---|---|---|
| **Conservation and efficiency Options** | | | |
| Indoor residential water efficient retrofits | >950 | ?? | Preferred |
| Voluntary installation of water efficient showerheads | 50-150 | ?? | Preferred |
| Replacement of single flush toilets with dual flush | >950 | ?? | Preferred |
| Water efficient washing machines | 250-350 | ?? | Preferred |
| Installation of low flow taps | >950 | ?? | Preferred |
| Pressure reduction at home | >950 | ?? | Preferred |
| Indoor public housing installation of water efficient appliances | >950 | ?? | Preferred |
| Household leak control | >950 | ?? | Preferred |
| Voluntary water friendly gardens | 350-450 | ?? | Preferred |
| Water efficiency and conservation with motel and hotel industry | >950 | ?? | Preferred |
| Water efficiency and conservation by small to medium enterprise | 350-450 | ?? | Preferred |
| Water efficiency by major industry | <50 | 6,450 | Preferred |
| Active leak control | 150-250 | ?? | Preferred |
| Water treatment process efficiencies | >950 | ?? | Preferred |
| **System interconnection** | | | |
| Connect Tarago system to Moe system | 150-250 | 2,000 | Acceptable |
| Connect Moe system to Moondarra system | ?? | ?? | Acceptable |
| Connect Sale system to Thomson/ Macalister system | ?? | ?? | Unacceptable |
| Supply Boolarra from Moondarra system | >950 | 100 | Unacceptable |
| Supply Thorpdale from Mirboo North system | >950 | 25 | Unacceptable |
| Supply Thorpdale from Moe system | >950 | 25 | Unacceptable |
| Supply Seaspray from Sale system | >950 | 60 | Unacceptable |
| **Recycle and Reuse** | | | |
| Gippsland Water Factory Stage 2 | 750-850 | 10,100 | Preferred |
| SWOP water recycling facility | 750-850 | 7,000 | Preferred |
| Australian Paper recycling facility | 750-850 | 7,000 | Preferred |
| Loch Sport recycled water supply | >950 | 250 | Preferred |
| Trial of third pipe system | >950 | 250 | Preferred |
| Greywater reuse for toilet flushing – | >950 | 510 | Unacceptable |

| Option name | Net present cost ($/ML) | Yield (ML/year) | Overall assessment |
|---|---|---|---|
| Tarago system | | | |
| Recycled water pipe systems for toilet flushing - Seaspray | >950 | 26 | Unacceptable |
| Rainwater tanks for toilet flushing – Tarago system | >950 | 510 | Preferred |
| Rainwater tanks for toilet flushing – Seaspray | >950 | 26 | Preferred |
| **System Augmentation** | | | |
| Optimise Blue Rock pump operation | <50 | 3,400 | Preferred |
| Raise Moondarra Dam Wall | 150-250 | 1,100 | Preferred |
| Obtain permanent water right from Blue Rock SECV bulk entitlement | <50 | 10,000 | Preferred |
| Obtain permanent water right from Blue Rock unallocated share | <50 | 7,000 | Preferred |
| Construct dam on Morwell River to supply Moodarra system | ?? | ?? | Unacceptable |
| Construct dam at Pederson Weir (Tarago system) | ?? | ?? | Unacceptable |
| Utilise Labertouche Creek and Deep Creek entitlements for Tarago system | 750-850 | 500 | Acceptable |
| Purchase permanent water for Tarago system from Latrobe Irrigators | 850-950 | 500 | Acceptable |
| Purchase treated water for Drouin (Tarago system) from Melbourne Water's proposed Drouin WTP | <50 | 500 | Preferred |
| Develop groundwater supply for Tarago system | 150-250 | 2,000 | Preferred |
| Utilise existing Yarragon groundwater licences for Moe system | 150-250 | 100 | Preferred |
| Develop groundwater supply for Moe system | 150-250 | 2,000 | Preferred |
| Access groundwater from Yallourn Mine for Moe system | 150-250 | 500 | Acceptable |
| Utilise Sunnny Creek entitlement for Moe system | ?? | ?? | Acceptable |
| Construct dam on Narracan Creek (Moe system) | ?? | ?? | Unacceptable |
| Develop groundwater supply for Thorpdale system | 750-850 | 50 | Preferred |
| Enlarge Thorpdale raw water storage | >950 | 10 | Acceptable |
| Develop groundwater supply for Mirboo North system | 750-850 | 50 | Preferred |
| Construct raw water storage and obtain increased bulk entitlement for Mirboo North system | >950 | 50 | Acceptable |
| Develop groundwater supply for Boolarra system | 750-850 | 100 | Unacceptable |

| Option name | Net present cost ($/ML) | Yield (ML/year) | Overall assessment |
|---|---|---|---|
| Develop Morwell River supply for Boolaara system | 750-850 | 50 | Unacceptable |
| Purchase permanent water for Thomson/ Macalister system from Macalister Irrigation District irrigators | 50-150 | 500 | Preferred |
| Develop Avon River supply for Thomson / Macalister system | ?? | ?? | Unacceptable |
| Negotiate new Seaspray/ Honeysuckles bulk entitlement with enlarged storage capacity | >950 | 30 | Preferred |
| Seawater desalination - Seaspray | >950 | 72 | Acceptable |

It can be seen that a very wide range of options were considered across Gippsland Water's supply systems leading to a selection of preferred options including schemes to be constructed during the second regulatory period.

#### 5.2.4.2 Warragul - Moe Interconnection Project: Stages 1 and 2, (#11) - $8.04M

Under the low inflow drought conditions Warragul water supply system experiences a shortfall of over 1,500 ML/year. This system comprises the towns of Drouin, Buln Buln, Rokeby, Warragul South, Nilma and Darnum, with a total annual demand currently of about 4.2 GL/year and forecast to grow to about 4.7 GL/year by the end of the second regulatory period.

A study undertaken in 2003 (GHD, 2003) evaluated eight options and identified three worthy of further analysis. Gippsland Water has since executed one of these and is currently actively pursuing the other two which are the Warragul Moe Interconnection and obtaining additional water from Tarago Reservoir. Currently negotiations are occurring with Melbourne Water and DSE with a view to establishing a Bulk Entitlement for 390 ML/year average but up to 1,400 ML in any one year. However access to this water has been complicated by plans underway to secure this water as part of the supply to Melbourne. As this source, in any event, will not meet the demands fully Gippsland Water has decided to proceed with the other available option – the Warragul Moe Interconnection project.

The estimated cost is based on the estimate provided during the options analysis (GHD, 2003). This estimate totalled $5.2 million for a pipeline connection between Yarragon and Warragul. This amount has been factored up to a P50 estimate of $11M of which planned expenditure during the second regulatory period is $ 8.04M. The distance involved is about 15 km and assuming that a pipeline diameter of 250mm designed to convey 2000 ML/year the review would not expect the cost to exceed $8 million, including an allowance for pumping equipment. The cost of $11M therefore appears high. On any unit rate cost comparison this amount seems high compared with other similar predominantly pipeline projects.

The project is effectively proposed to be undertaken in two stages with the first of these being more certain in terms of conceptual planning and indicative costing than Stage 2. The timing of the project appears somewhat uncertain still with a sufficiently robust program still to be developed.

The review team after considering all these issues recommends that:

- The expenditure on the project within the period be reduced because of the uncertain regarding the project cost estimate (on unit basis appears high) and the uncertainty in Stage 2 and overall programming;
- At least a small reduction in Stage 1 expenditure be adopted, with its timing substantially as proposed, and the expenditure for Stage 2 be reduced and/or timing deferred.

These recommendations are reflected in **Table 5-6**.

#### 5.2.4.3 Groundwater Projects

There are three groundwater projects that are at an early stage of planning and development. These are discussed briefly as follows followed by an overall assessment.

***Moe Groundwater Project (# 6) - $8.04 million***

Current supplies are drawn from run-of-river sourced from the Narracan Creek supplemented from the Tanjil River, sourced from the Blue Rock reservoir. Demands currently amount to approximately 4.3 GL/year and include the local power station. A high level of water supply security is thus required. Raw water quality can be poor and has been adversely influenced by the fires. This water quality issue has also driven the preference for a groundwater supply.

The current supply shortfall is approximately 169 ML/year under drought conditions. However it is also planned to connect this supply system to the Tarago system at Warragul where a supply deficit (low inflow scenario) of 1,560 Ml/year exists.

The cost estimate is, at best, at options analysis level. It is based on the following assumptions:

- 25 bores at a cost of $200K each (including develop and equip) – total base cost $5 million
- The bore locations, depth, and yield still have to be determined;
- The locality of the borefield is assumed to be in the close vicinity of Moe;
- That the estimate is P10 and should be adjusted to P50 – thus total cost is $8 million.

Gippsland Water has determined that groundwater sources in the area are not fully allocated and that approximately 4000 ML (about half) of the permissible annual volume (PAV) of the Moe Swamp Basin Aquifer is unallocated. Gippsland Water has applied to access 2 GL/year on an ongoing basis and up to 4 GL/year in drought years.

The review team notes the previous studies undertaken by the Geological Survey c 1972 by Roger Blake in which test bores 140m deep were completed at Newborough. The results of test pumping indicated yields of 37 L/s (or 1,100 ML/year based on 365/24 pumping). This indicates that four bores should be sufficient in times of drought.

***Mirboo North Groundwater Augmentation (#13)***

Mirboo North has a demand of approximately 240 ML/year and supply drawn from the Little Morwell River. This supply is limited by the Bulk Entitlement rather than the source capability. The Water Supply Demand Strategy indicates that groundwater augmentation (of 100 ML/year) is preferred to negotiating an increase in the Bulk Entitlement and providing additional storage, and the review team understands that this is on account of the costs involved (see **Table 5-5** where costs/ML are indicated as >$950 and $750-850 for bulk entitlement and groundwater options respectively).

The costs estimated assume 3 bores at $200K each and $400K for the headworks/treatment infrastructure. This totals $1 million and is assumed to represent a P10 cost which is factored up by 1.7 to provide the P50 cost estimate.

***Warragul Groundwater Augmentation (#14)***

The development of the Thorpdale Volcanics aquifer is identified as Action 21 in Gippsland Water's *Water Supply Demand Strategy*. The review team wishes to clarify the requirement to proceed wish the implementation of this borefield in view of the other actions planned to improve water supplies available to the Tarago system – namely the Warragul – Moe interconnection and the Moe groundwater project.

***Overall assessment of the three groundwater projects:***

The review team acknowledges Gippsland Water's significant effort in the investigations undertaken to date as part of early conceptual planning and assessment of these potential initiatives/ projects (and sub-options) for water resource augmentation purposes. The review team has had significant discussion on these projects before and after release of the Draft Report.

Following these discussions and the further assessment of the information provided by GW, the review team considers that there are major risks to inclusion of the expenditure for these three projects in the regulatory capex base for the coming period, and that it is not reasonable or appropriate to do so at this stage.

The review team has formed this view because:

- At this stage the projects could best be considered as "speculative";
- Considerable concerns exist about the availability of sufficient volumes and quality of water;

- There is considerable uncertainty about the timing, and indeed the extent of the need (including current outlook following rains in the Gippsland area since release of the Water Plan), for these projects;
- The approvals process could be protracted (e.g. for extraction):
- The costs appear high but are still very uncertain; and
- Significant deliverability issues would need to be addressed.

From a regulatory viewpoint there are seemingly two appropriate alternative courses of action to best manage this uncertain situation, given the potential importance of these water resource projects. The first is to provide for some investigatory monies for each of the three groundwater projects and when the exact costs and timing are known for Gippsland Water to go back to the ESC and seek a specific focussed review of the price impacts of the project(s). The second is to provide some "seed" funding to allow for all the necessary investigatory work and a quantum to allow for some works to proceed and then when the exact costs and timing of the project(s) are known for Gippsland Water to go back to the ESC and seek a specific focussed review of price impacts of the project(s).

Gippsland Water in its response to the Draft Report flagged the option of a "funding pool" for te three projects. This concept is similar to the second option identified above.

Consequently the review team recommends that:

- Allow a reasonable quantum of expenditure, $1.5M in each of the 2009/10 and 2010/11 to cover all three projects to undertake the necessary investigations to provide more certainty and to scope the projects and to undertake some preliminary works. This reflected in the adjustments table, **Table5-6** at Change Item 6A; and,
- Remove the Water Plan capital expenditure for these projects as reflected in the adjustments table, Change Items 6B, 6C and 6D in **Table 5-6**;
- When, and if, the projects do have certainty and the costs are better known and are likely to be incurred during the period, Gippsland Water raise this matter with the ESC for consideration as being significant enough for a reopening event. This would allow more the capital expenditure to be built into the regulatory Capex base for pricing purposes more appropriately.

### 5.2.5 Renewals and Rehabilitation Projects

There are two projects which fall into the above category - item numbers 4 and 5 in Table 5-2**.**

***Water Reticulation Renewals Program (#4)***

Expenditure of $2.1 million per year is planned for each year of the second regulatory period. This rate of expenditure is higher than the two previous years by approximately $0.5 million (25%).

Experience from the first regulatory period indicated a need for a higher than forecast rate of water main replacement, which averaged 7 km/year rather than the 4.1 km/year forecast at the time of the first Water Plan. The second Water Plan is premised on replacements of 8km/year. The expenditure is managed through Gippsland Water's asset management system. The review team understands that the key elements of the asset management system are:

- **Step 1 –** a desktop **condition assessment** is undertaken (pipe age, material and number of reported breaks)
- **Step 2– condition grading** – pipes are graded and remaining life assessed according to the pipe condition and a set of criteria;
- **Step 3 – criticality rating –** pipes are rated and scored according a range of 6 weighted criteria including number and type of customers affected , financial impact, traffic disruption.
- **Step 4 – decision matrix –** a matrix comparing the condition rating (residual life) and criticality rating is used to define pipes requiring replacement immediately, within the year, within three years etc. The risk that assets will not achieve the required service standards are assessed and prioritised according to their impact on achievement of the (customer) KPIs. The repairs or replacements are then costed to derive an overall expenditure sum for the upcoming regulatory period. This sum is smoothed, assuming equal annual expenditure, in real terms.
- **Step 5 –** decision on replacement of individual pipeline sections. Pipelines identified for replacement are scrutinised in greater detail before inclusion in the capital works program.

The review team is satisfied that the process followed by Gippsland Water provides for satisfactory expenditure forecasts for regulatory purposes.

The review team has considered further detailed information provided by Gippsland Water to justify these projects and expenditure.

Following this more detailed assessment the review team:

- proposes that no amendment be made to the forecast expenditure, which is considered broadly as reasonable and prudent
- suggests that the full quantum of expenditure proposed be reviewed (for reduction or deferral) as part of the overall management of GW's capital program.

***Sewer Pump Rehabilitation Program (#4)***

The review team has reviewed the process used by Gippsland Water to establish the forecast expenditure for sewer pump rehabilitation (a flat $2M p.a.) and considers that, similar to the water pipelines renewal program, the approach used would provide reasonable and prudent expenditure forecasts.

The review team is satisfied that the process followed by Gippsland Water provides for satisfactory expenditure forecasts for regulatory purposes.

The review team has considered further detailed information provided by Gippsland Water to justify these projects and expenditure.

As for water reticulation mains, following this more detailed assessment the review team:

- proposes that no amendment be made to the forecast expenditure, which is considered as broadly reasonable and prudent
- suggests that the full quantum of expenditure proposed be reviewed (for reduction or deferral) as part of the overall management of GW's capital program.

### 5.2.6 Shared Assets

Gippsland Water has identified pipelines, both for water supply and sewerage, required to service extensions and new developments. Conceptual planning of the likely routes, sizes and lengths of such pipelines have been undertaken together with cost estimates. Eleven such projects have been identified where expenditure is likely to occur during (and beyond) the second regulatory period. Expenditure totalling $7.5 million was forecast for the second regulatory period and adjusted downwards slightly (to $6.9 million) and smoothed between years before insertion into the expenditure forecast. The review team has considered more detailed information provided by GW in discussions following the Draft Report.

The review team considers the expenditure proposed as reasonable and prudent and no amendment is proposed.

### 5.2.7 Drouin WWTP Upgrade

This project is driven by an EPA licence requirement issued on 16 July 2007 to reduce nitrogen discharge levels below 0.6mg/L to the Shillinglaw Creek by 01 July 2011.

Gippsland Water plan to initiate an options assessment in 2007/08 to determine the optimal means of meeting this obligation. In the interim forecast expenditure is based on the assumption that RO/membrane technology will need to be employed to meet the stringent target that has been set, as Gippsland Water are not aware of chemical or biological processes that can do so reliably.

The review team considers the expenditure forecast reasonable and prudent. However a period of negotiations with the EPA concerning the appropriateness of the licence requirement may lead to a delay in implementation and it is proposed that expenditure for the construction component be deferred by one year.

This matter was discussed further with GW and the review team notes its view re maintaining timing. However from a regulatory expenditure viewpoint the review team remains of the view that the timing of clarifying objectives, obtaining approvals and actual delivery are still sufficient uncertain as to warrant deferral of expenditure for at least 12 months for regulatory capex purposes.

## 5.3 Recommendations

The recommended adjustments to Gippsland Water's capital expenditure forecasts for the five year regulatory period are summarised in **Table 5-6**. The key features are that:

- Planned expenditure for the GWF Amenities Facility be reduced for forecast expenditure for regulatory purposes;
- Planned expenditures for the Coongulla and Glenmaggie Waste System Projects are adjusted as discussed and outlined in **Section 5.2.2;**
- Planned expenditures for the Warragul- Moe Interconnection works, Moe Groundwater project, Mirboo North Groundwater Augmentation, and Warragul Groundwater Augmentation be adjusted as discussed and outlined in **Section 5.2.4;** and
- Planned expenditures for the Drouin WWTP upgrade be adjusted as outlined in **Section 5.2.7**.

[NB: **Table 5-6** is on the following page.]

## Table 5-6: Gippsland Water: Recommended Adjustments to Regulatory Capital Expenditure Forecast

| Change Item | Project/Description | Forecast | $M | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | Later Period |
| 1 | Loch Sport Sewer Project<br><br>*Cost estimate to be reviewed when better information is available - no change presently recommended* | Original Water Plan: | 0.28 | 0.48 | 0.48 | 5.75 | 19.15 | 19.15 | 0.00 |
| | | Recommended Revised: | 0.28 | 0.48 | 0.48 | 5.75 | 19.15 | 19.15 | 0.00 |
| | | Recommended Net Change: | | | | | | | |
| 2 | Coongulla Waste System Project | Original Water Plan: | 0.05 | 0.15 | 0.15 | 1.83 | 6.09 | 6.09 | 0.76 |
| | | Recommended Revised: | 0.05 | 0.08 | 0.09 | 1.50 | 4.90 | 8.51 | |
| | | Recommended Net Change: | | -0.08 | -0.06 | -0.33 | -1.19 | 2.42 | -0.76 |
| 3 | Glenmaggie Waste System Project | Original Water Plan: | 0.09 | 0.76 | 2.54 | 2.54 | 0.32 | 0.00 | 0.00 |
| | | Recommended Revised: | 0.05 | 0.08 | 0.09 | 1.50 | 1.77 | 2.76 | 0.00 |
| | | Recommended Net Change: | -0.04 | -0.69 | -2.45 | -1.04 | 1.45 | 2.76 | 0.00 |
| 4 | GWF- Amenities Facility | Original Water Plan: | | 4.90 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Recommended Revised: | | 2.50 | | | | | |
| | | Recommended Net Change: | | -2.40 | | | | | |
| 5 | Warragul - Moe Interconnection project<br><br>*Programme to be clarified* | Original Water Plan: | 0.00 | 0.12 | 0.51 | 3.30 | 0.93 | 3.17 | 3.00 |
| | | Recommended Revised: | 0.00 | 0.09 | 0.37 | 3.40 | 0.68 | 2.31 | 4.19 |
| | | Recommended Net Change: | | -0.03 | -0.14 | 0.10 | -0.25 | -0.87 | 1.19 |
| 6A | Allowance for Groundwater projects :Project "seed funding" for all 3 major groundwater projects at 6B, 6C, and 6D. | Original Water Plan: | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| | | Recommended Revised: | | | 1.50 | 1.50 | | | |
| | | Recommended Net Change: | | | 1.50 | 1.50 | | | |
| 6B | Moe Groundwater Project | Original Water Plan: | 0.00 | 0.09 | 0.17 | 1.02 | 3.39 | 3.39 | |
| | | Recommended Revised: | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7.04 |
| | | Recommended Net Change: | | -0.09 | -0.17 | -1.02 | -3.39 | -3.39 | 7.04 |
| 6C | Mirboo North Groundwater Augmentation | Original Water Plan: | 0.00 | 0.00 | 0.05 | 0.20 | 1.27 | 0.17 | 0.00 |
| | | Recommended Revised: | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.70 |
| | | Recommended Net Change: | | | -0.05 | -0.20 | -1.27 | -0.17 | 1.70 |
| 6D | Warragul Groundwater Augmentation | Original Water Plan: | 0.00 | 0.00 | 0.00 | 0.10 | 0.20 | 1.22 | 8.07 |
| | | Recommended Revised: | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 7.07 |
| | | Recommended Net Change: | | | | -0.10 | -0.20 | -1.22 | -1.00 |
| 7 | Drouin Wastewater Treatment Upgrade | Original Water Plan: | 0.00 | 0.10 | 0.41 | 2.54 | 0.34 | 0.00 | 0.00 |
| | | Recommended Revised: | 0.00 | 0.10 | 0.10 | 1.70 | 1.49 | 0.00 | |
| | | Recommended Net Change: | | | -0.31 | -0.84 | 1.15 | | |
| | | **Total Recommended Net Change:** | $ (0.04) | $ (3.28) | $ (1.68) | $ (1.93) | $ (3.70) | $ (0.46) | $ 8.16 |
| | | **Original Water Plan Total Regulatory Capex:** | 135.79 | 56.93 | 32.26 | 42.45 | 56.89 | 62.74 | |
| | | **Recommended Revised Total Regulatory Capex:** | **135.76** | **53.65** | **30.58** | **40.52** | **53.18** | **62.28** | |

# 6. Operating Expenditure (Opex)

The upper part of **Table 6-1** presents a breakdown of forecast operating expenditure by cost driver. The lower part of **Table 6-1** shows the increases in each year relative to the cost incurred in the base year of 2006/07 for each line item.

This lower part of the table indicates that salaries and energy are two of the most significant drivers of the net total increased operational expenditure (of $65.44M) for the second regulatory period relative to actual expenditure in 2006/07. The key elements of this increased expenditure are:

- Salaries ($16.14M or 25% of the net total increase);
- Energy ($13.52M or 21% of the net total increase);
- Materials, maintenance, contractors, outsourced major services ($12.77M or 20% of the net total increase);
- Other ($9.22M or 14% of the net total increase); and
- Chemicals ($6.86M or 10% of the net total increase).

## Table 6-1: Gippsland: Historical and Forecast Operating Expenditure by Cost Driver

| Expenditure in $ million real (1/1/07) | FIRST REG PERIOD | | SECOND REG PERIOD | | | | | SECOND REG PERIOD | |
|---|---|---|---|---|---|---|---|---|---|
| | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | Total | % |
| Labour | 15.16 | 16.77 | 17.27 | 17.64 | 18.38 | 19.10 | 19.55 | 91.94 | 33% |
| Energy | 1.76 | 1.97 | 2.51 | 3.49 | 4.54 | 5.89 | 5.89 | 22.32 | 8% |
| Materials, Maintenance, Contractors, Outsourced major services | 13.25 | 11.10 | 15.56 | 17.31 | 15.88 | 15.12 | 15.15 | 79.02 | 29% |
| Chemicals | 2.15 | 2.40 | 3.12 | 3.63 | 3.69 | 3.71 | 3.46 | 17.61 | 6% |
| Environmental Contribution | 2.03 | 2.03 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 | 11.00 | 4% |
| Licence Fees (all) | 1.11 | 1.21 | 1.12 | 1.14 | 1.14 | 1.14 | 1.14 | 5.68 | 2% |
| Biosolids | 0.14 | 0.34 | 1.01 | 1.56 | 1.36 | 1.36 | 1.36 | 6.65 | 2% |
| Other | 6.49 | 7.26 | 8.31 | 8.42 | 8.35 | 8.28 | 8.31 | 41.67 | 15% |
| **Total** | **42.09** | **43.08** | **51.10** | **55.39** | **55.54** | **56.80** | **57.06** | **275.89** | **100%** |

| Expenditure increase above 2006/07<br>Expenditure in $million real (1/1/07) | FIRST REG PERIOD | | SECOND REG PERIOD | | | | | SECOND REG PERIOD | |
|---|---|---|---|---|---|---|---|---|---|
| | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | Total | % |
| Labour | - | 1.61 | 2.11 | 2.48 | 3.22 | 3.94 | 4.39 | 16.14 | 25% |
| Energy | - | 0.21 | 0.75 | 1.73 | 2.78 | 4.13 | 4.13 | 13.52 | 21% |
| Materials, Maintenance, Contractors, Outsourced major services | - | (2.15) | 2.31 | 4.06 | 2.63 | 1.87 | 1.90 | 12.77 | 20% |
| Chemicals | - | 0.25 | 0.97 | 1.48 | 1.54 | 1.56 | 1.31 | 6.86 | 10% |
| Environmental Contribution | - | - | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.85 | 1% |
| Licence Fees (all) | - | 0.10 | 0.01 | 0.03 | 0.03 | 0.03 | 0.03 | 0.13 | 0% |
| Biosolids | - | 0.20 | 0.87 | 1.42 | 1.22 | 1.22 | 1.22 | 5.95 | 9% |
| Other | - | 0.77 | 1.82 | 1.93 | 1.86 | 1.79 | 1.82 | 9.22 | 14% |
| **Total** | **-** | **0.99** | **9.01** | **13.30** | **13.45** | **14.71** | **14.97** | **65.44** | **100%** |

## 6.1 Derivation of the Variance from Target BAU Opex

**Table 6-2** below summarises Gippsland Water's forecast operating expenditure and shows the derivation of the Variance to Target BAU Opex in the manner explained in **Section 2**.

### Table 6-2: Gippsland Water: Historical and Forecast Opex and Variance from Target BAU

| Expenditure in $ millions real (1/1/07) | FIRST REG PERIOD | | | SECOND REG PERIOD | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2005-06 | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 |
| BAU opex | 36.92 | 39.36 | 40.47 | 48.31 | 52.58 | 52.72 | 53.99 | 54.25 |
| New obligations | | | | - | - | - | - | - |
| ***Sub-total Opex*** | ***36.92*** | ***39.36*** | ***40.47*** | ***48.31*** | ***52.58*** | ***52.72*** | ***53.99*** | ***54.25*** |
| Bulk water charges | - | - | - | - | - | - | - | - |
| Licence fees | 0.60 | 0.70 | 0.59 | 0.59 | 0.62 | 0.62 | 0.62 | 0.62 |
| Enviro levy | 2.09 | 2.03 | 2.03 | 2.20 | 2.20 | 2.20 | 2.20 | 2.20 |
| **Gross operating expenditure** | **39.61** | **42.09** | **43.09** | **51.10** | **55.39** | **55.54** | **56.81** | **57.07** |
| **Target BAU Opex** | | | **39.59** | **39.82** | **40.06** | **40.29** | **40.53** | **40.76** |
| **Variance from Target BAU Opex** | | | **0.87** | **8.48** | **12.52** | **12.43** | **13.47** | **13.49** |
| **Customers and Consumption** | | | | | | | | |
| Total customers ('000) | 58.29 | 58.56 | 59.50 | 60.45 | 61.42 | 62.40 | 63.40 | 64.41 |
| Growth relative to 2006-07 | - | 1.00 | 1.016 | 1.032 | 1.049 | 1.066 | 1.083 | 1.100 |

***Growth Assumption***: Gippsland Water assumed an overall average growth rate of approximately 1% p.a. for the purposes of the Water Plan it has submitted. This growth rate appears low compared with the historical average annual growth rate for the region of approximately 1.9% p.a. (for both residential water and sewerage connections) based on the last five years of historical information available from the ESC's most recent annual performance report (and potentially higher if averaged over the last three years.

The review team understands that PWC has considered this issue and has recommended to the ESC that a growth rate of 1.6% p.a. should be assumed (and that this may still potentially be too conservative). For consistency, the review team has also adopted the ***1.6% p.a***. growth rate for the purposes of establishing Gippsland Water's Target BAU Opex and the Variance from Target BAU Opex.

The review team notes that the assumed growth rate reduces the Variance from Target BAU Opex amounts requiring explanation in each year and overall.

The aggregate planned operating expenditure (excluding bulk water charges, licence fees and environmental levy) over the whole of the second regulatory period is greater than Target BAU Opex. That is the Variance from Target BAU Opex is positive for each year of the regulatory period, and requires explanation. This indicates that there are real increases in planned operating

expenditure above BAU (2006/07 as the base year) after allowance for growth and the stipulated 1% productivity improvement. Thus prima facie Gippsland Water will not achieve the 1% productivity target unless all of the new/additional costs planned can be justified as part of the future BAU Opex base.

The aggregate Variance from Target BAU Opex over the regulatory period requiring justification is $60.39M. [NB: At the Draft Report stage the Variance from Target BAU Opex requiring explanation, based on Gippsland Water's lower assumed growth rate, was $65.72M, which is lower than indicated in **Table 6-3**.]

## 6.2 Explanation of the Variance

### 6.2.1 Overview

Gippsland Water advised the review team of a number of costs expected to be incurred during the regulatory period that it regarded as additional to the normal BAU Opex incurred in 2006/07. The key items put forward by Gippsland Water to explain the variance are listed in **Table 6-3** and total $64.69M over the period.

The list of items/activities is sorted from most to least expensive. The variance explained in **Table 6-3** is marginally greater than the actual variance presented in **Table 6-3** for each of the five years of the regulatory period (i.e. if justified would fully explain the Variance from Target BAU Opex). For the second regulatory period, this aggregate excess in explaining the Variance from Target BAU Opex is $4.30 million. An initial assessment of Gippsland Water's new/additional cost line items is provided in the following sections.

## Table 6-3 Explanation of Variance from Target BAU Opex – Items Proposed by Gippsland Water

| Identification of Item | Description/ Explanation and Key Drivers / Requirements | 2006/07 Actuals | 2007/08 | Quantum of Expenditure- budget allocations 2008/09 | 2009/10 | 2010/11 | 2011/12 | 2012/13 | Movement from 2006/07 Actuals 2007/08 | 2008/09 | 2009/10 | 2010/11 | 2011/12 | 2012/13 | RP2 Total | Date Expenditure commences | Justification/Basis of determining Quantum |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GWF Stage 1 (Total BAU OPEX) | The Gippsland Water Factory will be an innovative wastewater treatment and recycling system, and is discussed at length in Section 3.2 of the Water Plan. A summary of the major OPEX items for GWF has been included separately as per SKM request. | 0 | 0 | 3.37 | 6.87 | 7.23 | 7.66 | 7.67 | - | 3.37 | 6.87 | 7.23 | 7.66 | 7.67 | 32.81 | January 2009 | The GWF project will be operated by the Alliance from 1 January 2009 to 31 December 2010. Operating costs for this period have been agreed with the Alliance, and form the basis of cost estimates in WP2. Refer separate documentation provided re cost breakdown. |
| Labour (excluding GWF) | Gippsland Water has identified additional labour requirements that will be introduced during the Water Plan period to enable the organisation to deliver on operational responsibilities, as detailed in section 5.2.3 of the Plan. | 15.16 | 16.77 | 17.15 | 17.41 | 17.97 | 18.48 | 18.92 | 1.61 | 1.99 | 2.25 | 2.81 | 3.32 | 3.76 | 14.13 | Ongoing BAU Opex | Determined by GW management and peer review process. Approved by GW Board during finalisation of Water Plan. |
| Energy (excluding GWF) | Significant increases in electricity costs are currently being flagged by the electricity industry. Advice received by Gippsland Water led to the inclusion of a 20% (from 2009/10) and a further 5% (from 2011/12) increase in energy costs. | 1.76 | 1.97 | 1.97 | 2.40 | 2.40 | 2.52 | 2.52 | 0.21 | 0.20 | 0.64 | 0.64 | 0.75 | 0.75 | 2.98 | Ongoing BAU Opex. A 20% increase in energy costs is included from 2009/10, and a further 5% increase is included from 2011/12. | Refer separate documentation provided. |
| Consultants Fees (Excluding GWF) | Gippsland Water is commencing a Sustainability Investigation Review Program, which aims to ensure regulatory compliance and increased capacity to meet future demand. Other Consultants fees include Ground Water studies and other miscellaneous Consultancy works | 0.34 | 0.73 | 0.82 | 0.79 | 0.82 | 0.84 | 0.82 | 0.38 | 0.47 | 0.45 | 0.48 | 0.50 | 0.48 | 2.37 | Ongoing BAU Opex. Sustainability Review commences 2008/09. | Determined as part of GW significant budget process, which includes several internal review systems, justification mechanisms and approval processes. |
| Environment | A number of significant environmental obligations and requirements have been recognised within the Water Plan period, as detailed in section 5.2.3 of the Plan. A detailed summary of these major OPEX items has been included separately as per SKM request. | 0.08 | 0.08 | 0.60 | 0.59 | 0.51 | 0.54 | 0.46 | 0.00 | 0.52 | 0.51 | 0.43 | 0.46 | 0.38 | 2.29 | 2008/09 (except Development of fish passages which commences 2009/10) | Refer separate documentation provided. |
| Native Vegetation Credits | Where clearing of native vegetation occurs an environmental offset is required to compensate that unavoidable clearing. Gippsland Water has identified a number of sites that will require environmental offsets over the Water Plan. This is detailed separately as requested by SKM. | 0 | 0 (no budget alloc, however | 0.53 | 0.40 | 0.38 | 0.36 | 0.36 | 0.00 | 0.53 | 0.40 | 0.38 | 0.36 | 0.36 | 2.03 | Commencing in 2007/08 (however this is unbudgeted in 2007/08) | Refer separate documentation provided. |
| Biosolids (excluding GWF) | Gippsland Water has a Biosolids Management Plan to address the Biosolids produced from treatment processing. Details relating to this OPEX item has been included separately as per SKM request. | 0.14 | 0.34 | 0.54 | 0.61 | 0.41 | 0.41 | 0.41 | 0.20 | 0.40 | 0.47 | 0.27 | 0.27 | 0.27 | 1.68 | Biosolids charges from Waste Treatment is an ongoing BAU Opex item. Biosolids from Water Treatment will be charged for processing from 2008/09 for the first time, as per the Biosolids Management Plan. | Refer separate documentation provided. |
| Land Services (excluding GWF) | Additional requirements have been identified under Gippsland Water's Insurance Policy- Public Open Space Policy. Other miscellaneous sites also require land service works. | 0.43 | 0.54 | 0.73 | 0.70 | 0.72 | 0.73 | 0.78 | 0.11 | 0.30 | 0.27 | 0.30 | 0.30 | 0.35 | 1.53 | Ongoing BAU Opex | Increased maintenance around storages and channels. Arboreal work on various GW properties to comply with Public Open Space insurance policy. |
| Chemicals (Excluding GWF) | Chemical costs for the ROS and transfer systems are expected to increase during the commissioning period of GWF. Assumptions relating to Chemical Costs are detailed separately as requested by SKM. | 2.15 | 2.40 | 2.54 | 2.45 | 2.49 | 2.51 | 2.26 | 0.25 | 0.39 | 0.30 | 0.33 | 0.36 | 0.10 | 1.48 | ROS Additional chemical use (indirect result from GWF) will be within the commissioning period of GWF. | Refer separate documentation provided. |
| Sampling (Excluding GWF) | Additional sampling and testing obligations have been identified by Gippsland Water, and include additional monitoring downstream from Waste treatment plants, additional biological monitoring, and greenhouse gas monitoring. | 1.06 | 1.11 | 1.25 | 1.30 | 1.34 | 1.34 | 1.34 | 0.05 | 0.19 | 0.23 | 0.27 | 0.27 | 0.27 | 1.24 | Ongoing BAU Opex. New sampling requirements commencing in 2008/09 | Determined as part of GW significant budget process, which includes several internal review systems, justification mechanisms and approval processes. |
| Minor Maintenance (excluding GWF) | Gippsland Water has ongoing significant Minor Maintenance BAU expenditure. | 1.02 | 0.96 | 1.20 | 1.20 | 1.23 | 1.21 | 1.24 | -0.05 | 0.18 | 0.18 | 0.22 | 0.19 | 0.22 | 0.98 | Ongoing BAU Opex | |
| Staff Training | Gippsland Water has ongoing significant Staff Training expenditure. | 0.49 | 0.60 | 0.67 | 0.68 | 0.66 | 0.66 | 0.69 | 0.11 | 0.18 | 0.20 | 0.17 | 0.17 | 0.20 | 0.92 | Ongoing BAU Opex | Determined as part of GW significant budget process, which includes several internal review systems, justification mechanisms and approval processes. |
| Feasibility Studies | Gippsland Water regularly undertake feasibility studies as part of the planning process for Capital works planning. | 0.00 | - | 0.17 | 0.17 | 0.17 | 0.17 | 0.10 | 0.00 | 0.17 | 0.17 | 0.17 | 0.16 | 0.10 | 0.77 | Ongoing BAU Opex | Determined as part of GW significant budget process, which includes several internal review systems, justification mechanisms and approval processes. |
| Desludging | Desludging costs identified in the Biosolids Management Plan relate to on-site desludging works and transport of material from Gippsland Water's treatment sites to Dutson Downs SORF for processing. Short term desludge activities (<5yrs intervals) have been provided for in the operating budget. Details have been included separately as per SKM request. | - | 0.21 | 0.07 | 0.17 | 0.07 | 0.17 | 0.07 | 0.21 | 0.07 | 0.17 | 0.07 | 0.17 | 0.07 | 0.53 | Desludging Plan commences 2008/09 | Refer separate documentation provided. |
| Dam Safety | Gippsland Water is obliged to ensure its dam facilities are managed in compliance with ANCOLD guidelines. Initiatives included in the Water Plan period include Dam Safety compliance and Seismic Studies, and Desktop design reviews at Buckleys Hill, and Moondarra. Details have been included separately as per SKM request. | 0.08 | 0.11 | 0.35 | 0.35 | 0.07 | 0.08 | 0.06 | 0.03 | 0.27 | 0.26 | -0.01 | -0.01 | -0.02 | 0.49 | Buckleys Hill Design Review is planned for 2008/09, and Moondarra Design Review planned for 2009/10. Dam Safety and Seismic Study works are staggered across all Water Plan years for various sites. | Refer separate documentation provided. |
| Major Maintenance (Excluding GWF, excluding Desludging) | Gippsland Water has ongoing significant Major Maintenance BAU expenditure. | 2.21 | 1.61 | 2.37 | 2.36 | 2.12 | 2.19 | 2.17 | -0.60 | 0.17 | 0.15 | -0.09 | -0.02 | -0.04 | 0.18 | Ongoing BAU Opex | Determined as part of GW significant budget process, which includes several internal review systems, justification mechanisms and approval processes. |
| Maintenance/ Contractors (excluding GWF) | Gippsland Water has ongoing significant Maintenance / Contractor BAU expenditure. | 3.86 | 2.96 | 3.69 | 3.74 | 3.81 | 3.89 | 4.09 | - 0.90 | - 0.17 | - 0.12 | - 0.05 | 0.03 | 0.23 | - 0.08 | Ongoing BAU OPEX | |
| Bulk Oxygen Costs - ROS | BUDGET REDUCTION - Oxygen dissolver sites along the ROS have historically been used, however these have been stopped during 2007/08. Details have been separately provided as per SKM request. | 0.34 | 0.33 | 0.06 | - | - | - | - | -0.01 | -0.28 | -0.34 | -0.34 | -0.34 | -0.34 | - 1.63 | Use of Oxygen along ROS ceasing in 2007/08. | Refer separate documentation provided. |
| **Total** | | | | | | | | | **1.61** | **8.95** | **13.05** | **13.27** | **14.61** | **14.81** | **64.69** | | |
| **Variance from Target BAU Opex** | | | | | | | | | **1.14** | **9.01** | **13.31** | **13.49** | **14.81** | **15.10** | **66.87** | | |
| **Difference** | | | | | | | | | **0.46** | **- 0.06** | **- 0.26** | **- 0.22** | **- 0.20** | **- 0.29** | **- 0.56** | | |
| | | | | | | | | **Variance Noted SKM Review** | **1.14** | **9.01** | **13.31** | **13.49** | **14.81** | **15.10** | | | |

### 6.2.2 Gippsland Water Factory (GWF)

The Gippsland Water Factory is a wastewater treatment plant that treats domestic and industrial waste.

The principal driver that led to the establishment of the plant was the need to address a Pollution Abatement Notice (PAN) issued by the EPA on Gippsland Water in 1997 requiring that Gippsland Water eliminate or reduce, the odours that emanate from the Regional Outfall Sewer.

Due to increasing demand for wastewater treatment as a direct consequence of the announced expansion of the nearby Australian Paper Pulp and Paper Mill, the wastewater treatment plant incorporates a recycled water facility that further treats approximately 28% of the wastewater flows to a level suitable for reuse by Australian Paper. This feature was incorporated into the design to directly address hydraulic capacity shortfalls evident within the Regional Outfall Sewer (ROS) issues as a result of Australian Paper's expansion.

The balance (72%) of the low odour potential treated wastewater (typically too saline for land based re-use applications) is discharged to the ROS and conveyed to Gippsland Water's Dutson Downs property for ocean disposal via the Delray Beach ocean outfall.

The GWF proposed by Gippsland Water comprises the following:

- Elements now nearing completion of the construction phase including
  - A modern activated sludge / membrane filtration wastewater treatment plant at Morwell which at commissioning will treat approximately 35 ML/day of wastewater sourced from the Central Latrobe Valley, principally trade waste from Australian Paper (AP) and National Foods and domestic sewage and embedded trade waste sourced from the townships of Yallourn North, Tyers, Churchill, Traralgon, Toongabbie, Glengarry, Rosedale and about half of Morwell. These flows represent approximately 80% of the capacity of the GWF;
  - A pumping station and rising main conveying domestic sewage and tannery waste from Rosedale to the new wastewater treatment plant at Morwell;
  - A new pipeline from Sale to convey domestic sewage and embedded trade waste from Sale and Fulham to Dutson Downs for lagoon based treatment prior to discharge for irrigation / agricultural purposes at Gippsland Water's Dutson Downs property. All existing wastewater flows entering the ROS upstream of Rosedale are to be intercepted and piped back to the GWF at Morwell for treatment. The overall benefit of works currently in progress, once fully implemented, will be to ensure that only treated effluent is conveyed in the ROS;

- Water reclamation facilities at the GWF site to produce 8 - 10ML/day (3 GL/year) of Class "A plus" water suitable for use by Australian Paper, in manufacturing activities at its Maryvale Mill. This includes a reverse osmosis plant to process treated effluent and reduce salinity concentrations to levels suitable for large-scale industrial use. Water from the desalination units will be transported in a new pipeline (to be constructed) to Gippsland Water's Pine Gully reservoir, where it will be distributed via existing infrastructure to Australian Paper. Brine waste, produced from the RO treatment process will be intermingled with the treated wastewater discharged to the ROS for ultimate disposal in the ocean via the Delray Beach outfall.

- Elements planned for construction during the second regulatory period are:
  - A mini hydro plant at Pine Gully reservoir ;
  - A co-generation plant to capture and burn methane generated at the wastewater treatment plant for purposes of electricity generation; and
  - A multi- functional amenities building that incorporates operational functions (amenities, laboratories, control rooms and meeting spaces) into one building at the wastewater treatment site.

***Project Driver**:* The primary driver for the GWF is the elimination or reduction of odours emanating from the ROS (Regional Outfall Sewer) to an acceptable level to ensure compliance with the EPA Pollution Abatement Notice (PAN) that has been in force since 1997. Gippsland Water was required in the interim to meet odour reduction targets established between the EPA and Gippsland Water in 1998, 2000 and 2002. Odour elimination will be achieved by the removal of all untreated wastewater from the ROS.

Subsidiary drivers include:

- A shortfall of water within the Gippsland Water bulk entitlement for the Latrobe System (to be met through water recycling),
- The requirement for additional capacity to meet additional wastewater demands on the ROS; and
- the increasing rate of failures of the 40 km long piped section of the ROS due to its age and corrosive nature of the wastewater conveyed.

The primary driver for the water recycling component was to address the hydraulic capacity shortfall within the ROS due to increased waste demands being placed on this wastewater asset by the expansion of pulp and paper activities at the Australian Paper Maryvale Mill.

Currently the odours emanating from the ROS are managed by a range of measures including flow management and dosing with chemicals (sodium hydroxide and magnesium hydroxide). These measures are expected to reduce substantially when the GWF is operating satisfactorily and the

residual sludges and bio-slimes accumulated within the piped and channel sections of the ROS over the last 50 years have stabilised in terms of odour emissions in their new environment.

**Table 6-4** summarises the key dates of the various components of the GWF and the net annual forecast operating costs.

- **Table 6-4: GWF Project Facilities - Key dates and Overall Operating Costs**

| Component | Expected date of commencement of operation | Expected date that operational control passes from Alliance to Gippsland Water | Chemicals Used | Design capacity Flow (GL/yr) |
|---|---|---|---|---|
| WWTP at Morwell | 1 January 2009 | 1 January 2011 | Ferric Chloride, Caustic Soda<br>Sodium Hypochlorite<br>Polymer<br>Citric Acid | 12.574 |
| Rosedale pump station | 1 January 2009 | 1 January 2011 | Nil | 0.164 |
| Pipelines from Sale and Fulham to Dutson Downs | 1 January 2009 | 1 January 2011 | Nil | 1.814 |
| Reverse Osmosis Plant | 1 January 2009 | 1 January 2011 | Anti-scalant<br>Sulphuric Acid<br>Caustic Soda<br>Ammonia<br>Sodium Hypochlorite<br>Citric Acid | 3.9 |
| Mini hydro plant | | | N/A | 350kW |
| Co-generation plant | | | | 500kW |
| ROS odour management | 1 January 2009 | 1 January 2009 | Magnesium Hydroxide<br>Caustic Soda | |

Note: These facilities will be operated by the Alliance from 1 January 2009 to 31 December 2010. From 1 January 2011 the operation becomes the responsibility of Gippsland Water.

A breakdown of the forecast costs is shown in **Table 6-5**.

## Table 6-5: Breakdown of Opex costs of GWF

| Operating Expenditure in $ millions real (1/1/07) | 1st period | SECOND REG PERIOD | | | | | |
|---|---|---|---|---|---|---|---|
| | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | Total |
| **Gippsland Water Factory** | | | | | | | |
| Labour | - | 0.11 | 0.22 | 0.41 | 0.62 | 0.63 | **1.99** |
| Energy | - | 0.55 | 1.10 | 2.14 | 3.38 | 3.38 | **10.55** |
| Chemicals | - | 0.58 | 1.18 | 1.20 | 1.20 | 1.20 | **5.36** |
| Maintenance Agreement Contractor | - | 1.20 | 2.53 | 1.58 | 0.51 | 0.51 | **6.33** |
| Biosolids | - | 0.47 | 0.95 | 0.95 | 0.95 | 0.95 | **4.27** |
| Other | 0.05 | 0.45 | 0.89 | 0.94 | 1.01 | 1.01 | **4.30** |
| ***Total*** | **0.05** | **3.36** | **6.87** | **7.22** | **7.67** | **7.68** | ***28.53*** |

The review team notes that the total annual expenditure above approximately matches the expenditure estimated in the breakdown of the total project cost approved by Gippsland Water's Board in September 2006 (which was $14.9 million for two years proving and optimisation), and in Gippsland Water's letter(s) to the Treasurer and Minister for Water dated 3 August 2006 ($14.8 million for two years).

The review team has reviewed the expenditure for the GWF Stage 1 (**Table 6-5**) above and has treated the considered the costs as follows:

- GWF electricity costs – see **Section 6.2.3** following for assessment;
- GWF labour – assessed as part of labour overall in **Section 6.2.4**; and,
- GWF balance of costs as per **Table 6-5** is assessed below.

The preliminary view of the review team is that the long term plant operational costs, excluding energy and labour costs, are reasonable and prudent for a plant of this type and size.

The review team considers that in broad terms the GWF costs for GWF Stage 1 (excluding electricity and labour costs) are reasonable and prudent expenditure and contributes to the Variance from Target BAU Opex (refer Line Item 1, **Table 6-15**). These costs (excluding electricity and labour) are $2.71M, $5.55M, $4.67M, $3.67M and $3.67M in each of the respective years of the regulatory period and 420.27M in aggregate over the period. The review team notes that some of these costs are locked in as part of the agreement with the 'alliance' constructing and operating (for the first two years) the GWF, regardless of whether such costs are economically efficient.

The review team has been provided with information on the current status of the project and considers that, while progress appears to be slightly behind program, the plant could be commissioned and operational by the dates intended. However there is some potential for a three months drift and therefore delay in which these operational costs would first be incurred. The review team has assumed that the project will be completed for a 1 January 2009 full start-up. The review team is satisfied that at start-up the GWF is likely to be operating at 80% of full capacity from 1 January 2009 as planned.

The review team notes that the operational expenditure (excluding energy costs) is higher in the earlier years. For example, the annual operational expenditure in the longer term appears to be approximately $4.3M (excluding energy costs) but is approximately $5.8M in 2009/10 (the first full year of operation, including high maintenance contractor costs) and $5.1M in 2010/11. The review tea is satisfied that this is primarily due to the costs commitments to the alliance for delivery of the GWF (which presumably also includes some component of performance payments and/or return of capital). The review team considers that it is reasonable for this higher than normal 'operating costs' in 2009/10 and 2010/11 to be counted towards the Variance from Target BAU Opex explanation.

With more time the review team would suggest a closer review of the following:

- Some offsetting costs may occur associated with current operations that the GWF facilities either "supersede" or that will be no longer necessary. In particular the changes in biosolids management costs between 2006/07 (for which Gippsland Water received some relief in the first regulatory period) compared with this regulatory period. This matter is still not clear.
- the detail on the significant items comprising "other costs".

### 6.2.3 Electricity costs

The review team has assessed the real electricity cost increases under the following headings. Note in undertaking the assessment below the review team has not assessed the electricity demands in detail but generally considered them to be reasonable at a broad level. Other than for the GWF has not identified any significant increases in new demands.

***Electricity excluding GWF:*** The review team has assessed real electricity cost increases for the non-GWF energy costs using the approach outlined in **Section 3.2.1**. A summary of this analysis is presented in **Table 6-6**.

**Table 6-6: Review Team Assessment of Real Cost Increases in Electricity (Non-GWF)**

| Line Item | Electricity Expenditure (excluding GWF) in $000 (01/01/2007 real) | | | Second regulatory period | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 | 2011/12 | 2012/13 | Total |
| 1 | Total Electricity (Water Plan, excl'g GWF) | 1,762 | 1,972 | 1,965 | 2,398 | 2,397 | 2,515 | 2,515 | **11,791** |
| 2 | Variance from 2006/07 Actuals (excluding GWF) | | **209** | **202.6** | **635.3** | **635.0** | **752.8** | **752.8** | 2,978.5 |
| 3 | Percentage increase wrt 2006/07 - CGW View | | **12%** | **11%** | **36%** | **36%** | **43%** | **43%** | |
| 4 | Proposed percentage increases (Section 3.2.1) | | | **12%** | **15%** | **15%** | **15%** | **15%** | |
| 5 | Growth factor (from water customer numbers) | | **1.02** | **1.03** | **1.05** | **1.07** | **1.08** | **1.10** | |
| 6 | **Proposed forecast increases (growth adjusted) as assessed by review team [=Total Contributing to Variance from BAU Opex]** | | | **218.3** | **310.2** | **314.1** | **389.4** | **395.6** | **1,627.5** |
| 7 | **Adjustment required to GW's Water Plan non-GWF electricity costs [= Line 6 - Line 2]** | | | **16** | **(325)** | **(321)** | **(363)** | **(357)** | **(1,351)** |
| 8 | **Total Electricity Opex (Non - GWF) [= 2006/07 base + Line 6]** | | | **1,980** | **2,072** | **2,076** | **2,151** | **2,158** | **10,437** |

The summary of this is that for the non–GWF real increases in electricity costs:

- The total real electricity cost increases contributing to the Variance from Target BAU Opex in aggregate over the period is $1628K – refer Line Item 6, **Table 6-6**.
- The adjustment (reduction) in Gippsland Water's Water Plan electricity costs (excluding the GWF) in aggregate over the period is ($1351K) – refer Line Item 7, **Table 6-6**). These reductions transfer to the adjustments table (**Table 6-16**).

***Electricity excluding GWF:*** The review team has assessed real electricity cost increases for the GWF energy costs using the approach outlined in **Section 3.2.1**. A summary of this analysis is presented in **Table 6-7**.

The review team proposes that a similar adjustment is made to the forecast energy costs for the Gippsland Water Factory. This is based on the assumption that the increases in electricity charges for the GWF assumed by Gippsland Water are consistent with those for the remainder of Gippsland Water's operations. The review team understands that there is no significant increase in plant throughput envisaged from year to year and that the plant, once operational, is expected to operate at about 80% of design capacity throughout the second regulatory period.

- **Table 6-7: Review Team Assessment of Real Cost Increases in Electricity (GWF Only)**

| Line Item | Electricity (GWF) Expenditure in $000 (01/01/2007 real) | 2006/07 | 2007/08 | Second regulatory period 2008/09 | 2009/10 | 2010/11 | 2011/12 | 2012/13 | Total |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Total GWF Electricity (as forecast by GW) | - | - | 544.9 | 1,092.2 | 2,142.5 | 3,374.7 | 3,374.7 | 10,529.1 |
| 2 | Percentage increase wrt 2006/07 - GW View | | 12% | 11% | 36% | 36% | 43% | 43% | |
| 3 | Proposed percentage increases (Section 3.2.1) | | | 12% | 15% | 15% | 15% | 15% | |
| 4 | **Proposed forecast real increases (growth adjusted) as assessed by review team [=Total Contributing to Variance from BAU Opex]** | | | **547.4** | **923.3** | **1,811.3** | **2,719.4** | **2,719.4** | **8,720.7** |
| 5 | **Adjustment required to GW's Water Plan non-GWF electricity costs [= Line 4 - Line 2]** | | | **2** | **(169)** | **(331)** | **(655)** | **(655)** | **(1,808)** |
| 6 | **Total Electricity Opex (GWF only) [= Line 4]** | | | **547.4** | **923.3** | **1,811.3** | **2,719.4** | **2,719.4** | **8,721** |

The summary of this is that for the GWF only electricity costs:

- The total real cost increases contributing to the Variance from Target BAU Opex in aggregate over the period is $8721K – refer Line Item 4, **Table 6-7**.
- The adjustment (reduction) in Gippsland Water's Water Plan electricity costs (excluding the GWF) in aggregate over the period is ($1808K) – refer Line Item 5, **Table 6-7**). These reductions transfer to the adjustments table (**Table 6-16**).

### 6.2.4 Labour (excluding GWF)

Gippsland Water plans to recruit a number of staff in order to implement and then operate new works and undertake additional waterway management, river health, and wastewater treatment

operations. In addition the enterprise bargaining agreement allows for increases above CPI. Gippsland Water submitted detailed information to the review team concerning these additional costs. This breakdown accounted for approximately 60% of the overall amount claimed as additional labour costs in **Table 6-3**. These details are presented below but have been adjusted downwards by the review team to reflect annual increases above CPI of 1.25% p.a as discussed in **Section 3.2.3**, (as increased costs in excess of this are expected to be absorbed by increases in productivity).

Gippsland Water has advised that it proposes to make appointments to a number of new positions during for the period with an associated additional operating expenditure as indicated in **Table 6-8.**

- **Table 6-8: Additional Labour Costs – associated with new positions during the period (GW View)**

| Identification of Position / Site | Forecast Expenditure - Real $ (01/2007) | | | | | |
|---|---|---|---|---|---|---|
| | 2007/08 | 2008/09 | 2009/10 | 2010/11 | 2011/12 | 2012/13 |
| **Department - Planning And Development** | | | | | | |
| CLERK OF WORKS - TECH OFFICER (20% Non-Capital) - B4 Position 1 | 26,596 | 26,862 | 27,131 | 27,402 | 27,676 | 27,953 |
| CLERK OF WORKS - TECH OFFICER (20% Non-Capital) - B4 Position 2 | 26,596 | 26,862 | 27,131 | 27,402 | 27,676 | 27,953 |
| MAINTENANCE MANAGEMENT TECH OFFICER - B3 | 68,748 | 69,435 | 70,129 | 70,831 | 71,539 | 72,254 |
| **Department : Operations** | | | | | | |
| WT TECHNICIAN - B2 From 2008/09 | - | 68,329 | 69,013 | 69,703 | 70,400 | 71,104 |
| WT TECHNICIAN - B2 - From 2010/11 | - | - | - | 69,703 | 70,400 | 71,104 |
| WT TECHNICIAN - B2 - From 2012/13 | - | - | - | - | - | 71,104 |
| **Department : Corporate Services** | | | | | | |
| IT SYSTEM ADMINISTRATOR - B4 | 88,736 | 89,623 | 90,520 | 91,425 | 92,339 | 93,263 |
| SAVE WATER OFFICER - B3 | - | - | 82,935 | 83,764 | 84,602 | 85,448 |
| **Department : Finance and Regulation** | | | | | | |
| SCIENTIFIC OFFICER (Environmental Regulation) - B5 | 106,748 | 107,815 | 108,893 | 109,982 | 111,082 | 112,193 |
| **Sub Total** | **317,424** | **388,928** | **475,752** | **550,212** | **555,714** | **632,375** |
| **Equivalent FTE Numbers** | **3.4** | **4.4** | **5.4** | **6.4** | **6.4** | **7.4** |

The effective increase in FTE personnel numbers is indicated in the last line of **Table 6-8**. The review team considers that the proposed number and type of new positions seems reasonable and prudent, particularly compared with other water businesses. The need for an extra water technician in the last year of the period is arguable and the expenditure could be deferred to the next regulatory period.

Consistent with other businesses the review team has determined reasonable expenditure as being on average $80K p.a. per position including on-costs.

**Shifts in labour expenditure from 2006/07 to the beginning of this regulatory period:** The review team was concerned about the significant increase in labour costs between the 2006/07 (base year) labour expenditure, the 2007/08 forecast and that proposed for the start of the period (2008/09). The respective annual labour costs are (*in real $*):

- 2006/07: $15.162M
- 2007/08: $16.77M (an increase of $1.61M)
- 2008/09: $17.27M from Opex by Driver **Table 6-1** (or $17.154M from other information provided by GW).

Gippsland Water was of the view that a significant number of resources were recruited in 2006/07, many part way through the year and hence the 2006/07 costs are not fully reflective of ongoing costs. In order to explain this quantitatively and to address the review team's concerns, Gippsland Water provided information to explain this significant difference, as summarised in **Table 6-9**.

- **Table 6-9: Gippsland Water's Explanation of "Base" Labour Cost Increase from 2006/07 to 2007/08**

| Item No. | Item Description | Amount $'000K | Comment |
|---|---|---|---|
| 1 | New positions (consistent with **Table 6.8**) | 317 | Included - accounted for as in **Table 6-9** |
| 2 | Increase in field operations overtime | 102 | Included - but query whether this should be in the base |
| 3 | Band reclassifications | 155 | Not included - see Section 3.2.3, to be absorbed by the growth adjusted Target BAU Opex and/or productivity improvements |
| 4 | EA Increases | 265 | Included - but allowed for as in **Table 6-9** |
| 5 | Direct Appointments to "refresh" positions | 77 | Not included - assumed to be absorbed by the growth adjusted Target BAU Opex and/or productivity improvements |
| 6 | "Ripple effect" vacancies filled internally | 109 | Not included - assumed to be absorbed by the growth adjusted Target BAU Opex and/or productivity improvements |
| 7 | "Ripple effect" vacancies filled internally | 119 | Not included - assumed to be absorbed by the growth adjusted Target BAU Opex and/or productivity improvements |
| 8 | Other long term vacancies during 2006/07 | 179 | Not included. |
| 9 | Unexplained shortfall | 287 | Not included |
| | TOTAL | 1610 | |

Line Items 1, 2 and 4 in the above table have been appropriately allowed for in determining the real increases in labour costs (see **Table 6-10**).

However, the review team had a number of concerns about the reasonableness and merits of the explanations put forward to explain the substantial increase in labour costs from2006/07 through 2007/08 to 2008/09. It seemed unreasonable to include many of these items in the *cost bas*e when the expectation is that they should properly be absorbed by productivity improvements in the business and/or by the adjustment allowance for growth in the Target BAU opex. The overall impression is of inadequately explained "labour cost creep". The review team also notes that there is an incomplete explanation of the increase between 2006/07 and 2007/08 (line item 9, **Table 6-9**) and also between 2007/08 and 2008/09.

The net effect of the above appears to be an inflation of the cost base.

A summary of all labour costs proposed by GWF and the review team's assessment of them is indicated in **Table 6-10**.

### Table 6-10: Review Team Assessment of Gippsland Water's Labour Costs

| Line Item | LABOUR COST ITEM | Labour Operating Expenditure - $'000K real (1 January 2007) | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | | 2007/08 | 2007/08 | 2008/09 | 2009/10 | 2010/11 | 2011/12 | 2012/13 | |
| | **Labour Opex - GW Water Plan** | | | | | | | | |
| 1 | Labour (excluding GWF) | 15,162 | 16,770 | 17,155 | 17,413 | 17,967 | 18,483 | 18,919 | **89,937** |
| 2 | GWF Labour | | | 110 | 220 | 410 | 620 | 630 | **1,990** |
| 3 | **Total labour proposed by Gippsland Water (per Water Plan, refer Table 6-1)** | | | **17,265** | **17,633** | **18,377** | **19,103** | **19,549** | **91,927** |
| | **Review Team Assessment** | | | | | | | | |
| 4 | Base Labour Cost | 15162 | 15162 | 15162 | 15162 | 15162 | 15162 | 15162 | **75,810** |
| 5 | EBA Increase (@1.25%) on base labour | | 190 | 381 | 576 | 772 | 972 | 1173 | **3,874** |
| 6 | New Positions Opex (incl'g escalation) | | 272 | 359 | 448 | 539 | 552 | 566 | **2,464** |
| 7 | Assume some additional Overtime (review) | | | 100 | 103 | 105 | 108 | 110 | **526** |
| 8 | GWF Labour | | | 110 | 220 | 410 | 620 | 630 | **1,990** |
| 9 | **Total Reasonable and Prudent Labour Cost Opex** | | 15624 | 16112 | 16508 | 16988 | 17414 | 17642 | **84,664** |
| | | | | | | | | | **-** |
| 10 | **Amount as Contributing to Variance from BAU Opex Explanation [Line 10 - S15162K (base year opex)]** | | | 950 | 1346 | 1826 | 2252 | 2480 | **8,854** |
| | | | | | | | | | **-** |
| 11 | **Adjustment required to GW's Water Plan labour costs [= Line 9 - Line 3]** | | | (1,153) | (1,125) | (1,389) | (1,690) | (1,907) | **(7,263)** |

The summary of this is that for Gippsland Water's total labour costs (including the GWF):

- The total real labour cost increases contributing to the Variance from Target BAU Opex in aggregate over the period is $8,854K – refer Line Item 10, **Table 6-10**.
- The adjustment (reduction) in Gippsland Water's Water Plan labour costs (including the GWF) in aggregate over the period is ($7,263K) – refer Line Item 11, **Table 6-10**). These reductions transfer to the adjustments table (**Table 6-16**).

The GWF labour expenditure also seems on the high side and may warrant further review. On balance the review team considers that the expenditure levels proposed for GWF labour are probably warranted given the specialist nature of the operational activities.

### 6.2.5 Chemicals (excluding GWF)

Gippsland Water has provided the review team with detailed information on the forecast movement in costs for chemicals for each of the 31 wastewater treatment and 32 water treatment sites where chemical dosing is practised, and the ROS.

A summarised breakdown of the information provided by Gippsland Water on movements in chemical costs and the review team's assessment is provided in **Table 6-11**.

**Table 6-11: Summary of Chemical Cost Movements**

| Line Item | Item Description | Chemical Opex - $'000K, real 1 January 2007 | | | | | | | Total Reg'y Period |
|---|---|---|---|---|---|---|---|---|---|
| | | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 | 2011/12 | 2012/13 | |
| | **ROS related chemicals** | | | | | | | | |
| 1 | ROS Upstream of the GWF discharge point | 400 | 400 | 400 | 400 | 400 | 400 | 400 | 2,000 |
| 2 | Wastewater Treatment - oxygen | 428 | 60 | 60 | - | - | - | | 60 |
| 3 | Wastewater Treatment - chemicals replacing Oxygen | - | 587 | 400 | 50 | 50 | - | - | 500 |
| 4 | APM discharge | 13 | 13 | - | - | - | - | - | - |
| 5 | ROS downstream of the GWF discharge point | 196 | 196 | - | - | - | - | - | - |
| 6 | Total Cost for ROS Management | 1,038 | 1,257 | 860 | 450 | 450 | 400 | 400 | 2,560 |
| 7 | Net Real Chemical Cost movements from 2006/07 - ROS | | | (178) | (588) | (588) | (638) | (638) | (2,630) |
| | **Non ROS Chemical Cost Movements (advised by GW)** | | | | | | | | |
| 8 | Water treatment sites | | | 27.8 | 123.4 | 145.8 | 155.4 | 182.7 | 635.1 |
| 9 | Waste water treatment sites | | | (16.0) | (1.8) | 11.0 | 26.1 | 44.4 | 63.7 |
| 10 | Net Real Chemical Cost movements from 2006/07: Non -ROS | | | 12 | 122 | 157 | 181 | 227 | 699 |
| 11 | **Net Real Chemical costs movements all systems (= Line 10 + Line 7)** | | | (166) | (466) | (431) | (457) | (411) | (1,931) - |
| 12 | Variance from 2006/07 Actuals (as claimed by GW for Water Plan) - 2006/07 Actual: $2.152M | | | 389 | 299 | 334 | 358 | 104 | 1,484 |
| 13 | **Adjustment Required (= Line 11 - Line 12)** | | | (555) | (765) | (765) | (815) | (515) | (3,415) |

It can be seen from the above table that there are significant reductions in chemicals for managing odour and corrosion issues in the ROS once the GWF is commissioned and operating. Refer Line Items 1 to 7, **Table 6-11**.

While the costs of chemicals for the section of the ROS upstream of the GWF discharge point remains relatively unchanged (Line Item 1), there little or no need for chemical dosing of the

effluent discharged from the GWF into the ROS at Morwell or for treating the ROS flows (treated effluent from the GWF) in the ROS downstream of the GWF. This is reflected in Lines 2 to 5 in **Table 6-11**.

In particular the reductions are:

- Bulk oxygen costs for the ROS show a large reduction in costs (Line Item 2). This is because the use of oxygen was discontinued entirely from about September 2007, when oxygen dissolver sites along the pipe and channel sections of the ROS were removed, (NB: This "oxygen" item was identified separately as an item of variance in **Table 6-3** but has been consolidated into this item for convenience).
- The bulk oxygen injection was replaced by dosing with chemicals (e.g. Magnesium hydroxide) in 2007/08 (Line Item 3). These are no longer needed from 2009/10 onwards.
- ROS trunk sewer itself (Line Item 5) and the Australian Paper Storage dosing (Line Item 4).

At Line Item 7, the total cost of ROS management with chemicals for the period is $2560K. This compares with Gippsland Water's original proposal in the Water Plan for expenditure of $3400K. Originally Gippsland Water proposed continuation of chemical dosing "as a factor of safety should the GWF not be as successful as the designers propose". The review team considered that this allowance was not appropriate for regulatory purposes particularly as the costs of the GWF were being included (either in the Water Plan or as part of the explanation of the Variance from Target BAU Opex.). Gippsland Water acknowledged that this could be reduced and that it did not need to build in a 'safety factor' once the GWF was operational. In response to the Draft Report, GW proposed $2600K as the revised Opex for ROS chemical management.

The review team has reduced this by a slight further amount with a slightly accelerated phase out compared with GW's proposal.

Line Items 9 and 10, **Table 6-11** cover the increased chemical costs advised by Gippsland Water for the water treatment sites and some wastewater treatment sites. These seem reasonable and prudent.

Gippsland Water also advises that some increases in costs in some chemicals (its supplier has advised increased magnesium hydroxide costs from December 2007). However this is now much less significant as a substantial component of chemical dosing will cease.

In summary, the review team assessment indicates that:

- The amount included in GW's Water Plan for real chemical cost increases (Line Item 12, **Table 6-11**) is inappropriate;

- The real net movement in chemical costs is a decrease in all years (with the overall net amount for GW shown at Line Item 11, **Table 6-11** (and individually for ROS at Line Item 7 and Non –ROS at Line Item 10).
- For the purposes of explaining Variance from Target BAU Opex the increases in real costs indicated in Line Item 10, **Table 6-11** are appropriate provided that the necessary adjustments reflecting the real reductions in chemical costs are made elsewhere (in the adjustments table in **Section 6.2.3**);
- Gippsland Water's Water Plan expenditure should be adjusted /reduced by the amounts shown at Line 12, **Table 6-11**. These amounts transfer to the adjustments table in **Section 6.3**.

The review team notes that reductions (or savings, negative items of expenditure) are not an explanation of Variance from Target BAU Opex. These should be properly reflected in a reduced gross planned operating expenditure in each year in the construction of the Water Plan expenditure. [NB: Furthermore, negative items reduce the amount put forward to explain the Variance].

### 6.2.6 Consultants Fees (excluding GWF)

The expenditure envisaged by Gippsland Water is equivalent to annual average expenditure of $0.82 million, compared with $0.34 million in 2006/07. Thus forecast costs indicate that annual expenditure will be more than double that of 2006/07. In addition a further similar item referred to as "feasibility studies" is shown reflecting a further 50 percent increase ($0.17M p.a.) relative to 2006/07 expenditure. This increase is attributed primarily to a Sustainability Investigation Review Program. The priority and urgency for these studies needs to be considered in the context of reducing pressure on water resources given recent rains in the Gippsland region.

Gippsland Water has provided a range of further information on activities proposed to be undertaken. Some of these could be considered to effectively be provisions for work which is at the moment only scoped work. While there are broad obligations to be met, the timing of these is not specified and normally it would be expected that activities would be reasonably phased and smoothed over the period.

The review team proposes to consolidate these two items (consultants fees and feasibility studies) and considers that for the purposes of increasing the regulatory Opex base and explaining the Variance from Target BAU Opex that a total expenditure of $700K p.a. is appropriate and reasonable. This represents a real increase of over 100% relative to the 2006/07 expenditure.

### 6.2.7 Environment

Expenditure on this item was $77.8K in 2006/07 and is projected to increase dramatically, averaging $536K /year during the second regulatory period and peaking at $600K in 2008/09. The breakdown provided by Gippsland Water against this item is shown in **Table 6-12**.

- **Table 6-12: Breakdown of Opex costs for "Environment"**

| Environment and Water Quality Governance | Second regulatory period | | | | | |
|---|---|---|---|---|---|---|
| *Expenditure in $000 01/01/2007 real* | 2008/09 | 2009/10 | 2010/11 | 2011/12 | 2012/13 | Total |
| GWS299 Incentive Payment | 85 | 100 | 100 | 100 | 100 | 485 |
| Assess ecosystem health impacts of 17 operational weirs | 80 | 80 | 50 | 50 | - | 260 |
| Construction of fish passages on priority sites | - | 100 | 100 | 100 | 100 | 400 |
| Survey of health of Morwell wetlands and river | 30 | 30 | 30 | 30 | 30 | 150 |
| Ecological health of Tyers River d/s of Moodarra Reservoir | 50 | 30 | 30 | 30 | 30 | 170 |
| External audits - risk management plans | 30 | 30 | 30 | 30 | 30 | 150 |
| Impacts of potable water yield on aquifer health | 25 | 25 | 10 | 10 | 10 | 80 |
| Definition of WTTP mixing zones - 5 sites | 80 | 80 | 50 | 80 | 50 | 340 |
| Condition surveys - NH mouse & Mintbush | 30 | 30 | 30 | 30 | 30 | 150 |
| Contribution to CRC e-water project | 100 | 50 | 50 | 50 | 50 | 300 |
| Contribution to WSAA sustainability assessment tool | 10 | 10 | 10 | 10 | 10 | 50 |
| Document habitat values of land under management | 50 | - | - | - | - | 50 |
| Management strategy for Dutson Downs wetland | 30 | 20 | 15 | 15 | 15 | 95 |
| **Total** | **600** | **585** | **505** | **535** | **455** | **2,680** |

The review team has had further discussions with Gippsland Water on the activities put forward in **Table 6-12**.

The review team considers that for the purposes of contributing to the explanation of Variance from Target BAU Opex that adjustment to the overall amounts is appropriate because a number of these items could be considered to be BAU and/or covered in the growth adjustment of Target BAU Opex and/or managed within the "swings and roundabouts" of normal business activities (e.g. it is difficult to understand why there would be no offsetting costs on other similar activities that have been concluded in this area or other business areas) and/or absorbed within overall business expenditure (e.g. items less than $50K to $100K over the period).

The following are examples of such activities where adjustment seems reasonable based on this approach:

- External audits, risk management plans (further the review team understands that audits are only required by exception, at the request of the Minister);
- GWS229 incentive payments – where the notion of incentive payments would be expected to have some offsetting costed benefits even if the incentive payments are related to improving the quality of service delivery;
- Contribution to the WSAA Sustainability assessment tool
- Uniform contribution to the cost of the CRC e-water project contribution (i.e. adjust 2008/09 amount);
- Combining the annual expenditure for assessment of ecosystem health impacts of 17 operational weirs and the construction of fish passages on priority sites into reasonable aggregate amount (say $100K p.a.).

Consequently the review team proposes that a reasonable and prudent quantum of *additional* expenditure to be effectively built into the regulatory Opex base and contributing to the explanation of the Variance from Target BAU Opex would be as indicated in **Table 6-13**.

**Table 6-13: Assessment of Opex costs for "Environment"**

| Environment and Water Quality Governance | Second regulatory period | | | | | |
|---|---|---|---|---|---|---|
| *Expenditure in $000 01/01/2007 real* | 2008/09 | 2009/10 | 2010/11 | 2011/12 | 2012/13 | Total |
| GWS299 Incentive Payment | 50 | 50 | 50 | 50 | 50 | 250 |
| Assess ecosystem health impacts of 17 operational weirs | 80 | 50 | - | - | - | 130 |
| Construction of fish passages on priority sites | - | 50 | 100 | 100 | 100 | 350 |
| Survey of health of Morwell wetlands and river | 30 | 30 | 30 | 30 | 30 | 150 |
| Ecological health of Tyers River d/s of Moondarra Reservoir | 50 | 30 | 30 | 30 | 30 | 170 |
| External audits - risk management plans | - | - | - | - | - | - |
| Impacts of potable water yield on aquifer health | 25 | 25 | 10 | 10 | 10 | 80 |
| Definition of WTTP mixing zones - 5 sites | 80 | 80 | 50 | 80 | 50 | 340 |
| Condition surveys - NH mouse & Mintbush | 30 | 30 | 30 | 30 | 30 | 150 |
| Contribution to CRC e-water project | 50 | 50 | 50 | 50 | 50 | 250 |
| Contribution to WSAA sustainability assessment tool | - | - | - | - | - | - |
| Document habitat values of land under management | 50 | - | - | - | - | 50 |
| Management strategy for Dutson Downs wetland | 30 | 20 | 15 | 15 | 15 | 95 |
| **Total** | **475** | **415** | **365** | **395** | **365** | **2,015** |

The net effect of this view reflects a reduction form GW's proposal of $2680K to $2015K over the regulatory period.

As a general observation the review team is concerned that this justification of "detail by detail" activity will have the tendency to unreasonably inflate the regulatory Opex base. From a global perspective, it would seem prudent to prioritise such expenditure both based on the absolute drivers and within this list and also within Gippsland Water's overall expenditure restraints and cap the increase at a reasonable quantum. This does not ignore the fact that each of these has potential merit. This applies equally to other categories.

### 6.2.8 Native Vegetation Credits

Gippsland Water has identified a number of sites on projects to be constructed during the second regulatory period where native vegetation occurs and environmental offsets are envisaged and which it considers represent essential obligations. Aggregate expenditure totalling $2.03 million has been forecast for this purpose.

In providing a detailed breakdown of this forecast expenditure Gippsland Water has indicated a reduction of approximately $94K overall and a variation in expenditure profile proposed in the Water Plan.

The review team considers that a further adjustment is appropriate to be effectively built into the regulatory Opex base and contribute to the explanation of the Variance from Target BAU Opex. All this is summarised in **Table 6-14**.

## Table 6-14: Assessment of Native Vegetation Cedits

| Item Description | Quantum of Expenditure ($real, 1 January 2007) | | | | | Period Total |
|---|---|---|---|---|---|---|
| | 2008/09 | 2009/10 | 2010/11 | 2011/12 | 2012/13 | |
| Sunny Creek- Mgt Fee | 85,000 | 85,000 | 85,000 | 34,700 | 34,700 | 324,400 |
| Sunny Creek- Fencing & Survey | | | | | | |
| Dutson Downs (Mgt Fee) | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 | 150,000 |
| Dutson Downs- Fencing & Survey | - | - | - | - | - | |
| Legal fees re. changing GW titles | 20,000 | 20,000 | | | | 40,000 |
| Latrobe Shire - management of disturbed reserve vegetation | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | 50,000 |
| Costs for the Environmental Assessment of the following sites: | | | | | | |
| Drouin Nature Reserve | | | | | | |
| Rawson WWTP Site | | | | | | |
| Moe WTP Site | | | | | | |
| Bowmans Basin Maffra | | | | | | |
| Flora & Fauna assessments, surveys and fencing | 44,910 | 44,910 | 44,910 | 44,910 | 44,910 | 224,548 |
| 10 Yr Management Plans (4 sites) | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 500,000 |
| Ongoing Environmental Assessment for Dutson Dow | 20,000 | 20,000 | 20,000 | 20,000 | 20,000 | 100,000 |
| Significant length Pipe-run" projects with expected native vegetation / cutural heritage issues during Water Plan period | | | | | | |
| Loch Sport - Mgmt Fee | | | | 50,000 | 50,000 | 100,000 |
| Loch Sport - Fencing / Survey | | | | 100,000 | | 100,000 |
| Coongulla / Glenmaggie - Mgmt Fee | | | 15,000 | 30,000 | 30,000 | 75,000 |
| Coongulla / Glenmaggie - Fencing / Survey | | | 30,000 | 30,000 | | 60,000 |
| Boolarra / Yinnar - Mgmt Fee | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 125,000 |
| Boolarra / Yinnar - Fencing / Survey | 50,000 | | | | | 50,000 |
| Moe / Warragul - Mgmt Fee | | | | 10,000 | 10,000 | 20,000 |
| Moe / Warragul - Fencing / Survey | | | | 20,000 | | 20,000 |
| Revised proposed by GW during Draft Report discusssion | 384,910 | 334,910 | 359,910 | 504,610 | 354,610 | 1,938,948 |
| Minimum adjustment proposed by Review Team | (45,000) | (45,000) | (45,000) | (75,000) | (45,000) | (255,000) |
| Revised expnditure Proposed by Review Team | **339,910** | **289,910** | **314,910** | **429,610** | **309,610** | 1,683,948 |
| GW original Water Plan submission | 529,963 | 403,752 | 384,822 | 358,667 | 356,193 | 2,033,397 |
| Review Team Proposd adjustment to GW's Water Plan expenditure | (190,053) | (113,842) | (69,912) | 70,943 | (46,583) | (349,449) |

In proposing its adjustments the review team notes that some expenditure associated with Coongulla and Glenmaggie could be deferred and that the amount on the management plans is on the high side (for effective incorporation into a regulatory Opex base).

The aggregate amount contributing to the Variance from Target BAU Opex as reasonable, necessary and prudent expenditure is $1684K over the period (which transfers to the **Table 6-15**) and the net adjustment (last line in **Table 6-14** is ($349K) over the period (transfers to the adjustments table in **Section 6.3**).

### 6.2.9 Biosolids (excluding GWF)

The review team understands the costs put forward in explanation of the variance, which total $1.68 million overall during the second regulatory period) are associated with the charges for processing of biosolids from water treatment plants due to commence for first time in 2008/09, in accordance with the Biosolids Management Plan.

The review team has been provided with further information, including a copy of the Biosolids Management Plan, and considers the proposed expenditure reasonable and prudent.

The review team proposes no amendment to the expenditure forecast.

### 6.2.10 Land Services

Additional amounts totalling $1.53 million during the second regulatory period have been identified to cover increased maintenance around storages and channels and arboreal work on various properties owned by Gippsland Water in order to comply with the Public Open Space Insurance policy.

The review team has discussed this further with Gippsland Water, and while it has some reservations about the full quantum of expenditure being outside current BAU, does not propose any amendment at this stage.

### 6.2.11 Sampling (excluding GWF)

Gippsland Water has identified additional monitoring, sampling and testing requirements. The additional costs involved amount to $1.24 million during the second regulatory period. No amendment is proposed to this allowance, which is considered reasonable, necessary and to form part of the explanation of the variance.

### 6.2.12 Minor Maintenance (excluding GWF)

There are at least three items in **Table 6-3** referring directly to maintenance. These, and the associated total costs / incremental costs relative to 2006/07, are:

- Minor maintenance (excluding GWF) - $1.24 / $0.98 million;
- Major maintenance (excluding GWF, excluding desludging) - $2.17 / $0.18 million;
- Maintenance contractors (excluding GWF) - $4.09 / $ 0.08 (decrease) million.

Overall the increase in annual maintenance cost (excluding GWF) is forecast to be approximately $0.22 million which represents a 3 percent increase in real terms over expenditure in 2006/07.

The expenditure forecast for these items is considered reasonable and to form part of the explanation of the Variance from Target BAU Opex.

### 6.2.13 Desludging

The costs are considered reasonable, prudent and necessary and to form part of the explanation of the variance to target BAU Opex.

### 6.2.14 Dam Safety ($0.49 million)

The forecast expenditure is considered reasonable, prudent and necessary and to form part of the explanation of the variance to target BAU Opex.

### 6.2.15 Major Maintenance and Maintenance Contractors

The forecast expenditure is considered reasonable and the amounts put forward of $0.18 and -$0.08 million respectively to form part of the explanation of the Variance from Target BAU Opex (see **Section 6.2.12**).

### 6.2.16 Bulk Oxygen Costs - ROS

The budget reduction has been consolidated into the item for Chemicals (excluding GWF) in **Section 6.2.5.** The quantum of this reduction has been based on the detailed breakdown of chemical costs provided by Gippsland Water rather than the amounts shown in **Table 6-3**.

### 6.2.17 Overall Assessment of Explanations of Variance to Target BAU Opex

Based on the discussion as outlined in **Sections 6.2.2** to **6.2.16**, the review team's assessment of the items put forward by Gippsland Water as justifying the Variance from Target BAU Opex in the five years of the regulatory period is summarised in **Table 6-15** below.

The review team notes that:

- The sum of the new/additional expenditure associated with the items put forward by Gippsland Water as justifying the Variance from Target BAU Opex exceed a full explanation of the Variance in each year of the second regulatory period and by $ 0.56 million in aggregate. [Refer **Table 5-3**].
- Based on its preliminary assessment, the review team considers that sum of the increased operational expenditure for the items indicated by Gippsland Water as justifying the Variance from Target BAU Opex is $53.13M in aggregate over the regulatory period. This falls short of a full justification of the Variance from Target BAU Opex by $7.26M in aggregate over the five years of the regulatory period (i.e. there is an "unjustified" amount at this stage).

  The implication of this is that the target productivity improvement of 1% per annum (after growth) specified by the ESC will not be achieved in any year of the regulatory period or overall.

## Table 6-15: Review Team Assessment of Costs Contributing Towards the Justification of the Variance from Target BAU Opex

| Line Item | Identification of Item | Forecast Expenditure $M (real 01/01/2007) | | | | | RP2 Total |
|---|---|---|---|---|---|---|---|
| | | 2008/09 | 2009/10 | 2010/11 | 2011/12 | 2012/13 | |
| 1 | GWF Stage 1 - Total BAU OPEX excluding electricity and labour costs | 2.71 | 5.55 | 4.67 | 3.67 | 3.67 | **20.27** |
| 2 | Electricity real cost increases - GWF only (demand and price) | 0.55 | 0.92 | 1.81 | 2.72 | 2.72 | **8.72** |
| 3 | Electricity real cost increases -all other GW sites (non-GWF) | 0.22 | 0.31 | 0.31 | 0.39 | 0.40 | **1.63** |
| 4 | Labour (including GWF) | 0.95 | 1.35 | 1.83 | 2.25 | 2.48 | **8.85** |
| 5 | Chemicals (Excluding GWF) | 0.01 | 0.12 | 0.16 | 0.18 | 0.23 | **0.70** |
| 6 | Consultants Fees (Excluding GWF) | 0.36 | 0.36 | 0.36 | 0.36 | 0.36 | **1.80** |
| 7 | Environment | 0.48 | 0.42 | 0.37 | 0.40 | 0.37 | **2.02** |
| 8 | Native Vegetation Credits | 0.34 | 0.29 | 0.31 | 0.43 | 0.31 | **1.68** |
| 9 | Biosolids (excluding GWF) | 0.40 | 0.47 | 0.27 | 0.27 | 0.27 | **1.68** |
| 10 | Land Services (excluding GWF) | 0.30 | 0.27 | 0.30 | 0.30 | 0.35 | **1.53** |
| 11 | Sampling (Excluding GWF) | 0.19 | 0.23 | 0.27 | 0.27 | 0.27 | **1.24** |
| 12 | Minor Maintenance (excluding GWF) | 0.18 | 0.18 | 0.22 | 0.19 | 0.22 | **0.98** |
| 13 | Staff Training | 0.18 | 0.20 | 0.17 | 0.17 | 0.20 | **0.92** |
| 14 | Desludging | 0.07 | 0.17 | 0.07 | 0.17 | 0.07 | **0.53** |
| 15 | Dam Safety | 0.27 | 0.26 | -0.01 | (0.01) | (0.02) | **0.49** |
| 16 | Major Maintenance (Excluding GWF, excluding Desludging) | 0.17 | 0.15 | -0.09 | (0.02) | (0.04) | **0.18** |
| 17 | Maintenance/ Contractors (excluding GWF) | (0.17) | (0.12) | (0.05) | 0.03 | 0.23 | **(0.08)** |
| 18 | Feasibility Studies | **Consolidated with "Consulting Fees (excluding GWF)"** | | | | | **-** |
| 19 | Bulk Oxygen Costs - ROS | **Consolidated with "Chemicals (Excluding GWF)"** | | | | | - |
| 20 | **Total** | **7.20** | **11.12** | **10.96** | **11.77** | **12.08** | **53.13** |
| 21 | **Variance from Target BAU Opex** | **8.48** | **12.52** | **12.43** | **13.47** | **13.49** | **60.39** |
| 22 | **Difference** | **(1.28)** | **(1.40)** | **(1.47)** | **(1.70)** | **(1.41)** | **(7.26)** |

To achieve a productivity gain of 1% (after allowance for growth) the operating expenditure has to be adjusted/reduced by the quantum indicated in the bottom line of **Table 6-15**above (i.e. the Difference between the Total of Justified Additional Expenditure [third last line] and the Variance from Target BAU Opex. [second last line]).

Consequently a productivity adjustment is required if the sum of the adjustments recommended in **Table 6-16** do not at least equal the sum of the adjustments implied in the last line ('difference') in **Table 6-15**.

As can be seen from **Table 6-16** the sum of the adjustments recommended does exceed that implied in **Table 6-15**. Thefore no specific (additional) productivity adjustment is proposed.

## 6.3 Further Opex Issues

### 6.3.1 Security

Gippsland Water spends approximately $250 to $300K p.a. in terms of a program for the upgrading of security systems. This expenditure is prioritised according to a criticality assessment of its sites

and the security issues associated with each. It covers items such as security fencing, security lighting, access control (swipe cards) etc.

The review team notes that some components of such real operational expenditure increases are driven by a perceived need to meet the expectations of its power station customers regarding security of supply.

At this stage, a constant expenditure of $150K p.a. is proposed for this expenditure. The review team remains of the view after further discussion that the security expenditure provisions are disproportionately high (particularly compared with other water authorities) and that there is scope for reducing expenditure, particularly in the later part of the regulatory period. The non-labour costs component seems reasonable and prudent.

### 6.3.2 Reduction of Energy Purchases Attributable to GWF Micro – Hydro and Bio-Gas generation plants

**Section 5.2.3** includes a discussion of the proposed micro hydro and bio-gas generation plants which Gippsland Water plans to commence operation at the beginning of financial year 2009/10. The envisaged amount of energy generated by these plants and matching reduction in energy purchases will be 5,880 MWh / year. The estimated saving on this account, based on the unit costs of electricity proposed implied in **Section 6.2.3** have been assessed together with further information provided by Gippsland Water.

The review team is satisfied that the electricity costs savings have been adequately allowed for in the GWF electricity costs (Line Item 1, **Table 6-7**), and therefore no further adjustment is proposed.

## 6.4 Recommendations

The review team's recommendations on adjustments to Gippsland Water's operational expenditure forecasts over the five year regulatory period are summarised in **Table 6-16.** The key adjustments proposed relate to electricity, labour, chemical usage and native vegetation expenditure.

## Table 6-16: Recommended Changes to Gippsland Water's Regulatory Operational Expenditure for Regulatory Purposes

| Change Item | Item/Description | Forecast | $M | | | | |
|---|---|---|---|---|---|---|---|
| | | | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 |
| 1 | Electricity - excl'g GWF component. NB: Real increases only not total electricity costs | Original Water Plan: | 0.20 | 0.64 | 0.64 | 0.75 | 0.75 |
| | | Recommended Revised: | 0.22 | 0.31 | 0.31 | 0.39 | 0.40 |
| | | Recommended Net Change: | 0.02 | -0.33 | -0.32 | -0.36 | -0.36 |
| 2 | Electricity - GWF component only. NB: Real increases only not total electricity costs | Original Water Plan: | 0.55 | 1.09 | 2.14 | 3.37 | 3.37 |
| | | Recommended Revised: | 0.55 | 0.92 | 1.81 | 2.72 | 2.72 |
| | | Recommended Net Change: | 0.00 | -0.17 | -0.33 | -0.66 | -0.66 |
| 3 | Labour Costs (all, i.e includes GWF) | Original Water Plan: | 17.27 | 17.64 | 18.38 | 19.10 | 19.55 |
| | | Recommended Revised: | 16.11 | 16.51 | 16.99 | 17.41 | 17.64 |
| | | Recommended Net Change: | -1.16 | -1.13 | -1.39 | -1.69 | -1.91 |
| 4 | Adjustments to Chemical costs | Original Water Plan: | 0.39 | 0.30 | 0.33 | 0.36 | 0.10 |
| | | Recommended Revised: | -0.17 | -0.47 | -0.43 | -0.46 | -0.41 |
| | | Recommended Net Change: | -0.555 | -0.765 | -0.765 | -0.815 | -0.515 |
| 5 | Adjustment to Native Vegetation Item | Original Water Plan: | 0.53 | 0.40 | 0.38 | 0.36 | 0.36 |
| | | Recommended Revised: | 0.34 | 0.29 | 0.31 | 0.43 | 0.31 |
| | | Recommended Net Change: | -0.19 | -0.11 | -0.07 | 0.07 | -0.05 |
| 6 | Additional "Productivity" Contribution [to achieve ESC specified minimum productivity improvement of 1% pa (after growth)] | Original Water Plan: | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | Recommended Revised: | | | | | |
| | | Recommended Net Change: | | | | | |
| **Total Recommended Net Change:** | | | $ (1.89) | $ (2.50) | $ (2.88) | $ (3.45) | $ (3.48) |
| **Original Water Plan Total Regulatory Opex:** | | | $ 51.10 | $ 55.39 | $ 55.54 | $ 56.81 | $ 57.07 |
| **Recommended Revised Total Regulatory Opex:** | | | **$ 49.21** | **$ 52.89** | **$ 52.66** | **$ 53.36** | **$ 53.58** |

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# Appendix A Futures Price of Electricity

Article from the Australian Financial Review of 16th January 2008.

# Electricity futures lose some spark

**Stephen Wisenthal**

Financial Review 16 January 2008

Queensland electricity futures prices have slumped more than 35 per cent in the past three months, increasing the opportunities for power retailers to vie for customers in a market that opened to competition last July.

Utilities, including NSW government-owned EnergyAustralia, CLP Holdings-owned TRUEnergy and several smaller companies that had been planning to enter the Queensland market, scaled back or abandoned their plans as the cost of locking in electricity prices soared last year.

But summer rain in south-east Queensland has started refilling dams, reducing the chances that power plants will have to cut output because they cannot get enough water for cooling.

This has reduced the risk of power shortages, while electricity demand has dropped due to low summer temperatures.

The spot electricity price in Queensland has averaged $39.45 a megawatt hour so far this month.

Contracts on the Sydney Futures Exchange that lock in Queensland power prices for all of 2008 rose as high as $92 a megawatt hour in June, three times their price at the beginning of last year, as dam levels fell toward 17 per cent.

But they have fallen to $56.24 a megawatt hour this week.

Power price futures for Victoria and NSW have also declined from their mid-2007 peaks, but have not dropped as steeply as Queensland prices.

The cost of locking in prices for 2008 in NSW is $54.62 a megawatt hour, while Victorian 2008 futures are $56.72 a megawatt hour.

South Australian futures have bucked the trend, amid concern about generation capacity, rising to $81.55 a megawatt hour this week, from $45 a megawatt hour a year ago.

The slump in Queensland wholesale power prices increases the margins that are available to retailers.

AGL Energy and Origin Energy each spent $1.2 billion last year to buy power retailers from the Queensland government.

They have each said they have hedged their electricity price exposure this year, although AGL's profit downgrade last year included a $12 million reduction in earnings because of lower margins on sales to retail customers.

But the 18 per cent annual rate of "churn", or changing of supplier, by Queensland retail customers in December, indicates the state's market is becoming more attractive to utilities.

"Churn is a sign that there is more margin available," UBS analyst David Leitch said.

This was likely to bring back some of the big retailers that avoided Queensland when full competition started, he said.

But the tough credit market could hamper the efforts of smaller groups to gain the loan guarantees they needed.

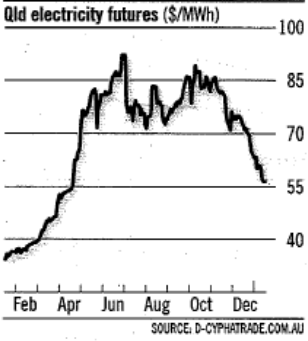
Origin and AGL are both working to increase the proportion of their electricity sales that they generate themselves. Origin is spending $1.3 billion to build a 630 megawatt power station near Dalby, fuelled by gas from its coal-seam methane fields.

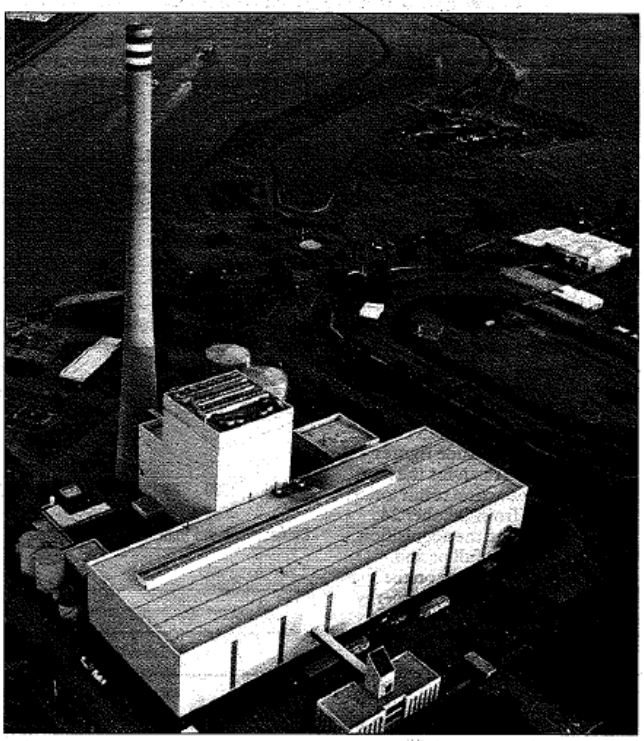
And AGL has locked in electricity supply from a power plant that Queensland Gas is building on its coal-seam methane fields.

This reflects the longer-term outlook for rising electricity prices, as costs of fuel and new power plants increase.

"Some of the heat has gone out of the market," Mr Leitch said. "Over a three to five-year view there is still a lot of cost pressure on the generating sector."

## Sparking interest



**Low summer temperatures have reduced Queensland electricity demand.** Photo: JAMES DAVIES