Expenditure Forecast Review for the Victorian Regional Urban Water Businesses

- NORTH EAST WATER
  Recommendations on Expenditure Forecasts
  FINAL REPORT
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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. North East 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 North East 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**

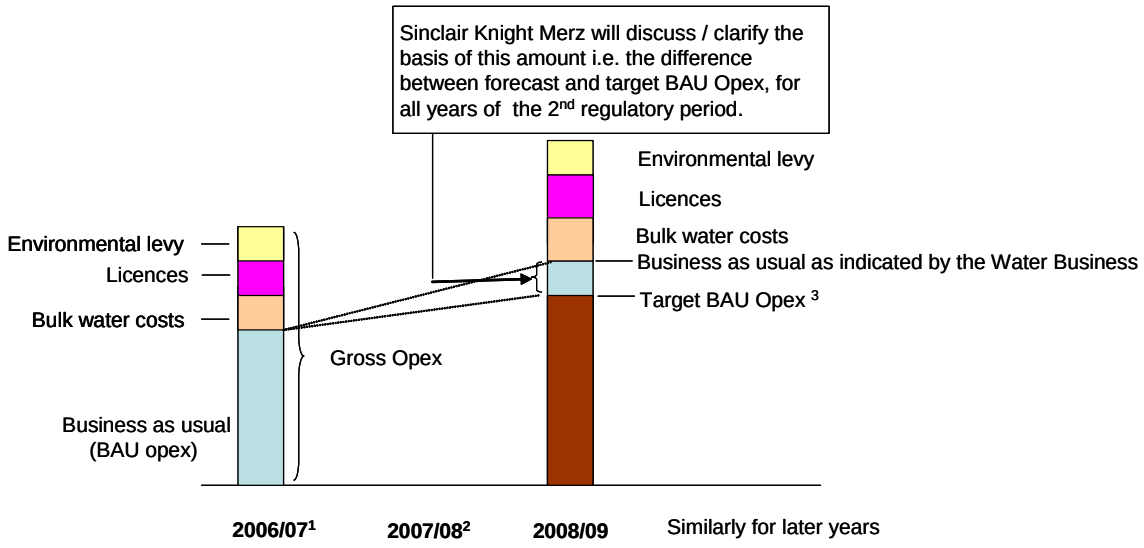
Where **A** is the Growth Adjusted Target BAU OPEX for year n;

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 North East 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.

3.2 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 **Section** Error! Reference source not found.).

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. North East Water: Overview

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

- Identification of the key issues through the preliminary review of North East 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 North East Water by the review team on 29 November 2007 (File Note titled "North East Water's Water Plan – Operating and Capital Expenditure Review");
- Further more detailed examination and investigation of the key issues through:
  - Updated expenditure forecasts derived from the revised "templates" provided by the Essential Services Commission to SKM on 29 November 2007.
  - A meeting and discussion of the expenditure forecasts and key issues with relevant North East Water personnel on 14 December 2007;
  - Additional information provided by North East Water in response to the issues identified in the File Note and to queries arising out of the meeting on 14 December.
  - A follow up discussion with North East Water on 12 February 2007.
  - A second meeting with relevant North East Water personnel on 22 February 2008 to discuss the draft report, proposed adjustments to NEW's expenditure forecasts and various related key issues.
  - Various follow-up discussions.

4.1 Key Issues

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

- The estimated average annual price increase for tariffs in North East Water's region, based inter alia on the CAPEX and OPEX forecasts submitted by North East Water is 8.43%. This price increase is at the upper end of the middle range 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 2.6%;
- North East Water's aggregate expenditure forecasts over the second regulatory period are $99.55M for the Capex program and $140.07M for Operating Expenditure.
- North East Water is proposing to construct a new administrative office and this is the second largest project in its capital program by expenditure for the second regulatory period.

- North East Water has been affected significantly by bush fires and is proposing to upgrade a number of its water treatment plants, which is leading to a significant increase in Capex in this area.
- North East Water is proposing to increase its administrative office by 14 staff (or 18 percent from 2006/07 levels of 76 staff) by the first year of the second regulatory period.

5. Capital Expenditure (Capex)

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

- **Table 5-1: North East 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		**9.69**	**15.53**	**30.84**	**16.44**	**23.42**	**22.36**	**20.19**	**17.15**
Gross capex - business as usual		9.69	15.53	30.84	15.03	13.96	11.49	16.61	6.59
Gross capex - new obligations					1.41	9.46	10.87	3.58	10.56
Approved 1st period gross capital expenditure		16.80	11.35	13.23					
Average annual 1st period capex	18.69								
Average annual 2nd period capex	19.91	Annual 2nd period capex is on average 7% higher than the 1st period							
Breakdown of business as usual gross capex									
Water headworks		4.44	6.28	6.98	3.33	1.40	-	10.50	-
Water pipelines / network		1.13	1.30	2.44	3.80	0.74	0.74	1.03	1.13
Water treatment		0.51	2.92	2.37	0.99	2.00	0.89	1.02	2.71
Water Corporate		0.67	0.63	0.80	2.09	3.54	0.80	0.50	0.50
Water sub-total		***6.75***	***11.14***	***12.59***	***10.22***	***7.68***	***2.42***	***13.05***	***4.34***
Sewerage pipelines / network		2.25	0.77	2.76	1.46	1.98	4.91	1.19	1.08
Sewage treatment		0.09	2.81	14.38	1.34	1.11	3.45	1.92	0.72
Sewerage Corporate		0.59	0.56	0.71	1.96	3.14	0.71	0.45	0.45
Sewerage sub-total		***2.93***	***4.40***	***18.24***	***4.81***	***6.28***	***9.07***	***3.55***	***2.25***
Bulk Water sub-total		-	-	-	-	-	-	-	-
Recycled water		-	-	-	-	-	-	-	-
Rural Water		-	-	-	-	-	-	-	-
Breakdown of BAU gross capex by cost driver									
Renewals					4.30	4.63	4.13	4.26	4.26
Growth					5.71	1.42	2.57	9.68	0.84
Improved service					3.01	6.03	0.66	0.10	0.10
Compliance					1.07	0.91	3.11	1.45	0.15
Government contributions					0.94	0.97	1.03	1.12	1.24
Customer contributions					-	-	-	-	-

5.1 Deliverability of the Capex Program

It is noted in respect of capital delivery performance that:

- average annual capital expenditure across the Water Plan period is forecast to be $19.9M compared to actual annual average delivery of $12.6M over the first two years of the current Water Plan;
- the expenditure profile is relatively smooth after coming off a substantial peak in 2007/08; and
- the proposed size of the capital program appears to be within the scope of that which has been previously delivered.

North East 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:

"North East Water undertook a review of the resource requirements required to deliver the projects as proposed in Water Plan 2008-2013. In this regard a Report was provided to the Board

of North East Water in May 2007 on this topic titled, "Resource Plan to Deliver Water Plan 2 CAPEX".

This review recommended that two additional project delivery personnel were required to increase project delivery resources to acceptable levels. Two (2) new staff have since been employed into the capital delivery area, both of which commenced in July 2007. This has increased the internal resource availability from 4.3 to 5.8 EFT.

Coupled to the recommendation to employ additional internal resources was the recommendation to make allowance to engage external resources as required to complement shortfalls in resources. In this regard, an allowance of $200,000 p.a. has been included in the capital delivery budget to support the engagement of external resources as required."

The review team considers that North East Water is generally well positioned to deliver its capital program and that its capital program is not significantly larger than what it has previously delivered. The review team notes that North East Water's major projects do not start until the second year of the second regulatory period or later. However, the review team notes that the expenditure forecasts do not appear to match the descriptive programs provided to the review team by North East Water, i.e. projects that have been described as requiring over 52 weeks to construct after award of tenders are being budgeted over a single year. Not withstanding this issue the review team does not propose to suggest any generic adjustment to North East Water's expenditure forecast. Some changes are suggested with respect to specific projects as discussed in the sections below.

5.2 Key Projects

North East Water's Water Plan forecasts $99.55M of capital expenditure over the regulatory period. The top ten projects make up nearly $43.08M (over 39%) of this, and are listed in **Table 5-2**.

Table 5-2: North East Water: Key Projects

Expenditure in $ 000's real (1/1/07)	1st period	SECOND REG PERIOD						% of total Capex
	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	Total	
Capital Expenditure								
Key projects								
Bright / Porpunkah Off-stream Storage		-	-	-	8,000	-	**8,000**	***7%***
New Adminstrative Office		-	4,781	-	-	-	**4,781**	***4%***
Beechworth WWTP Upgrade		-	6,000	-	-	-	**6,000**	***5%***
Bright / Porpunkah Water Treatment		-	-	-	-	5,000	**5,000**	***5%***
Wangaratta WWTP Winter Storage Improvement		-	-	4,000	-	-	**4,000**	***4%***
Myretleford Water Treatment Plant		-	-	-	-	4,000	**4,000**	***4%***
Corryong Water Treatment Plant		-	-	-	3,000	-	**3,000**	***3%***
Mt Beauty / Tawonga Water Quality Improvements		-	-	3,000	-	-	**3,000**	
Leneva Trunk Sewer		-	-	2,695	-	-	**2,695**	***2%***
Lommbah Dam Improvements		100	-	2,500	-	-	**2,601**	***2%***
Total	**-**	***100***	***10,781***	***12,195***	***11,000***	***9,000***	**43,077**	***39%***
% of total Capex in the financial year indicated		1%	46%	55%	54%	52%		

5.2.1 Bright-Porepunkah Offstream Storage

The 350 ML Bright-Porepunkah Offstream storage and associated works will extract water from the Ovens River and store it for periods when river extractions are not allowed. The proposed stream flow management plan for the Ovens River imposes restrictions on river extractions such that Bright, Porepunkah and Wandiligong can be expected to be on restrictions on an average of 35 years in every 100 years. This high frequency of restrictions is not acceptable in terms North East Water's levels of customer service.

River extraction scenario modelling is currently being used to size and establish the need for the offline storage. The modelling is based on two different sets of extractions rules, including;

- current bulk entitlement rules which allow no limit on extractions if passing flows are greater than 20 ML/D and only 50% of flows below 20 ML/D extraction, and
- environmental extraction rules determined through stream flows studies commissioned by the North East Catchment Management Authority (NECMA) which allow for a minimum passing flow of 60 ML/D at all times.

The review team sought clarification from North East Water of the status of the streamflow management plan and was advised that it might be some time before a completed revised plan is available as the process of establishing a plan is about to recommence. The best estimate is that the streamflow management plan will take approximately 12 months to complete. The review team considers that this is a significant issue with respect to the timely delivery of this project.

North East Water proposes to seek a compromise solution if the NECMA rules lead to a storage that is considered excessively large. The review team has discussed the status of the river extraction scenario modelling with North East Water (which was due for completion in December 2007). However, at this time the size of the storage appears reasonable and the project appears justified given the work that has been undertaken by NECMA and given that the demand for Bright is currently 890 ML/annum and is expected to increase to 1600 ML/annum by 2054/2055.

The scheme includes a pump station and pipeline design to extract water at a rate of 100 L/s which equates to an extraction rate of approximately 8 ML/D depending on assumptions regarding pump run times. At this extraction rate it would currently take approximately 110 days and in the future 200 days to extract the annual requirement of water.

The project consists of 5 packages of work including land acquisition ($750K), construction of an earthen storage ($2,538K), installation of a synthetic liner ($913K), construction of river off take works, 100 L/s pumping station and 1.2 kilometre transfer main ($1,663K) and construction of a 100 L/s pump and 3.0 kilometre pipe connecting to an existing reticulation network ($2,038K). The costs shown include allowances for a proportioned cost of contractor project management

costs and profit margin of 15 percent and principals' design, project and contract management costs of 10 percent. No other contingency has been allowed for by North East Water.

Other water authorities forming part of this review generally did not make a separate allowance for contractor project management costs and profit margin, but rather included this in the cost of the line items of work. However, other authorities reviewed generally made an allowance for contingency which was typically in the range of 10 percent to 30 percent. Regardless of the terminology used, the review team considers that the structure of the cost estimate provided by North East Water has the effect of providing for a contingency of 15 percent and considers this reasonable.

The cost of open earthen storages can depend significantly on their location. The cost of the earthen storage with a synthetic liner which was provided by North East Water is equivalent to $9.9K per ML and is between a band of $7.5K and $12.5K which the review team considers reasonable for open earthen storages of this size. The review team therefore finds the cost of the storage reasonable. The cost of the transfer mains to and from the offline storage are based on $1.25 per metre length per millimetre diameter and this is considered to be reasonable, or possibly low, based on a comparison of the costs of similar projects. The cost of the two pumping stations is $600K which is considered reasonable for a 100 L/s pumping stations.

North East Water provided a detailed description of the design and construction schedule for the new storage which did not reflect the expenditure profile of $8M being all spent in 2011/12. Furthermore, the review team considered that it is unlikely that the project will start until 2010/11 given the status of the streamflow management plan, the need to find a suitable reservoir site (which is contingent on the size of storage required and hence the streamflow management plan) and potentially significant negotiations that North East Water envisages with respect to cost allocations of the storage (which will meet the needs of a number of authorities and not just North East Water). The review team considers that expenditure on this project is likely to occur over a three year period in line with the detailed description provided by North East Water and that the project will be delivered a year later than expected.

North East Water expressed its strong view that the community and other stakeholders require the storage to be constructed sooner than later. The review team notes North East Water's view and acknowledges the need for the reservoir. However, the review team has based its view on the timing for delivery of the project on what it considers is reasonably achievable and the most likely outcomes given the current early stage of project development, and particularly in the absence of any high level intervention that might speed up resolution of the streamflow management plan, land access negotiations and cost allocation issues. While the review team has formed a different view from North East Water on the most likely timing of the project, it acknowledges and agrees with North East Water in terms of the strong justification for the project.

The review team recommends no changes to the quantum of expenditure planned on this project. The review team considers the profile of the expenditure should be adjusted from $8.0 M spent in a single year (2011/12) to $0.5M (2010/11), $3.5M (2011/12) and $4.0M (2012/13).

5.2.2 New Administrative Office

North East Water proposes to construct a new 3600 square metre office at the Wodonga campus of Latrobe University to replace offices currently owned or leased at 106 Hovell Street and 43 Hovell Street, Wodonga. The new office will be shared by North East Water (2400 square metres) and other water agencies (1200 square metres).

The 106 Hovell Street site currently accommodates 61 staff and the 43 Hovell Street site accommodates 15 staff. The offices have a combined area of 1368 square metres. North East Water considers that both premises are outdated and inappropriately sized. North East Water also proposes "to broaden its vision to include an expansion in its research focus" and the provision of cross agency efficiencies through the co-location of key water agencies at a single office location.

The total expenditure for the proposed administrative office is $7.88 million. This project is the second biggest project by expenditure on North East Water's capital program. North East Water has indicated that the other authorities involved in the proposal will not provide any capital, but that the expenditure shown of $4.781 million in **Table 5-2** is North East Water's allocation of the cost for regulatory purposes.

The cost of the new building has currently been based on building costs of 3,600 m^2 at $1300/$m^2$, fit out costs of 3000 m^2 at $650 /$m^2$ and site works of 5000 m^2 at $250/$m^2$. The cost of the new building complex has been split two thirds North East Water to one third co-tenants on the basis of floor space. The review team considers that the basis for the cost is reasonable.

In the short term North East Water can continue operating in its current offices (albeit these are not ideal arrangements) and can continue as a viable business, particularly as the two premises at 43 and 106 Hovell Street are in walking distance of each other. However, based on the information provided by North East Water, the review team considers that there is a clear shortage of office space and there is justification for obtaining additional office space within the second regulatory period.

The review team discussed with North East Water its concerns that leasing options may not have been fully explored and its desire to better understand the nature of the benefits flowing from the proposed sharing arrangements with other agencies. North East Water has advised that because the building would cost more than $5M it would require a DTF submission and that a full range of options would be investigated in detail prior to this submission being prepared. To enable

preparation of this submission and consideration of other options North East Water recommended that the cost of the building be delayed by a year.

North East Water has considered various options including, a new building at the Latrobe University Wodonga Campus, leasing a new facility which is being developed as part of a cinema complex, development of a building on nearby vacant land and extending the existing office building in conjunction with the City of Wodonga. Each of the alternate options assessed has been summarised in a single short paragraph and it is unclear whether they are more or less expensive than the preferred option. The review team understands that North East Water is to obtain the land from Latrobe University under a 99 year peppercorn lease arrangement.

Overall the review team considers that NEW's currently preferred option is likely to have the lowest cost in terms of the new building construction options but that further exploration of leasing options is warranted before final selection of a preferred option is made.

The review team proposes that the expenditure profile for the new administrative office be adjusted to delay the $4.78M expenditure in 2009-10 to 2010-11 to allow North East Water more time to explore options to meet its office space requirements and produce a business case with sufficient rigour to satisfy the Department of Treasury and Finance.

5.2.3 Beechworth WWTP Upgrade

North East Water proposes to build a new Sequential Batch Reactor (SBR) based wastewater treatment plant at its Beechworth site to replace the existing lagoon based system. The current lagoon based treatment plant has failed its EPA licence discharge limits on 62 occasions since July 2002. North East Water provided the review team with a copy of its Beechworth WWTP discharge licence and a list of the failures and failure dates. The review team considers that upgrade of the Beechworth WWTP is justified.

The cost estimate prepared by North East Water of $6M is based on a percentage of the tendered prices received for a larger Sequential Batch Reactor WWTP to be built at Bright/Porepunkah. The review team sought further information from North East Water regarding the capacity of the new plant. North East Water provided the review team with the following relevant information:

- The plant will have a capacity of 1.5 ML/D which is the capacity of the outfall sewer which is connected to it;
- The 1.2 ML/d ADWF Mt Beauty SBR was built for a project cost of $2.8M in 2001;
- The recently retendered price of the 2.0 ML/D Bright SBR was $6.2M (compared with the original tendered price of $8.4M based on facilities to meet a tighter effluent discharge standard). NEW considers that the upgrade of the Beechworth WWTP is analogous to the upgrade of Bright WWTP

The review team therefore considers that the total project cost for the Beechworth WWTP is broadly reasonable but is probably a little high (using scaling formulae on a capacity basis) if the SBR option is the most efficient option.

The review team sought further information from North East Water regarding the cost estimates prepared by Beca on an option involving upgrade of the existing lagoon system at the Beechworth WWTP (Beca, 2006) using an activated sludge process with the existing lagoons. The Beca report indicated that the plant could be upgraded for a cost of $1.0M with a sand filter. This $1.0M did not include the addition of tertiary sand filtration that would be required to meet tighter discharge limits proposed for the plant from 2010 (as required by the Beechworth WWTP discharge licence).

In North East Water's view the cost prepared by Beca is unrealistic and that the cost of access tracks, process control, aerators, desludging and lining of the existing lagoons also need to be added to the cost prepared by Beca. NEW considers that the estimate provided by BECA was extremely conceptual in nature and does not correlate with NEW's experience in delivering these type of projects. Some areas of concern included the adequacy of the existing lagoons to be incorporated into a treatment process, as their integrity is questionable. If they were to be retained in the treatment process, significant costs would be incurred in rehabilitating them to current standards that would include relining them with a material such as HDPE. The estimate also fails to recognise the location of these lagoons within NEW's site that would require significant associated infrastructure to be developed including access roads.

The review team notes that the Beca report is the only options report provided by North East Water on this project and that a detailed and robust options analysis has not yet been undertaken.

The review team's general understanding of NEW's views is that it considers lagoon based treatment an old technology and is disadvantaged by the amount of land it requires in comparison with other treatment technologies. However, the review team has not evidenced any reports which adequately demonstrate that lagoon based treatment is not technically feasible. Furthermore, the review team is aware of aerators being used at other lagoon based treatment plants to improve plant capacity and or reduce odours.

In particular, the review team considers that lagoon systems can be effectively upgraded to manage odour and meet tight effluent standards by incorporating activated sludge facilities into them (e.g. Western Treatment Plant) and that such arrangements may be more cost efficient than an SBR plant. However the review team agrees with North East Water that such an option is likely to cost significantly more than $1M.

The review team had further discussions with North East Water to understand the specific issues of the costs associated with upgrading the existing lagoons at Beechworth. At Bright WWTP North

East Water received a tender for a system that used the existing lagoons at that plant and a tender for a system that abandoned the lagoons and used new concrete storages. Both tenders came in at a similar price and therefore North East Water considered that the cost of a new SBR plant at Beechworth WWTP should be a similar cost to a system that uses the existing lagoons at Beechworth. The review team considers that this is a possibility, but given the unique circumstances at Beechworth and in the absence of any other information the review team considers that the alternate view is also possible. The review team considers that given the expenditures involved a more definitive investigation is required.

North East Water provided the further information as detailed below in support of its estimate of $6M for this project:

- Recent tenders received for the design and construction of a 1.1 ML/d ADWF capacity plant for Bright/ Porepunkah, including tertiary sand filtration was $8.4M. This cost is considered by NEW to be greater than would be the case for Beechworth due to tighter proposed discharge limits at Bright/ Porepunkah necessitating a tertiary sand filter. Tenderers were subsequently requested to submit revised estimates based on relaxing the effluent discharge standards to levels as proposed at Beechworth. This had the effect of reducing costs from $8.4M to approximately $6.2M (based on design and construct contracts).
- the comparison of prices between the two options of upgrade using lagoon system versus upgrade using new SBR reactors, based on the original tenders received, is indicated in the table below.

Item	*Process utilising existing lagoons*	*Process utilising new SBR reactors*
Design & Documentation	*$ 600,000*	*$ 390,000*
Establishment / Disestablishment	*$ 310,000*	*$ 65,000*
Site works / civils	*$ 2,955,000*	*$ 2,735,000*
Mechanical & electrical	*$ 4,000,000*	*$ 4,450,000*
Control building	*$ 390,000*	*$ 540,000*
Commissioning / Proof of performance	*$ 175,000*	*$ 350,000*
Total	***$ 8,430,000***	***$ 8,530,000***

For this Bright WWTP upgrade, NEW noted that the difference in cost between the two process options was marginal. It was on this basis that NEW determined its costs taking into account the requirement for higher effluent standards at Bright than are being sought for Beechworth. NEW has indicated that 'indicative' costs provided by the tenderers for a similar facility at Beechworth were in the order of $6M.

The review team considers that the argument put forward by North East Water has merit, but the analysis does not address the specifics of the Beechworth WTTP and given the expenditure involved, the review team considers further investigation is warranted.

Given that the treatment plant has failed its licence limits on 62 occasions since July 2002 the review team considers that there should be a good understanding of the best options to upgrade the plant. Despite this view and not having the benefit of viewing the detailed schedules that may or may not have been prepared by Beca the review team considers that North East Water's argument is not without merit.

An alternative view is that the planned expenditure for this option should be based on the Beca report and that the cost estimate should be increased by $2.5M allowing for deslugding, aeration and process control. This represents a reduction in the expenditure proposed by North East Water of $3.5M.

At this stage of early project development, and without detailed information and assessment of options, the review team considers that on balance the most cost efficient option is likely to be in the range $3.5M to $6M. The review team recommends that at this stage the capital expenditure provision for regulatory pricing purposes be set at $4.5M spread over three years.

The review team understands that whilst having an alternate view, North East Water acknowledges the review team's position and suggests that if after further investigation and implementation the efficient cost of the scheme is $6M that an adjustment be made by the ESC in the third regulatory period. The review team considers that this is a reasonable way forward.

5.2.4 Bright / Porepunkah Water Treatment

North East Water proposes to construct a 90 L/s direct filtration plant to further treat water from its Bright WTP.

The Bright WTP sources water from the Ovens River catchment which includes cattle farms and has also recently been heavily burnt. This has lead to deterioration in water quality. Furthermore, there are insufficient barriers to contamination in comparison to Australian Drinking Water Guidelines (ADWG) as the existing plant currently relies only on a chlorination disinfection process. As a result the review team understands that customers are required to boil their drinking water. The review team considers that the project is justified.

The cost estimate is based on a scaling up of the costs of the Mt Beauty Options Investigation Report costs for a 30 L/s direct filtration plant. North East Water have allowed for an efficiency gain in the larger plant of 33 percent. The review team considered the basis for the efficiency adjustment by reviewing a schedule of costs for the Mt Beauty WTP. The review team considered

approximately $700K of the cost of the $3.2M Mt Beauty Treatment Plant were likely to be fixed, including costs such as a new plant building ($125K), SCADA systems, PLC programming and some elements of electrical systems ($410K), commissioning ($45K), training ($17K) and design documentation ($80K). Therefore, the review team considers that an adjustment for efficiency is appropriate. The review team considers that North East Water's efficiency factor if anything may be too high, i.e. it might underestimate the cost of the new filtration plant.

North East Water indicated to the review team that it would like to commence the project in 2010/11 so that all expenditure occurs in the second regulatory period. North East Water's view is based on the importance of the project which is part of the Bright off-stream storage project. Similarly, the review team has based its view of the timing of delivery of the project, including the delivery of the Bright off-stream storage.

In summary, the review team considers that the quantum of forecast expenditure is justified and no amendment to it is proposed. However, North East Water has indicated that the approximately 70 weeks will be needed to deliver the project from the time of calling for tenders. The review team recommends that the expenditure profile be adjusted to reflect this program and has adjusted the expenditure profile from $5.0M in a single year (2012/13) to be spread over three years $0.5M (2011/12), $2.5M (2012/13) and $2.0M (2013/14).

The review team notes that future social and political pressure in relation to this project may require its advancement.

5.2.5 Wangaratta WWTP Winter Storage Improvement

North East Water proposes to construct a 500 ML unlined earthen basin and associated works at its Wangaratta WWTP site. The purpose of the 500 ML basin is to balance increasing seasonal inflows and outflows from the WWTP associated with residential and industrial growth in Wangaratta and to work towards a reuse target of 100% of the effluent from the site.

The plant currently discharges 54% of its effluent to Reedy Creek and reuses 21%. The remainder either evaporates (21%) or is released as an emergency discharge (4%). Additional development is expected in the City of Wangaratta which will increase flows and it is considered that additional discharge to Reedy Creek will not be possible for environmental reasons.

The review team sought further information to understand what other options had been assessed and to understand the basis for the sizing of the reservoir and the seasonal variation in flows forecast for the plant. North East Water provided a report prepared by GHD (GHD May 2007) which demonstrated that a range of irrigation options had been assessed and that this had been combined with water balance modelling. The review team considers that an appropriate level of work has gone into sizing the earthen basin and determining preferred options.

The cost of the project includes the cost of the 500 ML earthen basin ($3,105K), 2300 m of 300 mm diameter pipe ($530K) and a 60 L/s pump station ($455K). The unit cost of each of the assets generally falls in the range that the review team considers reasonable. The unit cost of the earthen basin (unlined) is at the low end of this range. The review team considers that the cost of the project to be reasonable and does not recommend any change to it.

The review team has re-profiled the planned expenditure over a 3 year period to reflect the program provided by North East Water.

5.2.6 Myrtleford Water Treatment Plant

North East Water proposes to construct a 40 L/s direct filtration plant at Myrtleford WTP. The scope, purpose and costing for the project is as per the Bright WTP upgrade.

The review team discussed with North East Water the viability of chlorination as an alternative to direct filtration because the review team noted that a report prepared by MJM (MJM November 2007) for North East Water states the following:

Two potential treatment options were identified which would provide the most secure and robust method of treating potential E. coli events. They are chlorination and chloramination, with chlorination being the lowest cost option. It is recommended that a centralised treatment approach be adopted for the Myrtleford water supply to address all potential E. coli events. It is recommended that a chlorination or chloramination dosing plant be located at Myrtleford WTP. A persistent disinfectant residual would ensure that no E. coli events occur in the clear water storage or the reticulation system.

The report's summary of the need for direct filtration was as follows:

Consideration may need to be given to the provision of direct filtration in the long-term as the existing front end treatment process configuration, consisting of ozonation and ozone destructing pelletised activated carbon filtration, have not been designed for reliable and optimum process performance. Direct filtration would ensure that filtered water turbidity of 95%ile less than 0.3 NTU can be achieved under all raw water conditions.

The review team notes that the MJM report was finalised in July 2007 after the bush fires and after the introduction of the ADWG. North East Water advised that the brief and context of the report was to determine whether chlorination was appropriate and not to assess the need for direct filtration. North East Water advised that it did not consider that UV and chlorination were in accordance with the two treatment barriers required under the ADWG. However, the MJM report also states that:

Myrtleford WTP has been designed to provide two disinfection barriers against E. coli, viruses, and pathogens such as Cryptosporidium and Giardia. The plant was designed for a maximum plant

capacity of 10.5 ML/d. Myrtleford WTP consists of ozone generation, ozone contacting, PAC filtration for ozone destruction (not designed for particle removal), and UV disinfection.

The above commentary is consistent with the review team's understanding that chlorination, chloramination, ozone and UV disinfection can all count as separate treatment barriers under the ADWG. Whilst it is understood by the review team that UV disinfection is generally ineffective when water is highly turbid and the effectiveness of chlorination is also highly diminished (such that neither might count as an effective barrier) the review team has not evidenced any reports which indicate that turbidity levels may be too high for chlorination or UV disinfection to be viable. Although the MJM report alludes to this being the case as it states that:

The low pressure UV disinfection stage of the process is the only operating stage of the plant. The UV disinfection process effectively inactivates low levels of E. coli under typical flow conditions. The risk of microbiological shielding by particles in raw water is one of the most significant process risks as the UV disinfection process does not appear to be able to reliably achieve at least 3 log removal of coliforms at very high UV doses. This is a major limitation of the performance of the existing UV disinfection process.

However, the detail of the MJM report (page 35) provides other reasons as to why the UV process may not be working including the build up of sludge in the UV disinfection chamber and other design related issues.

The review team understands that there are other non-technical issues to consider including that North East Water's customers may be opposed to the use of chlorination and that this may be influencing North East Water to adopt direct filtration. The DHS who have been working with North East Water in relation to this matter has provided advice to the review team and the ESC that:

In the case of both Myrtleford and Mount Beauty, the community was given the choice as to what type of treatment was to be used to treat the respective water supplies (Myrtleford - UV; Mount Beauty - Ozone). In both cases the community was strongly opposed to the addition of chemicals to their water, especially chlorine. Both communities still strongly hold that view.

With the introduction of the Safe Drinking Water Act 2003, risk management plans and the meeting of water quality standards (including an E. coli standard) became mandatory. Both supplies utilise a single treatment barrier to contamination, and both supplies periodically, but fairly regularly, fail to meet the E. coli standard.

Both DHS and North East Water have been involved in long, protracted negotiations with the two community reference groups as to how we can move forward to resolve these issues. There is a strong desire to meet the communities' expectations about not having a chlorine taste in the water, balanced with the need to put in place multiple treatment barriers, along with the communities' equally strong desire to retain the existing treatment processes.

The UV and Ozone treatment processes could have simply been replaced by chlorine, and compliance with the E. coli standard could have been achieved, but this would have failed to meet best risk management practice of having multiple barriers, and would have caused a lot of grief for North East Water and DHS. By adopting this approach, it is likely that any chlorine residual that is necessary should be able to be kept below a taste threshold.

It is recognised that the proposed solutions are more expensive than a simple base case, but it is seen as the best chance that we have of achieving a satisfactory outcome with regard to safe drinking water in these towns. DHS supports the expenditure as these two supplies are arguably the riskiest we have in the state and we would like to see the issue resolved.

The review team considered that it may be possible that the community would be willing to pay for the additional cost of direct filtration even if chlorination is a technically viable alternative. The review team assumes that North East Water and/or the DHS have advised the community of the cost implications. The review team considers that direct filtration is justified given the customer's potential willingness to pay and given that the review team considers that direct filtration is a viable solution (and UV may or may not be depending on the turbidity of the raw water source).

As per the Bright WTP project the review team discussed the basis of the cost of direct filtration with North East Water and found that the basis for the cost estimate and the cost estimate were reasonable.

A summary note provided by North East Water indicates that the proposed size of the direct filtration plant will be 40 L/s (3.4 ML/d) and a report prepared by MJM indicates that Myrtleford has a maximum plant capacity of 10.5 ML/d. The review team considers that based on the information provided by North East Water that the capacity of the plant is potentially too low, but that this should not materially affect the expenditure proposed for the project.

The review team does not propose any amendment to the quantum of expenditure proposed but has slightly adjusted the proposed expenditure on this project to $0.1M (2010/11), $0.2M (2011/12) and $3.7M (2012/13) from $4.0M in a single year ($2012/13).

5.2.7 Corryong Water Treatment Plant

North East Water proposes to construct a 30 L/s direct filtration plant at its existing Corryong WTP. The scope, purpose and costing for the project is generally as per the Bright and Myrtleford WTP upgrades. However, it is also proposed to construct a clear water reservoir at the site. Corryong WTP currently has a Chlorination and UV disinfection system, but no other treatment process.

The clear water reservoir (1 ML) is forecast to cost $375K and the review team considers this to be reasonable and within the typical cost range for tanks of this size. The cost of the direct filtration

plant is based on the cost of the Mt Beauty filtration plant. The review team considers that the cost of the treatment plant and clear water reservoir to be reasonable.

North East Water has indicated that the approximately 62 weeks will be needed to deliver the project from the time of calling for tenders. The review team considers that the expenditure profile be adjusted to reflect this program. The review team has adjusted the expenditure profile from $3.0M in a single year (2011/12) to be spread over three years - $0.3M (2010/11), $1.5M (2011/12) and $1.2M (2012/13).

5.2.8 Mt Beauty / Tawonga Water Quality Improvements

North East Water proposes to construct a 30 L/s direct filtration plant and chlorination facility at its existing Mt Beauty WTP. The scope, purpose and costing for the project is generally as per the Bright, Myrtleford and Corryong WTP upgrades.

The review team does not propose any amendment to the quantum of expenditure proposed for this project, but has profiled the expenditure based on the program provided.

5.2.9 Leneva Trunk Sewer

North East Water proposes to construct a 2,970 m of 375 mm diameter gravity sewer from Leneva Valley, Wodonga to its Middle Creek Sewage Pumping Station.

The project is to supply additional sewerage system capacity to service growth in the Leneva Valley. Leneva Valley is forecast to develop from 13,500 lots to 36,000 lots at ultimate development. Over the next twenty years it is anticipated that between 2,200 lots and 3,100 lots will develop.

A report was prepared for North East Water (KBR, December 2005) which indicates that a new trunk sewer needs to be constructed. However, the report did not indicate what other options if any were investigated or at what point in time the existing pump station and rising main that services the Leneva Valley will reach the end of its useful life. However, after further discussion and provision of a plan North East Water was able to demonstrate that there was no other viable solution other than a gravity sewer.

No adjustment is proposed to this expenditure.

5.2.10 Lommbah Dam Improvements

North East Water proposes to increase the capacity of its Loombah Dam Spillway and construct a second spillway.

The dam has a hazard rating of "High C" in accordance with the ANCOLD May 2000 Guidelines on Assessment of the Consequences of Dam Failure. The spillway has also been assessed as not having sufficient capacity (GHD, Oct 2006). The review team considers that expenditure on this project is prudent and justifiable.

The cost estimate for the project of $2.6M includes the construction of a new spillway and upgrade of the existing spillway. The preliminary estimate originally prepared by GHD was for upgrade of the existing spillway only ($1M). The review team considers that the cost of the project is reasonable and that both the upgrade of the existing spillway and construction of the new spillway are justified.

The review team recommends no changes to the expenditure proposed on this project.

5.3 Recommendations

The review team's recommendations on adjustment to North East Water's Water Plan capital expenditure forecasts are that expenditure for the:

- Bright / Porepunkah Off-stream Storage expenditure be adjusted from $8.0 M spent in a single year (2011/12) to $0.5M (2010/11), $3.5M (2011/12) and $4.0M (2012/13) to reflect the descriptive program provided by North East Water. No changes are proposed to the quantum of expenditure planned on this project.
- New administrative office expenditure be deferred one year from 2009/10 to 2010/11.
- Beechworth WWTP Upgrade expenditure be adjusted from $6.0M to $4.5M based on an overall assessment of a prudent quantum of expenditure given conflicting information at this stage of project development (and that this be spread predominantly over two years).
- Bright / Porepunkah Water Treatment expenditure be adjusted from $5.0M in a single year (2012/13) to be spread over three years $0.5M (2011/12), $2.5M (2012/13) and $2.0M (at 2013/14 in the next regulatory period) to reflect the descriptive program provided by North East Water.
- Wangaratta WWTP Winter Storage Improvement expenditure be adjusted from $4.0M (2010/11) to $0.40M (2009/10), $2.00M (2010/11) and $1.60M (2011/12) to reflect the descriptive program provided by North East Water.
- Myrtleford WTP Upgrade expenditure be adjusted from $4.0M (2012/13) to $0.1M (2010/11), $0.2M (2011/12) and $3.7M (2012/13) to allow for planning and design costs prior to the construction phase.
- Corryong Water Treatment Plant expenditure be adjusted from $3.0M (2011/12) to $0.30M (2010/11), $1.50M (2011/12) and $1.20M (2012/13) to reflect the descriptive program provided by North East Water.

- Mt Beauty / Tawonga Water Quality Improvements expenditure be adjusted to reflect the descriptive program provided by North East Water.
- No other adjustments be made to North East Water's Water Plan capital expenditure.

Table 5-3 outlines the recommended adjustments to North East Water's Water Plan capital expenditure for the five year regulatory period.

Table 5-3: North East Water: Recommended Changes to Regulatory Capital Expenditure Forecast

Change Item	Project/Description		$M 2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	Later Periods
1	New Adminstrative Office	Original Water Plan Forecast:	0.00	0.00	4.78	0.00	0.00	0.00	
		Recommended Revised Forecast:				4.78			
		Recommended Net Change:			-4.78	4.78			
2	Bright / Porpunkah Off-stream Storage	Original Water Plan Forecast:	0.00	0.00	0.00	0.00	8.00	0.00	
		Recommended Revised Forecast:				0.50	3.50	4.00	
		Recommended Net Change:				0.50	-4.50	4.00	
3	Beechworth WWTP Upgrade	Original Water Plan Forecast:	0.00	0.00	6.00	0.00	0.00	0.00	
		Recommended Revised Forecast:		0.20	4.30				
		Recommended Net Change:		0.20	-1.70				
4	Bright / Porpunkah Water Treatment	Original Water Plan Forecast:	0.00	0.00	0.00	0.00	0.00	5.00	
		Recommended Revised Forecast:					0.50	2.50	2.00
		Recommended Net Change:					0.50	-2.50	2.00
5	Wangaratta WWTP Winter Storage Improvement	Original Water Plan Forecast:	0.00	0.00	0.00	4.00	0.00	0.00	
		Recommended Revised Forecast:			0.40	2.00	1.60		
		Recommended Net Change:			0.40	-2.00	1.60		
6	Myrtleford Water Treatment Plant	Original Water Plan Forecast:	0.0	0.00	0.00	0.00	0.00	4.00	
		Recommended Revised Forecast:				0.10	0.20	3.70	
		Recommended Net Change:				0.10	0.20	-0.30	
7	Corryong Water Treatment Plant	Original Water Plan Forecast:	0.0	0.00	0.00	0.00	3.00	0.00	
		Recommended Revised Forecast:				0.30	1.50	1.20	
		Recommended Net Change:				0.30	-1.50	1.20	
8	Mt Beauty / Tawonga Water Quality Improvement project	Original Water Plan Forecast:	0.00	0.00	0.00	3.00	0.00		
		Recommended Revised Forecast:			0.20	2.00	0.80		
		Recommended Net Change:			0.20	-1.00	0.80		
		Total Recommended Net Change:	$ -	$ 0.20	$ (5.88)	$ 2.68	$ (2.90)	$ 2.40	
		Original Water Plan Total Regulatory Capex:	$ 30.84	$ 16.44	$ 23.42	$ 22.36	$ 20.19	$ 17.15	
		Recommended Revised Total Regulatory Capex:	**$ 30.84**	**$ 16.64**	**$ 17.54**	**$ 25.04**	**$ 17.28**	**$ 19.55**	

6. Operating Expenditure (Opex)

Table 6-1 presents a breakdown of historical and forecast operating expenditure. The largest percentage increases from 2006/07 to 2012/13 occur for the electricity operating expenditure item (101% for water, 78% for wastewater). Labour costs (non-field staff) are planned to increase by 25% over the same period and non-labour assets expenditure is planned to increase by 131%.

- **Table 6-1: North East Water: Historical and Forecast Opex by Business Driver**

North East Water - Gross Operating Expenditure							
Real 1/1/07	**2006-07 ACTUAL**	**2007-08 FINANCE BUDGET**	**TOTAL BUDGET 08-09**	**TOTAL BUDGET 09-10**	**TOTAL BUDGET 10-11**	**TOTAL BUDGET 11-12**	**TOTAL BUDGET 12-13**
Operations Expenditure Type View							
Water Expenses							
Supply	1,281,400	885,677	760,150	800,000	795,295	766,125	763,725
Reticulation	251,400	267,973	269,800	274,150	281,600	288,450	295,500
Treatment	1,392,940	1,557,112	1,533,930	1,564,690	1,619,868	1,616,958	1,622,458
Delivery	67,850	73,314	73,800	72,900	74,950	76,800	78,750
Electricity	659,404	803,000	822,560	1,072,560	1,197,560	1,297,560	1,322,560
Total Water	**3,652,993**	**3,587,076**	**3,460,240**	**3,784,300**	**3,969,273**	**4,045,893**	**4,082,993**
Wastewater Expenses							
Collection	590,030	587,851	519,400	555,200	537,800	540,430	552,900
Treatment	675,750	766,455	658,618	751,155	677,952	683,110	652,400
Electricity	643,637	628,784	644,100	894,100	1,019,100	1,119,100	1,144,100
Reuse	521,571	695,006	663,825	597,477	597,477	751,477	751,477
Total Wastewater	**2,430,988**	**2,678,096**	**2,485,943**	**2,797,932**	**2,832,329**	**3,094,117**	**3,100,877**
Wages and On-Costs	3,918,556	3,929,680	4,025,400	4,025,400	4,025,400	4,025,400	4,025,400
Other Expenses	1,225,753	1,242,339	1,257,050	1,257,050	1,257,050	1,257,050	1,257,050
Service Contracts	2,113,800	2,263,115	2,318,240	2,318,240	2,318,240	2,318,240	2,318,240
Total Operating Expenses	**13,342,091**	**13,700,306**	**13,546,873**	**14,182,922**	**14,402,291**	**14,740,699**	**14,784,559**

	2006-07 ACTUAL	**2007-08 FINANCE BUDGET**	**2008-09 BUDGET**	**2009-10 BUDGET**	**2010-11 BUDGET**	**2011-12 BUDGET**	**2012-13 BUDGET**
Adminstration Expenditure Type View							
Total Wages Split by Department							
Development	386,291	300,180	307,492	307,492	307,492	307,492	307,492
Governance	400,000	508,500	520,886	520,886	520,886	520,886	520,886
Assets	865,000	1,081,236	1,115,573	1,107,573	1,107,573	1,107,573	1,107,573
Operations	580,000	762,338	780,907	780,907	780,907	780,907	780,907
Finance	523,784	662,311	678,444	678,444	678,444	678,444	678,444
Board / Executive	750,000	867,124	888,246	888,246	888,246	888,246	888,246
Business Services	945,593	1,177,420	1,300,596	1,300,596	1,300,596	1,300,596	1,300,596
Information Systems	618,373	686,547	763,270	763,270	763,270	763,270	763,270
Total Wages	**5,069,041**	**6,045,657**	**6,355,414**	**6,347,414**	**6,347,414**	**6,347,414**	**6,347,414**
Total Expenditure by Department							
Development	609,136	396,531	396,190	396,190	396,190	396,190	396,190
Governance	319,250	363,399	333,615	306,615	352,615	298,615	306,615
Assets	145,900	416,456	336,600	336,600	336,600	336,600	336,600
Operations	257,386	406,210	288,605	288,605	288,605	288,605	288,605
Finance	610,900	570,323	1,453,215	919,215	919,215	1,019,215	919,215
Board / Executive	356,000	434,487	440,070	440,070	440,070	440,070	440,070
Business Services	1,274,500	1,332,932	1,419,400	1,419,400	1,427,400	1,427,400	1,427,400
Information Systems	723,300	922,875	968,405	995,655	967,992	972,605	994,155
Total Expenditure	**4,296,372**	**4,843,214**	**5,636,100**	**5,102,350**	**5,128,687**	**5,179,300**	**5,108,850**
Environmental Contribution	**1,180,000**	**1,151,941**	**1,123,845**	**1,479,232**	**1,443,213**	**1,408,005**	**1,373,614**
Flows from Cap Ex BAU			**238,000**	**308,000**	**313,000**	**338,000**	**348,000**
New Obligations			**20,000**	**295,000**	**410,000**	**521,000**	**896,000**
Total Authority Expenditure	**23,887,504**	**25,741,118**	**26,920,232**	**27,714,917**	**28,044,605**	**28,534,418**	**28,858,437**

6.1 Derivation of the Variance from Target BAU Opex

Table 6-2 below summarises North East Water's forecast operating expenditure and shows the "Variance from Target BAU Opex" derived in the manner explained in **Section 2**.

- **Table 6-2: North East Water: Historical and Forecast Opex and Variance to Target BAU**

OPERATING EXPENDITURE	FIRST REG'Y PERIOD			SECOND REG'Y PERIOD				
$ millions real (1/1/07)	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
BAU opex	21.40	22.10	23.95	25.13	25.29	25.55	25.96	25.93
New obligations				0.02	0.30	0.41	0.52	0.90
Sub-total Opex	***21.40***	***22.10***	***23.95***	***25.15***	***25.59***	***25.96***	***26.48***	***26.83***
Bulk water charges	0.52	0.43	0.47	0.47	0.47	0.47	0.47	0.47
Licence fees	0.22	0.19	0.19	0.18	0.18	0.18	0.18	0.19
Enviro Contribution	1.24	1.18	1.13	1.12	1.48	1.44	1.41	1.37
Gross operating expenditure	**23.38**	**23.89**	**25.74**	**26.92**	**27.71**	**28.04**	**28.53**	**28.86**
Target BAU Opex			**22.20**	**21.94**	**22.09**	**22.24**	**22.37**	**22.48**
Variance from Target BAU Opex			**1.75**	**3.21**	**3.50**	**3.72**	**4.11**	**4.34**
Customers and Consumption								
Total customers ('000)	43.02	43.57	44.22	44.13	44.90	45.64	46.38	47.08
Growth relative to 2006-07	-	1.00	1.01	1.01	1.03	1.05	1.06	1.08

Overall total planned operating expenditure in the second regulatory period is more than Target BAU Opex both in aggregate and in each year of the regulatory period. This indicates that (after allowing for growth) productivity improvements of less than 1% p.a. relative to the 2006/07 base year are expected or that there are justified explanations of the Variances from Target BAU Opex.

6.2 Additional costs relative to the 2006/07 base ('Explanation of Variance')

North East Water advised the review team of a number of "new" / additional costs that it expects to incur during the regulatory period and that it regards as additional to the normal BAU Opex incurred in 2006/07. The additional costs advised by North East Water are shown in **Table 6-3**.

It is noted that there is a shortfall in a full explanation of the total Variance from Target BAU Opex in years 2008/09 and 2009/10 and a shortfall in aggregate of a full explanation over the five year regulatory period of $112K.

The explanations of variance provided by North East Water in **Table 6-3** are discussed in the immediately following sections of this report.

- **Table 6-3: "New" Costs or Explanation of the Variance from Target BAU Opex originally submitted by North East Water**

Description	Forecast Operating Expenditure ($ 000 - real Jan 2007)					
	2008/09	2009/10	2010/11	2011/12	2012/13	Total
Water Purchases	829	295	295	395	295	2,109
New Obligations	258	603	723	859	1,244	3,687
Electricity Expenditure	164	664	914	1,114	1,164	4,018
Outsourced Contracts	204	204	204	204	204	1,022
Operations - Employee Costs	107	107	107	107	107	534
Assets - External Program Delivery Support	200	200	200	200	200	1,000
Administration - Employee Costs	1,286	1,278	1,278	1,278	1,278	6,400
Total	**3,048**	**3,351**	**3,721**	**4,157**	**4,492**	**18,770**
Variance from Target BAU Opex	3,213	3,496	3,718	4,112	4,343	18,883
Difference	**(165)**	**(145)**	**3**	**45**	**149**	**(112)**

Note: In the table originally supplied by North East Water, the Environmental Contribution was included as an explanation of the Variance from BAU Opex (in aggregate of $928K over the regulatory period and -$56K, $299K, $263K, $228K and $194K in each of the respective years). This was rejected as this item is to be evaluated separately by the ESC. Consequently the environmental contribution line was deleted from the table. Otherwise the above table is as presented by NEW.

North East Water indicated that it understood the Environmental Contribution did not form part of the explanation of the "Variance from Target BAU Opex" (refer methodology described in **Section 2**) and agreed with its removal for this review (noting that it still forms part of the gross operating expenditure as indicated in **Table 6-2)**. The ESC will evaluate its reasonableness separately and may make a separate adjustment, as appropriate, from anything indicated in this report.

6.2.1 Electricity Expenditure

North East Water identified real increases in electricity expenditure as an explanation of Variance from Target BAU Opex at an aggregate cost of $4.018M over the regulatory period. The variance relates to a combination of price, quantity affects and green energy cost effects. North East Water provided an electricity cost projection report (KE&R, 2007) which contained its current and forecast electricity usage in MWh and this report was used to determine the effect of increased quantities on North East Water's electricity operating expenditure.

The review team notes and has considered the significant work that North East Water has undertaken to establish its electricity forecasts and the independent advice that it has received (Reference 7). The review team has had significant discussions with North East Water personnel

and has concluded that the methodologies for establishing future electricity energy costs based on the futures prices for electricity are broadly similar. The key point of difference is the view that has been formed about the price of electricity over the regulatory period.

For the Water Plan, North East Water assumed that the overall average electricity price would increase by 10%, 44%, 60%, 73% and 77% in ***real*** terms ***relative to 2006/07*** electricity prices for the respective years of the regulatory period. This was based on the advice from its consultants in late 2007 when wholesale electricity prices were at significantly higher levels than at present. As indicated in **Section 3.2.1**, the review team considers that based on current market conditions, data and futures pricing forecasts that the overall average electricity price will increase by 12%, 15%, 15%, 15% and 15% in ***real*** terms ***relative to 2006/07*** for the respective years of the regulatory period.

During recent discussions on this issue, North East Water received further advice from its adviser (after re-running its electricity price model taking into account the review team's approach and views). This advice, based on current market forecasts (late February 2008), indicated a lower estimated future electricity price than assumed at the time of the Water Plan preparation and consequently lower forecast electricity operating expenditure. However, the prices forecast by North East Water were still higher than those forecast by the review team. The major difference is that North East Water's adviser now considers prices will rise in real terms by approximately 10 to 20% (in line with its current assessment of recent future's prices information) and then remain steady in real terms. This view is based on its judgement of the longer term effect of the supply and demand for electricity and the cost of energy generation.

This is not consistent with the review team's information (refer **Section 3.2.1**). Primarily the review team considers that there will be a real spike in the overall average electricity price in year 1 (2008/09) of the regulatory period and then the overall average electricity price will fall back to almost 2006/07 levels in real terms (with only a small real price increase above 2006/07 prices).

[NB: The review team notes that the historical expenditures provided in North East Water's report appeared not to be consistent with the expenditures in the accounts provided by North East Water. North East Water explained that the data in its accounts is based on accrual accounting where as the data supplied to its consultant was based on cash accounting. The review team considers that this explanation accounts for the minor difference.]

The forecast increases in energy consumption, costs and average unit tariffs indicated by North East Water are shown in **Table 6-4.** This table also provides a summary of both North East Water's Water Plan proposal of electricity operating expenditure in the regulatory period and also the review team's recommended reasonable electricity costs, the quantum of additional real electricity costs considered justifiable in explaining the Variance from Target BAU Opex and the

recommended adjustments to be made in real electricity operating expenditure during the regulatory period.

The components of additional electricity costs that are considered justifiable in explaining the Variance from Target BAU Opex are *additional real* costs associated with:

- New demands ('Step' increases) post 2006/07, usually associated with bringing new facilities on-line. These costs are allowed as determined on the basis of the full real electricity prices considered reasonable by the review team for the relevant years of the regulatory period (**Section 3.2.1**);
- Existing demands (continuing through the period) determined on the basis of any real increase in electricity prices above 2006/07 electricity prices (the differential real cost increase);
- Growth in existing demands (natural growth) but only to the extent determined on the basis of any real increase in electricity prices above 2006/07 electricity prices (the differential real cost increase) for this natural growth in additional demands – as the cost of the natural demand growth has already been allowed for in the calculation of Target BAU Opex.

- **Table 6-4: Forecast Costs for Electricity and Green Energy**

Electricity & Green Energy *Expenditure in $000 (01/01/2007 real)*			**Second Regulatory Period**					
	2006/07	**2007/08**	**2008/09**	**2009/10**	**2010/11**	**2011/12**	**2012/13**	**Total**
North East Water proposal								
Total Water Plan electricity operating expenditure ($'000s)	1,303	1,432	1,467	1,967	2,217	2,417	2,467	10,533
Variance from 2006/07 Actual Electricity Opex ($'000s)		129	164	664	914	1,114	1,164	4,018
Energy consumption (MWh)	13532	13532	13869	14181	14417	14467	14467	71,401
Consumption growth factor estimated by N.E.W		1.00	1.02	1.05	1.07	1.07	1.07	
Growth factor (from water customer numbers)		1.01	1.01	1.03	1.05	1.06	1.08	
Average unit price assumed/proposed by N.E.W ($/kWh)	0.096	0.106	0.106	0.139	0.154	0.167	0.171	
Real increases in unit price (compared with 2006/07 price) -as proposed by N.E.W		10%	10%	44%	60%	73%	77%	
Review team proposal								
Proposed percentage increases in Electricity Price (Section 3.2.1)			12.0%	15.0%	15.0%	15.0%	15.0%	
Proposed forecast increases in electricity Opex (growth adjusted)[1] , ($'000s)			1,496	1,570	1,596	1,602	1,602	7,867
Purchase of Green Energy ($'000s)			36.3	37.2	37.8	37.9	37.9	187
Total electricity & green energy expenditure ($'000s)			**1,532**	**1,608**	**1,634**	**1,640**	**1,640**	**8,054**
Less energy costs already allowed for in growth adjustment of Target BAU Opex			17	40	62	84	105	**307**
Increase in Electricity Opex Justified in explaining Variance from Target BAU Opex [i.e Variance from 2006/07 Actual] (in $'000s)			212	265	269	253	232	1231
Adjustment to Electricity Opex Proposed ($'000s) [= Line 11 - Line 1]			**$65**	**($359)**	**($582)**	**($777)**	**($827)**	**($2,480)**

Note 1: The growth assumed corresponds to the increase in energy consumption forecast by North East Water. This is similar to the increase in water customer numbers.

For North East Water the new electricity demands are embedded in the first line of **Table 6.4**. The quanta of these have been advised separately by NEW and the various components of increases in real electricity costs have been assessed as indicated above.

Table 6.4 shows that the forecast increases in the overall average electricity price anticipated by North East Water (line 7) exceed those suggested in **Section 3.2.1** by the review team (line 8)**. (**These increases are those shown for Business B in Error! Reference source not found.).

After adjusting for increases in the quantity of electricity purchased the review team then applied the price increase percentages discussed in **Section 3.2.1** to estimate the total cost of electricity purchases for each year.

Based on the electricity projections prepared in the KE&R report (reference 7) it appears that North East Water proposes to purchase 10% of its energy requirement as green energy. As detailed in **Section 3** the review team has considered $20 per tonne of CO_2 (or $26.20 per MWh using the factor of 1.31 kg of CO_2 equivalents per kWh of electricity purchased in Victoria from DoCC, 2007, p16) as being a reasonable price for green energy. Application of this rate to the energy forecasts prepared by North East Water leads to an additional expenditure allowance of approximately $37K p.a. (Line 10, **Table 6.4**).

The key outcomes of the review team's assessments are indicated in **Table 6-4** as follows:

- Line 11 – indicates the reasonable provisions for total electricity and green energy operating expenditure over the regulatory period, compared with North East Water's equivalent Water Plan expenditure provisions at Line 1, **Table 6.4**.
- Line 14 (last row) – indicates the adjustments proposed to electricity operating expenditure NEW's Water Plan. There is a net reduction of $3.077M in aggregate for the regulatory period. This translates directly to the adjustments table (**Table 6-7).**
- Line 13 – indicates the increase in electricity Opex considered to be justified in explaining the Variance from Target BAU Opex [i.e. Variance from 2006/07 Actual]. The aggregate net amount over the second regulatory period is $634K. This translates directly to the explanation of Variance from Target BAU Opex table, **Table 6.6**.

The review team notes that there needs to be further guidance from ESC on the likely real increases in electricity prices and further discussion with North East Water on the advice it has received on future electricity price increases.

As part of the discussions with North East Water, it received further advice from KE&R on future electricity price movements. KE&R has confirmed that the view of future price increases is significantly less than previously (i.e. significantly less than underpinned NEW's Water Plan submission), but considers that future price increases in real terms relative to 2006/07 will be of the order of 15% in 2008/09 and approximately 20% in the other years of the regulatory period (KE & R Electricity Cost Projections Update Report, March 2008). It is understood that NEW accepts that the price increases in its Water Plan are too high. However NEW's preference is to adopt the slightly higher costs based on KE&R's current advice and not the lower costs based on the review team's assessment of future prices.

6.2.2 Labour Costs - Operations

North East Water provided increases in labour and on-costs of its Operations area (which represents only part of its labour workforce) as an explanation of Variance from Target BAU Opex (of $107K per annum and $534K in aggregate over the period). The review team understands the explanation is based on real salary increases proposed during the regulatory period. North East Water proposed in its Water Plan that an average real increase of 2.5% in labour costs and on-costs in the first year of the regulatory period when compared with financial year 2006/07. Thereafter labour costs and on-costs are expected to remain unchanged in real terms.

As described in **Section 3** of this report the review team considers a real increase in employee costs associated with EBA or other wage of 1.25% per annum (cumulative) as being reasonable and with any real increases exceeding this as requiring productivity improvement offsets.

On this basis the outcomes of the review team's assessment are:

- The adjustments for the purposes of varying NEW's Water Plan operating expenditure and **Table 6.7** are ($8K), $42K, $93K, $144K and $196K in the respective years of the regulatory period [i.e. a slight reduction in the first year and increases in the later years to properly allow for the real 1.25% p.a. real increase in labour (operations) costs];
- The justifiable allowances for the purposes of explaining the Variance from Target BAU Opex and **Table 6.6** are the same as for the adjustments indicated above, i.e. ($8K), $42K, $93K, $144K and $196K in the respective years of the regulatory period.

This position is based on the increase being associated with labour costs (operations) and not new growth related staff positions.

6.2.3 Labour Costs - Assets / External Program Delivery Support

As described in **Section 5** North East Water proposes to ensure delivery of its capital program by obtaining resources from consultant organisations in the event that staff cannot be recruited directly

and as required. These resources are expected to cost $200K p.a. in each year of the regulatory period. This cost is reasonable for two full time personnel (assuming on-costs are included).

The review team originally considered that this expenditure is reasonable to the extent that project management costs are included in all infrastructure that North East Water proposes to deliver over the second regulatory period and to the extent that the expenditure is Capex. On this basis the review team considered that this expenditure is likely to be Capex and therefore did not constitute a justifiable explanation of Variance from Target BAU Opex. The review team initially considered that this expenditure should be transferred from North East Water's Water Plan Opex to its capital expenditure (of the relevant projects) as these costs would form part of the asset value of the facilities constructed. .

However, North East Water has advised that labour costs associated with its own project managers are treated as operating expenditure and that treating such proposed expenditure as Opex would be inconsistent with North East Water's current business practices.

The review team considers that the quantum of expenditure is justified and reasonable. However it has difficulty accepting that it is reasonable (regardless of whether undertaken by permanent NEW personnel or contractor/consultant resources) to include such expenditure as operating expenditure (rather than capital expenditure) for regulatory pricing purposes, notwithstanding NEW's business practices. Ultimately clarification of whether this expenditure should be classified as Opex or Capex should be made in further discussions between North East Water and the ESC.

The review team does not propose any change to this expenditure item subject to discussions between North East Water and the ESC.

6.2.4 Labour Costs - Administration

North East Water provided the table below as an explanation of Variance from Target BAU Opex associated with new administrative positions. The total cost of the new positions in the second regulatory period is $1.06M per annum based on the information in the table below. However, North East Water provided $1.29M in the first year and $1.28M in subsequent years of the second regulatory period as an explanation of variance associated with new positions (see **Table 6-3).**

The difference of approximately $0.23M is the provision for real increases in labour costs for 'administration' personnel (both from the base of 2006/07 and also for new personnel). NEW appears to have provided an effectively constant provision for this across the regulatory period.

After discussion with North East Water the review team adopted the figures in the **Table 6.5** below for assessment.

- **Table 6-5: Breakdown of Administration New Positions – Labour Costs**

New Position	Additional Allocation 2007/08 Budget	Additional Allocation 2008/09 Budget
Corporate Strategy - Planning Engineer	93,777	
Corporate Strategy - OHS Support Officer	49,715	
Assets - Project Managers (2)	184,978	
Operations - Administration Support	52,207	
Operations - Area Managers (2)	158,840	
Finance – Regulatory Officer	90,000	
Corporate Strategy – Executive	114,285	
Corporate Strategy – Education Officer	62,921	
Business Services - Customer Officers (2)		94,496
Information Systems – Electrician		60,000
Corporate Strategy – Corporate Secretary		100,000
Total	**806,723**	**254,496**

The table indicates the year in which expenditure first occurs. The annual expenditure forecast is thus cumulative, i.e. forecast expenditure in 2007/08 totals $807K and in 2008/09 $1,061 K (of which $807K appears to have been already committed in the current year 2007/08).

The review team had initially considered reducing the forecast expenditure from 2008/09 onwards by $185K p.a. (to $876 K each year) pending confirmation that the 2 No. Project Manager (Assets) positions were not involved in capital delivery. Further confirmation is required to confirm that these personnel are involved in general asset management activities and not delivery of capital projects. [NB: If such project managers are involved in capital projects then the same issues as to classification of the expenditure as identified in **Section 6.2.3** arises. In such cases the review team considers that such costs should be classified as capital expenditure and not operating expenditure. However the review team considers that the ESC should provide clarification on how such costs are to be treated.]

The review team has confirmed with North East Water that the expenditure for the Operations – Area Manager positions (2 No.) does not constitute a double counting of new obligations expenditure as identified in **Section 6.2.8** (i.e. new Opex from Capex, and that such expenditure does not include an allowance for labour costs).

The review team also requested further information relating to the other ten (10) positions. The additional 10 positions accounts for an increase of approximately 13 percent in North East Water's staff. The increase in staff numbers proposed by North East Water appears disproportionately high

relative to other Water Authorities. In the absence of extracts from position descriptions, which were not available, North East Water provided oral advice on the responsibilities for each of the positions.

The review team considered that the explanation for the positions were generally reasonable with the possible exception of the need for customer service operators. North East Water indicated that restrictions, bush fires and 'boiled water' notices had all increased the number of calls to the call centre. The review team considered whether the calls relating to these issues would be ongoing through the second regulatory period and doubted that this would be the case. North East Water further advised that it needs to improve its response time to calls answered within specified limits (e.g. 30 seconds?) from 91 percent to 98 percent. Based on the evidence in North East Water's Water Plan, the review team did not see any clear requirement for significant effort to enhance performance against this service standard. Notwithstanding these concerns the review team considered that some mix of performance requirements and incoming call volumes requires North East Water to employ additional staff in this area.

The review team obtained the number of employees (FTE's) currently working for North East Water from its new building business case which was completed in November 2007. North East Water has confirmed to the review team that it was able to fill the 12 new positions in the time indicated noting that it had already filled all positions except the 3 customer service operator positions. Based on information supplied by North East Water the review team understands that the North East Water workforce has increased from 76 to 85 FTE's and will increase to 88 FTE's shortly (a total increase of 16 percent). Based on information supplied by North East Water the review team understands that these are new positions and have not been filled by existing employees creating gaps elsewhere.

In summary the review team considers that the proposed expenditure is broadly reasonable and is required to enhance governance and business performance and consequently does not recommend any change to planned expenditure in the regulatory period as indicated in **Table 6.5**. However this is higher than in NEW's Water Plan submitted and some adjustments are necessary.

Using the information in **Table 6.5** and allowing for EBA increases of 1.25% real p.a., the outcomes of the review team's assessment are:

- The adjustments for the purposes of varying NEW's Water Plan operating expenditure related to Labour (Administration) and **Table 6.7** are ($99K), ($35K), $27K, $90K and $155K in the respective years of the regulatory period (i.e. a reduction in the first two years and increase in the last two years);
- The justifiable allowances for the purposes of explaining the Variance from Target BAU Opex and **Table 6.6** are $1189K, $1245K, $1307K, $1370K and $1435K, i.e. a positive contribution

in each of the years to the Variance explanation (after allowing for the amount already provided for in the growth adjusted component of Target BAU Opex determined for each of the years).

6.2.5 Outsourced Contracts

North East Water has provided additional costs of outsourced contracts (elsewhere described by North East Water as service contracts) as an explanation of Variance from Target BAU Opex (of $204K per annum and $1.022M in aggregate over the period). North East Water advised that these costs relate solely to operation of the Wodonga WWTP (being one of its major outsourced contracts). North East Water incurred costs on outsourced contracts over the last three completed financial years of $2.22M (2004/05), $2.17M (2005/06) and $2.11M (2006/07). North East Water originally proposed in the Water Plan to increase this expenditure by $204K per annum compared to 2006/07.

The review team has discussed this expenditure with North East Water further, particularly as to whether this might be wholly or partly growth related expenditure. North East Water has provided further information and details on the nature of the contract including the fixed and variable payment components, the latter being based on BOD concentrations/loads and flows. These parameters can be influenced by regulation, growth or weather conditions. The review team understands that North East Water agrees that there is a component of growth in the planned expenditure, but further understood that North East Water disagreed with the methodology originally used by the review team to remove the impact of growth related expenditure.

North East Water has provided revised cost information based on 2007/08 operating conditions which results in a reduction of such expenditure provisions over the regulatory period. The revised expenditure proposed by North East Water is between that it had originally proposed in the Water Plan and the adjusted cost that the review team had initially established at its preliminary review stage. The review team agrees that conditions in 2007/08 are more reflective of likely conditions over the second regulatory period and within the accuracy of methods to disaggregate growth and non-growth related costs considers that the recently revised costs proposed by North East Water to be reasonable.

In summary:

- the review team's preliminary view was that the increases of $162K, $140K, $118K, $97K and $74K were justified compared to North East Water's view of $204K per annum (Water Plan).
- the review team's final recommendation is that increases of $145K per annum are justified, a reduction of $59K p.a. compared with that proposed by NEW in its Water Plan.

6.2.6 Water Purchases

North East Water originally provided increases in water purchase expenditures of $0.829M in 2008/09, $0.295M in 2009/10, $0.295M in 2010/11, $0.395M in 2011/2 and $0.295M in 2012/13 as explanations of Variance from Target BAU Opex. This matter was discussed further with North East Water who subsequently advised that the cost of water purchases was expected to increase beyond that included in the Water Plan.

The review team sought advice from North East Water on whether there were any potential impacts of changes in forecast water demands arising out of the demand review being undertaken by PWC for the ESC (and on North East Water's water purchase forecasts). North East Water has advised that PWC initially considered that North East Water's demand forecasts should be increased by 18 percent, but that North East Water did not agree with the recommendation. The discussion contained in this section is on the basis of North East Water's original water demand forecasts.

Water purchases expenditure will allow for the purchase of temporary water rights from existing entitlement holders in the event that Goulburn Murray Water reduces North East Water's allocations. Forecasting this expenditure is difficult as North East Water does not know how much water Goulburn Murray Water will allocate to entitlement holders and the price of temporary rights has been the subject of significant fluctuations over the current filling season (between $300 per ML and $1200 per ML).

However, the review team has considered the information provided in **Table 6-1** regarding bulk charge expenditures ($0.425M 2006/07 and thereafter $0.471M) and notes that based on this information there is a real increase of $0.46M in each year of the second regulatory period compared to 2006/07. North East Water has subsequently indicated that water purchases are not included in the bulk water charges line item.

In its draft report the review team took a cautionary position and suggested the removal of this expenditure from North East Water's Water Plan pending further information regarding the volume of the increase in water required (in ML/year) and a reconciliation of the information provided in **Table 6-1** and **Table 6-2** pertaining to water purchases. North East Water provided further information as to how it was forecasting this expenditure item which showed that it was making the following key assumptions:

- Current allocations of 40 percent increasing to an average water allocation of 64 percent across the second regulatory period (based on verbal advice from DSE),
- $812 per ML for temporary water entitlements based on current prices, and
- DSE guidance regarding water in storage that suggest that water authorities should keep three (3) months of water in store (based on Stage 4 restriction consumption levels).

The review team and North East Water discussed the affect of the allocation level (currently 40%) on temporary entitlement prices (currently $812 per ML) and it was generally agreed that temporary prices would decrease as allocations increased. Given that the current price for temporary entitlements is based on current allocations of 40 percent the review team sought advice from North East Water on what it considered might perhaps be a more reasonable price for temporary entitlements. There was some discussion that $600 per ML might be appropriate and the review team considered that this appeared reasonable given the range of prices experienced over the current irrigation season as noted earlier ($300 per ML to $1200 per ML). It is further noted that the cost of temporary entitlements is difficult to predict because of the impact of new "carry-over" rules, which will increase the value of temporary entitlements.

The review team understood that North East Water wished to retain its expenditure at the budgeted levels and that if the price of temporary entitlements fell it would purchase more water to increase the amount of water in store to reach the DSE guidance levels (of 3 months of water in store) by the end of the second regulatory rather than some time during the 3rd regulatory period. The review team considered this position (as it understood it) and asked for further information regarding how much water in store constituted 3 months supply. The review team noted that North East Water:

- has a permanent entitlement of 12,800 ML,
- at stage 4 restriction levels 40% of the entitlement is required to meet demand,
- 3 months of the year is equal to 25% of water demand, and
- water demand does not vary much between months during stage 4 restrictions.

Based on the above assumptions the amount of water in store required to be consistent with DSE guidance is approximately 1,300 ML (12,800 x 0.40 x 0.25). The review team further noted that the calculations provided by North East Water showed that water in store by the end of the second regulatory period was forecast to be 1,298 ML. The review team considered that the expenditure proposed by North East Water already allowed for it achieving its target.

In summary the review team considers that it is prudent for North East Water to plan expenditure to purchase temporary entitlements of 1500ML in 2008/09, 500ML in 2009/10, 500ML in 2010/11, 1000ML in 2011/2 and 1000ML in 2012/13 as planned. However it considers that a reasonable estimate of the expenditure for the purchase of such temporary entitlements should be based on an average price of $600 per ML rather than $800 per ML.

The outcomes of the review team's assessment are:

- The justifiable allowances for water purchases for the purposes of explaining the Variance from Target BAU Opex and **Table 6.6** should be $0.74M in 2008/09, $0.14M in 2009/10, $0.14M in 2010/11, $0.440M in 2011/2 and $0.440M in 2012/13. [NB: This based on the

volumes of temporary water rights purchased as indicated above at $600/ML less the value of the temporary water rights purchased in the base year of 2006/07.]

- The adjustments for the purposes of varying NEW's Water Plan operating expenditure and **Table 6.7** are ($89K), ($155K), ($1155K), $45K and $145K in the respective years of the regulatory period (i.e. a reduction in the first three years and an increaser in the last two years.

The review team recommends that the ESC consider this matter further in terms of its broader overview of prices for the purchase of temporary water entitlements and the value of NEW's provisions for this item.

The review team also notes that there are ongoing discussions occurring between NEW and PWC (who is undertaking the review of demands for the ESC) on the appropriate volumes of temporary water that will be required to balance supply and demand during the regulatory period. The ESC will ultimately need to ensure consistency between the outcomes of that work and that undertaken here.

6.2.7 New Obligations

North East Water has provided a list of new capital projects that will have additional operation expense as shown below (the number shown in brackets is the yearly cost and the year in which the expenditure first occurs);

- Beechworth Inlet Upgrade ($5K p.a., 2008)
- Myrtleford Reuse ($10K p.a., 2008)
- Wangaratta Additional clear water storage ($18K p.a., 2008)
- Wodonga Conversion of WTP to DAFF ($20K p.a., 2008)
- Yarrawonga Upgrade /relocate treatment plant ($50K p.a., 2008)
- Corporate Practice change pilot scheme ($20K p.a., 2009)
- Barnawartha New Water Supply - Ex. Wodonga (300 dia. to Barnawartha to also cater for Chiltern) ($45K p.a., 2009)
- Chiltern New Water Supply - Ex. Barnawartha (225 dia.) ($30K p.a., 2009)
- Kiewa/Tangambalanga Rising Main odour control - Kiewa P/S ($10K p.a., 2009)
- Wodonga Soda Ash dosing @ Baranduda ($10K p.a., 2009)
- Yackandandah Commissioners Creek risk reduction works ($20K p.a., 2009)
- Yarrawonga Woodlands - Odour Control ($20K p.a., 2009)
- Zoned metering linked with pressure reduction (pilot scheme) ($20K p.a., 2010)
- Beechworth Treatment Upgrade for compliance to licence conditions ($200K p.a., 2010)
- Benalla Capacity Upgrade - Broken River Pumping ($70K p.a., 2010)

- Wodonga Class A Reuse to Industrial ($30K p.a., 2010)
- Yackandandah Additional irrigation (10Ha) ($20K p.a., 2010)
- Yarrawonga Backwash recovery treatment & return to plant (UV & pipework) ($5K p.a., 2010)
- Benalla Holdsworth Rd - 80-100hp tractor+ front end loader ($5K p.a., 2011)
- Mt Beauty/Tawonga/Tawonga South Water Quality Improvements ($110K p.a., 2011)
- Yackandandah Additional Winter storage (40ML) ($5K p.a., 2011)
- Bright/Porepunkah River Outfall ($5K p.a., 2012)
- Bright/Porepunkah/Wandiligong Offstream Storage (400ML) (Treatment?) ($40K p.a., 2012)
- Corryong Water Treatment Plant ($110K p.a., 2012)
- Dartmouth Convert final lagoon to wetlands system ($1K p.a., 2012)
- Glenrowan Pipeline from Wangaratta ($20K p.a., 2012)
- Demonstration house utilising renewable energy, grey water recycling, water saver garden ($75K p.a., 2013)
- Bright/Porepunkah/Wandiligong WTP ($140K p.a., 2013)
- Bundalong New water supply - Raw water system plus expand potable supply for in-house use ($20K p.a., 2013)
- Kiewa/Tangambalanga Booster pump station on Baranduda/ Kiewa supply line ($10K p.a., 2013)
- Myrtleford Water Treatment Plant (8.5ML/d - Filtration & Cl2) ($140K p.a., 2013).

The review team has undertaken a preliminary review of the above list to ensure that there is or has been an associated capital project, using the capital program provided by North East Water. [NB: The review team notes the thoroughness of the reports on the status of projects in each of North East Water's supply areas.] The review team considers that the expenditures are broadly justified. The review team considers that the cost estimates are reasonable based on a percentage of the estimated capital cost of the proposed projects.

However the review team recommends, after further discussions with NEW and the review team's assessment of the timing of various capital projects (and the phasing adjustments recommended in (**Section 5.3**), that the following reductions in "new obligations" operating expenditure be made:

- Corporate Practice change pilot scheme ($20K p.a., 2009) expenditure was removed from the 2009/10, 2010/11, 2011/12 and 2012/13 on the basis that the review team understands that program should be completed in the first year of the regulatory period, is not considered a capital project and should be part of BAU (part of normal prudent business management).

- Demonstration house utilising renewable energy, grey water recycling, water saver garden ($75K p.a., 2013) expenditure was removed pending further clarification of the obligation to undertake this project and its justification. The review team discussed this project with North East Water further and was provided a short paper outlining four different options and one of which could be implemented more quickly and more cheaply (<$10K p.a.). The review team therefore considered that $5K p.a. was reasonable expenditure.
- Benalla Capacity Upgrade - Broken River Pumping ($70K p.a., 2010) expenditure was originally discounted from the explanation of the Variance from Target BAU Opex on the basis that it is Opex associated with an existing asset that needs to be augmented for growth and the calculation of the "Target BAU Opex" has already made an allowance for growth. North East Water advised that the cost is associated with a new asset and the word upgrade has been used because the new asset will "upgrade" an existing supply. The review team considers that based on this explanation that the expenditure fits the ESC's definitions as an allowable explanation of variance to Target BAU Opex.
- Yackandandah Additional irrigation (10Ha) ($20K p.a., 2010 expenditure) was removed on the basis that it allows for growth and does therefore does not fit the ESC's guidance as to what is an allowable explanation of Variance from Target BAU Opex. The review team understands that North East Water agrees with this position based on the ESC definition.
- The commencement of the opex associated with the Mt Beauty/Tawonga/Tawonga South water quality improvement project be delayed one year consistent with the revised project phasing recommended in **Section 5.2** and **Table 5.3.**
- Consistent with the revised project phasing recommended in **Section 5.2** and **Table 5.3,** the Opex associated with both the Corryong Water Treatment Plant ($110K p.a.) and Myrtleford Water Treatment Plant ($140K p.a.) be allowed at 50 % of the proposed amount and that proposed for Bright/Porepunkah/Wandililong WTP ($140K p.a.) be removed wholly as this project is to be completed in the first year of the next regulatory period.
- Items up to $5K p.a. are also recommended to be removed as they are not considered material individually or in aggregate (and would be accommodated within the growth provision for establishing the revised Target BAU Opex).

The revised amounts are indicated in **Table 6.6**. The reductions in operational expenditure recommended by the review team in relation to the "new obligations" are: $25K 2008/09, $50K 2009/10, $170K 2010/11, $81K 2011/12 and $291K 2012/13.

6.2.8 Summary

Based on the discussion as outlined in **Sections 6.2.1 to 6.2.8**, the review team's views on the items put forward by North East Water as justifying the Variance from Target BAU Opex in the five years of the regulatory period are summarised in **Table 6-6** below.

The review team notes that the sum of the new/additional expenditure associated with the items put forward by North East Water as justifying the Variance from Target BAU Opex exceed a full explanation of the Variance in each year of the second regulatory period [except for 2008/09 where there is a shortfall of $0.221M] and by $0.816M in aggregate. [Refer **Table 6-3**].

Table 6.6 summarises the review team's assessment of the items put forward by North East Water as justifying increased operational expenditure in explaining the Variance from Target BAU Opex. There is a shortfall in fully justifying the Variance from Target BAU Opex of $4.09M in aggregate over the regulatory period (without adjustments), as identified in **Table 6.6** at the line headed "Difference"; or alternatively $0.948M (after allowance for all the adjustments proposed to be made), as identified at the last line in **Table 6.**6.

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 6-6** (i.e. the Difference between the Total of Justified Additional Expenditure [Line 9] and the Adjusted Variance from Target BAU Opex after allowing for the adjustments proposed [Line 13]).

- **Table 6-6: Review Team's Assessment of Items Contributing to the Explanation of the Variance from Target BAU Opex**

Description	Forecast Expenditure ($ 000 - real Jan 2007)					
	2008/09	2009/10	2010/11	2011/12	2012/13	Total
Water Purchases	740	140	140	440	440	1,900
New Obligations	233	553	553	778	953	3,070
Electricity Expenditure	212	265	269	253	232	1,231
Outsourced Contracts	145	145	145	145	145	725
Operations - Employee Costs	(8)	42	93	144	196	467
Assets - External Program Delivery Support	200	200	200	200	200	1,000
Administration - Employee Costs	1,189	1,245	1,307	1,370	1,435	6,545
Total	**2,711**	**2,590**	**2,707**	**3,330**	**3,601**	**14,938**
Variance from Target BAU Opex	3,213	3,496	3,718	4,112	4,343	18,883
Difference	**(502)**	**(906)**	**(1,011)**	**(782)**	**(743)**	**(3,945)**

The overall outcomes of the review team's assessment of North East Water's planned operating expenditure for the second regulatory period are:

- ***Specific Adjustments:*** As identified in 'Change Items' 1 to 8 in **Table 6.7**, the following aggregate adjustments (reductions) in NEW's Water Plan operating expenditure are proposed for the years indicated.
  - 2008/09: ($0.150M)
  - 2009/10: ($0.723M)
  - 2010/11: ($0.868M)
  - 2011/12: ($0.749M) and
  - 2012/13: ($0.652M)

These reductions for specific items total $3.142M in aggregate for the period, with the adjustments for specific items being as indicated in **Table 6.7**.

- ***General Productivity Adjustment:*** An additional general reduction in NEW's Water Plan operating expenditure is required to achieve the required 1% productivity target (after allowance for growth) because the justifiable expenditure in explaining the Variance from Target BAU Opex falls short of a full justification. The extent of the shortfall indicated in **Table 6.6** (last line). [Note: The Variance from Target BAU Opex. derived from **Table 6.2** as requiring explanation has been adjusted downwards to take account of adjustments already proposed in **Table 6.7** (sum of 'Change Items' 1 to 8)**.** Refer second last line in **Table 6.6**.**]**

  The adjustments (reductions) to be made, as identified in the last line of **Table 6.6** and at 'Change Item 9' in **Table 6.7**, are ($288K), ($290K), ($164K), ($145K) and ($62K) from 2008/09 to 2012/13 respectively.

  If these general productivity adjustments are not made the target productivity improvement of 1% p.a. (after growth) specified by the ESC will not be achieved in the regulatory period.

- ***Overall Adjustments (sum of Specific and General Productivity adjustments):*** As identified in **Table 6.7**, the following aggregate adjustments (reductions) in NEW's Water Plan operating expenditure are proposed for the years indicated.
  - 2008/09: ($0.437M)
  - 2009/10: ($1.013M)
  - 2010/11: ($1.032M)
  - 2011/12: ($0.894M) and
  - 2012/13: ($0.714M)

  These reductions total $4.090M in aggregate for the period.

6.3 Conclusions and Recommendations

Table 6-7 outlines the recommended adjustments to North East Water's Water Plan operating expenditure forecasts for the five year regulatory period arising from the above considerations, and the proposed revised regulatory operating expenditure.

These reductions would lead to North East Water meeting the growth adjusted 1% per annum productivity improvement target.

[NB: **Table 6.7** is on following page.]

Table 6-7: Recommended Changes to North East Water's Operational Expenditure for Regulatory Purposes

Change Item	Item/Description		$M				
			2008-09	2009-10	2010-11	2011-12	2012-13
1	Electricity - Price & Demands	Original Water Plan Forecast:	1.467	1.967	2.217	2.417	2.467
		Recommended Revised Forecast:	1.532	1.608	1.634	1.640	1.640
		Recommended Net Change:	0.065	-0.359	-0.583	-0.777	-0.827
2	Labour - Operations	Original Water Plan Forecast:	4.025	4.025	4.025	4.025	4.025
		Recommended Revised Forecast:	4.017	4.067	4.118	4.170	4.222
		Recommended Net Change:	-0.008	0.042	0.093	0.144	0.196
3	Labour - Assets Program Delivery Support [additional cost component ***No adjustment proposed - but ESC to further consider whether this expenditure should be classified as Capex***	Original Water Plan Forecast:	0.200	0.200	0.200	0.200	0.200
		Recommended Revised Forecast:	0.200	0.200	0.200	0.200	0.200
		Recommended Net Change:					
4	Labour - administration (costs of new/additional personel only)	Original Water Plan Forecast:	1.287	1.280	1.280	1.280	1.280
		Recommended Revised Forecast:	1.189	1.245	1.307	1.370	1.435
		Recommended Net Change:	-0.099	-0.035	0.027	0.090	0.155
5	Outsourced Contracts (additional cost component only)	Original Water Plan Forecast:	0.204	0.204	0.204	0.204	0.204
		Recommended Revised Forecast:	0.145	0.145	0.145	0.145	0.145
		Recommended Net Change:	-0.059	-0.059	-0.059	-0.059	-0.059
6	Water Purchases	Original Water Plan Forecast:	0.829	0.295	0.295	0.395	0.295
		Recommended Revised Forecast:	0.740	0.140	0.140	0.440	0.440
		Recommended Net Change:	-0.089	-0.155	-0.155	0.045	0.145
7	New Obligations (Opex from New capex)	Original Water Plan Forecast:	0.258	0.603	0.723	0.859	1.244
		Recommended Revised Forecast:	0.233	0.553	0.553	0.778	0.953
		Recommended Net Change:	-0.025	-0.050	-0.170	-0.081	-0.291
8	Additional "Productivity" Contribution [to achieve ESC specified minimum productivity improvement of 1% pa (after growth)]	Original Water Plan Forecast:	0.000	0.000	0.000	0.000	0.000
		Recommended Revised Forecast:	-0.288	-0.290	-0.164	-0.145	-0.062
		Recommended Net Change:	-0.288	-0.290	-0.164	-0.145	-0.062
	Total Recommended Net Change:		$ (0.503)	$ (0.906)	$ (1.011)	$ (0.783)	$ (0.743)
	Original Water Plan Total Regulatory Opex:		$ 26.92	$ 27.71	$ 28.04	$ 28.53	$ 28.86
	Recommended Revised Total Regulatory Opex: **		**$ 26.42**	**$ 26.81**	**$ 27.03**	**$ 27.75**	**$ 28.12**

**** Note**: The ESC may want to make further adjustments to this 'recommended revised total regulatory Opex' after it has considered the Environmental Contribution, Bulk Water Purchases and Licence Fees items (which did not form part of this review).

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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.

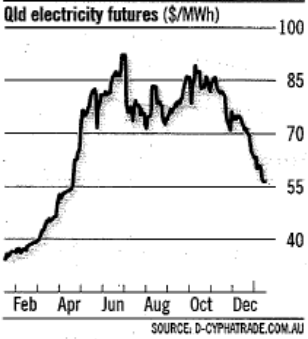
And AGL has locked in electricity supply from a power plant that Queensland Gas is building on its coal-seam methane fields.

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

Qld electricity futures ($/MWh)



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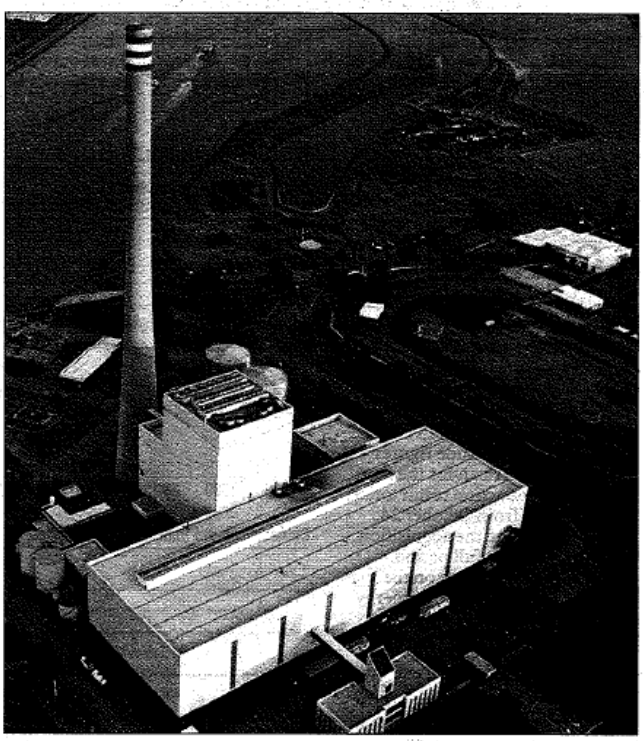

Low summer temperatures have reduced Queensland electricity demand. Photo: JAMES DAVIES