Barwon Water Re-opening Event
Melbourne to Geelong Pipeline

EXPENDITURE REVIEW

- Final Report
- April 2012

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1. Introduction

In the ESC's 2008 pricing decision for Barwon Water, the capital expenditure associated with the Melbourne to Geelong Pipeline (MGP) was excluded from its capital expenditure base/profile for the Water Plan 2 period. This was because of both the general uncertainty regarding the timing of the project and its cost (noting that a significant sum was involved). However in making this decision, the ESC left open the possibility that if the MGP project proceeded, and there was a material impact on Barwon Water's financial position, then Barwon Water could make an application for a price adjustment (consistent with the ESC's "re-opening event" provisions).

In the event the MGP project did proceed. It is noted that:

- the MGP project was part of a "drought proofing" program involving a number of initiatives including water recycling schemes; and
- various approvals and commitments associated with the MGP Project were made between mid 2009 and August 2010 but actual construction work did not start until a little later (with the majority of the project being constructed after a change in government in late 2010).

In December 2011 Barwon Water submitted a Re-Opening Application to the ESC for consideration of an increase in its prices to reflect imminent completion of the MGP.

In considering Barwon Water's Re-Opening Application, the ESC is obliged (amongst other things) to consider a broader range of parameters relating to Barwon Water's capital and operating expenditure across Water Plan 2 and Water Plan 3 – and not just narrowly the capital and operating expenditure associated with the MGP project. In particular this would specifically require consideration of expenditure variances across Water Plan 2 (against those underpinning the ESC's 2008 Water Plan 2 determination) and projected expenditure spanning into Water Plan 3 (with a focus on 2013/14 and 2014/15 as a minimum).

The ESC has engaged SKM to assist it in undertaking this expenditure review.

The key overarching issues are to ensure that:

- The asset (the MGP) has indeed been completed [a threshold issue];
- The case for any price increase based on MGP expenditure is robust in the context of Barwon Water's total expenditure position (e.g. no offsetting expenditure items); and
- A "scissor effect" in prices will not occur across the end of Water Plan 2 and into Water Plan 3 should a price increase be warranted and granted.

Barwon Water has undertaken a range of financial modelling to support its re-opening application, as summarised in its Re-Opening Application (December 2011). This information and the outputs of this report will inform the ESC in undertaking its own independent economic modelling and assessment of pricing impacts.

Capex considerations

In considering capital expenditure more generally for Water Plan 2 (and Water Plan 3) SKM has undertaken a broad high level assessment to establish the status of the projects and whether the expenditure identified has occurred, is occurring or is likely to occur. SKM has not formed a view on the efficiency of such expenditure nor of its prudency (i.e. the necessity to undertake these investments). That is not part of this brief.

A more detailed assessment of capital expenditure, involving efficiency and prudency considerations, is expected to be undertaken as part of the Water Plan 3 review process.

Within this brief, a more detailed review of the MGP project expenditure was undertaken as indicated in **Section 2**.

Demands

It is noted that the ESC has obtained independent advice under a separate engagement on the appropriateness of Barwon Water's forecast water demands for 2012/13, the Water Plan 3 period and beyond and also the extent of reasonable "bounce-back" in unit demand following the end of the recent drought period. Consequently SKM has not considered water demand issues, nor is it part of this brief.

The revised operating expenditure (and capex) expenditure numbers reflected in this report – especially in the opex scenarios developed in **Section 4.1.1 –** are understood to be consistent with the demand information from these reports by other(s) to the ESC.

General Note re Expenditure Numbers

Throughout this report in relation to expenditure numbers and assessments the forecasts for:

- ***2011/12***: are based on the first six months of actual results (July to December) and two 2012 quarters of revised forecasts (as per 8 February 2012 Barwon Water information);
- ***2012/13***: are based broadly on Barwon Water's 2011/12 Corporate Plan, noting that a significant review of this will be undertaken prior to finalising the 2012/13 budget.
- ***Water Plan 3 years (2013/14 to 2017/18)***: are based on Barwon Water's 2011/12 Corporate Plan forecast in late 2011. This is currently being reviewed as part of Barwon Water's 2012/13 Corporate Plan process.

The expenditure numbers for the 2008/09 to 2010/11 years are actual (and audited) numbers.

General Notes:

1. **Generally cost information (whether capex or operating expenditure) is provided in real terms (1 January 2007), particularly for comparative purposes and specifically for understanding the expenditure variances relative to the ESC's 2008 decision (compared with the capital and operating expenditure underpinning that decision). In some instances nominal $ are also indicated in this report.**

2. **The ESC has provided SKM with escalation/de-escalation figures for the period 2006/07 (1 January) to 2012/13. SKM confirms that Barwon Water has used the same escalation/ de-escalation figures in providing expenditure information in real $ terms for the same period.**

3. **For each of the Water Plan 3 years Barwon Water has used an annual inflation rate of 1.0275%.**

Where expenditure numbers are quoted in real $ terms for a particular year throughout this report they are consistent with the above.

2. MGP (Melbourne to Geelong Pipeline)

2.1. General Overview

The Melbourne to Geelong Pipeline (MGP) project will be capable of transferring 16,000 ML p.a. from Melbourne Water's water supply system at Cowies Hill Reservoir in Tarneit to Barwon Water's Lovely Banks Basins in Lovely Banks. The pipeline is a key component of Barwon Water's suite of facilities and initiatives to provide long term water supply security to the Geelong region.

The pipeline capacity of 16,000 ML p.a. is equivalent to approximately half of the current annual water consumption of the greater Geelong region.

There are also a number of related projects focused on Lovely Banks that will also enhance Barwon Water's water supply including:

- Installation of a new pump station at Lovely Banks to transfer water to the Montpelier basins at Highton; and
- Covering of the three basins at Lovely Banks as part of Barwon Water's strategy to manage water quality by providing a closed water supply system from the water treatment plants at Wurdee Buloc and Moorabool.

2.1.1. MGP Project components

The key components of the MGP project are:

- 59 km (approximately) of DN800 pipeline primarily of GRP material (Glass Reinforced Plastic) connecting Cowies Hill Reservoir to the Lovely Banks Basins. This includes a number of crossings at the Werribee and Little Rivers;
- A single pump station at Cowies Hill Reservoir capable of delivering the design flow range;
- Inlet works to Lovely Banks reservoir;
- Mainline pressure sustaining valve; and
- Mainline surge tank.

2.1.2. Project Timing & Phasing

A summary of the timelines from inception of the project through to the expected commissioning / first water delivery dates, including identification of the key approval and project milestones dates, is provided in **Table 1**.

- **Table 1 Summary of MGP Project Timing & Key Milestones**

Event	Date
Concept Design Award	February 2007
Detailed Design Contract Award	06/07/2009
Approval of CHMP Ref #11340 (from Lovely Banks to Kirks Bridge Rd)	19/08/2010
Approval of Planning Scheme Amendment	12/08/2010
Pipe Supply Contract Award (GRP)	31/08/2010
Approval under EPBC Act	07/09/2010
Pipe Supply Contract Award (MSCL)	15/09/2010
Construction Contract Award - Separable Portions 1 & 2	17/09/2010
Approval of CHMP Ref #10888 (from Kirks Bridge Rd to Cowies Hill)	22/10/2010
Completion of Construction *[See discussion on Completion]*	Initially scheduled for end February 2012. Now likely to be April 2012.
Start Taking Water from Cowies Hill	March 2012

2.1.3. Overview Assessment of Project

The MGP project has been well justified and appropriately approved by the Barwon Water Board as reflected in a range of documentation provided by Barwon Water and sighted by the SKM team. This documentation includes:

- Business Case: Primary Business Case dated 23 June 2009 and the Business Case Addendum dated 24 March 2010.
- Board report (15 June 2010) and minutes of Barwon Water Board meeting (15 July 2010) reflecting the Board decision and commitment to proceed with the MGP.
- Notes of interaction with the Department of Treasury and Gateway review process discussions.
- Various tendering and contract documentation and tender assessment process information supporting specific Board approvals for the main project components (July and August 2010).
- Cost Breakdown information as part of the Business Case and initial Board approval and actual Project Budget breakdown used for project management purposes.

2.1.4. Project Set up

Barwon Water has invested significant energy in assessing feasible procurement options in order to manage risk effectively and also to achieve the most cost effective and efficient outcome for the project. The contract structure is outlined in Barwon Water's Business Case (dated 23 June 2009) and in the Business Case Addendum (dated 24 March 2010). In the event the procurement approach adopted appears to have delivered significant savings as discussed in later sections.

A summary of the procurement arrangements adopted by Barwon Water is shown in **Table 2.**

Table 2 MGP Procurement Arrangements – Structure of Contracts

Contract	Structure
Concept, Functional and Detailed Design	3 contracts between Barwon Water and KBR based on AS4122 "General Conditions of Contract for Engagement of Consultants".
Pipe Supply - MSCL	Contract between Barwon Water and Tyco Water based on AS4911-2003 "Amended from General Conditions of Contract for the Supply of Equipment Without Installation".
Pipe Supply – GRP	Contract between Barwon Water and Fibrelogic based on AS4911-2003 "Amended from General Conditions of Contract for the Supply of Equipment Without Installation".
Construction Contract – Separable Portions 1 & 2	Contract between Barwon Water and Abigroup based on AS2124 "Amended from General Conditions of Contract".

2.2. Project Status and Completion

2.2.1. Current Status

At the start of this expenditure review, Barwon Water advised that:

- construction completion was expected to be achieved by 29 February 2012 and that this included an allowance for a two week float period; and
- upon the completion of the two outstanding sections of works (last 2 km of pipe and Tarneit Rd crossing) Barwon Water would commence taking water from Cowies Hill.

A range of information was initially provided on the status of the project works including a "Major Project Update" Report to Barwon Water's Board (December 2011), an update on

pipe-laying progress by Abigroup (RFI2 response, February 2012) and project expenditure tracking information to support this position.

Subsequently the construction completion date was later updated to 14 March (RFI3 response) and more recently further delays were experienced (including late receipt of contractor documentation) which prevented achievement of this date.

The current status is now understood (as of end March 2012) to be that:

- all pipe-laying is complete;
- all construction is finished with various tidy up activities on the other MGP facilities occurring;
- project documentation is still being finalised and is yet to be received by Barwon Water (presumably including "as-built drawings" and confirmation that there are no material or major defects);
- flow of water through the MGP system and its commissioning is not now expected to commence until early April (at the soonest)
- "project completion" (refer discussion in **Section 2.2.2**) is expected to occur by 30 June 2012.

Note: A copy of a commissioning plan – in the form of a Hydrostatic Test Plan (Rev 1) - was sighted (albeit this anticipated a late 2011 commissioning and only allowed one month for this process).

At this stage, no final sign-off documentation indicating acceptance by Barwon Water in relation to either construction completion or project completion has been sighted. Until this occurs construction cannot be said to be complete let alone project completion achieved (refer **Section 2.2.2**).

2.2.2. Project Completion Process

For major capital projects such as the MGP 'completion' is typically defined in a number of stages as indicated below:

- Stage [1]: ***'Practical Completion'*** defined as when the facility/asset is functionally useable by the client / operating entity (in this case Barwon Water) even though there may be significant defects and /or compliance with the functional requirements has not been demonstrated.
- Stage [2]: ***'Completion'*** defined as when all material defects have been remedied and compliance with the functional requirements has been proven. The client then effectively

accepts ownership of the facility/asset and an agreed asset proving period of typically two years commences. Typically Completion occurs 3 months after Practical Completion has been achieved; and

- [3]: ***'Final Completion'*** defined as the conclusion of the asset proving period when all known defects have been remedied and the residual accountabilities of the contractor/provider entity(ies) are discharged and all commercial issues are finalised.

By way of comparison Barwon Water has indicated that there are three stages of "commissioning" – as indicated in italics - namely:

- *'Hydrostatic Testing and Disinfection'* – which must be undertaken by the contractor / provider of the facility/asset before Practical Completion is awarded,
- *'General Commissioning'* - which is part of proving compliance with Barwon Water's functional requirements and should be undertaken by the contractor / provider of the facility/asset before 'Completion' is awarded; and
- *'Fine tuning of the system'* - which would be undertaken by the client/operating entity (Barwon Water in this case), and cover a truncated asset proving period.

Barwon Water has not clearly aligned with the above definitions (Practical Completion / Completion / Final Completion) but is rather relying on discussions that it has had with the ESC and its interpretation of them that *"once water was supplied through the pipeline, it met their (ESC's) criteria"*. However such criteria have not been described or defined and do not seem to exist. Regardless, the test for demonstrating completion in this way does not seem an adequate or rigorous enough test. A notion of *"is available for service"* has been canvassed as an appropriate test. This is discussed later in this section.

Nevertheless in relation to the above Barwon Water has advised that:

- Practical Completion is scheduled to occur by the end of June 2012; and
- Completion is expected to occur post June 2012 at which time Barwon Water will take ownership of the pipeline.
- It intends to effect Practical Completion (and later stages of Completion) through sign-off by Barwon Water's General Manager Operations being BW's asset owner ultimately and its relevant authorized representative (as Project Superintendent). It is expected that a pro-forma letter or certificate would be submitted for his signature and supported by appropriate evidence, advice and recommendations from the contractor, the designer and Barwon Water's Project Manager (and perhaps BW planning and asset management representatives).

Barwon Water intends to make available the signed 'Certificate of Practical Completion' (or equivalent letter) as evidence that construction completion and Practical Completion have been achieved. No firm date on when such a certificate or letter would be produced has been advised other than it would be available before 30 June 2012.

- It considers that it will have full and unfettered operational control of the MGP post practical completion and intends to bring the asset onto its books once Practical completion is achieved.
- Once Completion is achieved (and after a short 'fine tuning' period) the MGP system will be "mothballed" indefinitely (expected to at least cover the 5 years of the WP3 period). [NB: It is assumed, though BW has not confirmed this, that a truncated 'defects liability' (or asset proving period) will apply given this 'mothballing'. So a Final Completion date is not clear but could be at the end of 2012. BW has advised though that the MGP is one of a suite of water supply sources now available to provide flexibility in meeting customer demands and in managing water supply risks and security into the future while minimising costs overall. A consistent approach will be adopted for managing water supply assets used at less than full capacity including the Anglesea Borefield, Barwon Downs Borefield, surface water sources and recycled water facilities.]

SKM considers that there is still some uncertainty regarding the dates at which Practical Completion and Completion will be achieved. This will largely depend on the extent and nature of any defects and the extent of any non-compliance with Barwon Water's functional requirements. No information has been sighted in relation to this, or confirmation of the absence of any material defects or of any independent documentation confirming the completion status.

SKM also notes that a one month plan for hydrostatic testing of 59 kms of pipeline (as proposed in the version sighted) seems ambitious unless significant progressive testing has already occurred. Consequently the earliest date that Practical Completion seems achievable is likely to be early May.

Overall it can be concluded that:

- Achievement of Practical Completion before 30 June 2012 seems realistic.
- Achievement of Completion by 30 June 2012 may be a stretch.
- Achievement of Final Completion within the 2012/13 financial year is realistic (with truncated defects liability period and intention to 'mothball' the asset).

2.2.3. Proof of Completion

It is understood that to progress consideration of the MGP as a re-opening event, the ESC requires that a threshold test of "proof of MGP completion and availability for normal service" be satisfied. This raises at least two issues, namely:

A. What constitutes "completion and availability for normal service" (refer Section **2.2.2**)?; &
B. What evidence is needed to demonstrate this?

In relation to (A) above, for the purposes of the MGP project, it is proposed that somewhere between Practical Completion and Completion is appropriate for meeting this threshold test and a broadly defined test that the asset is capable of being put "into effective service" such that the benefits of the asset can be enjoyed. That is the MGP is capable of delivering its intended service (i.e. supply of potable water of acceptable quality) to the intended customers (i.e. residential/commercial water users of Geelong and surrounds).

This then implies that for the MGP project to pass the threshold test:

- Achievement of Practical Completion is a minimum critical specification; *and* in addition one of the following must be demonstrated, EITHER
- Achievement of Completion – which means that sufficient operational testing of the MGP system has been undertaken to demonstrate that no material defects remain and that all Barwon Water's functional requirements have been fully met; OR
- Achievement of 'Substantive' Completion – which means that sufficient operational testing has been undertaken post-Practical Completion to demonstrate adequate system operability to reliably put water of acceptable quality into supply, the key functional requirements impacting operability have been tested and substantively met (but not necessarily all functional requirements have been met or fully met) and there are no significant defects which materially compromise operability and/or cannot be reasonably remedied within the target Completion period (typically up to 3 months after Practical Completion). This is after hydrostatic testing (part of Practical Completion) and key proving activities in commissioning have been undertaken.

In relation to (B) above the following documentation should be provided by Barwon Water to verify the requirements specified in (A) above:

- A Certificate of Practical Completion (or equivalent) signed by Barwon Water's authorised representative, nominated as its General Manager Operations. This would desirably be supported by at least some of the key documentation on which this is based (e.g. recommendations signed off by contractor and design representatives and Barwon Water's Project Manager and asset management / planning / operations representatives); and

- A Certificate of Completion (with appropriate supporting documentation) signed off by Barwon Water's authorised representative (General Manager Operations) ***or*** a Letter of Assurance from Barwon Water's authorised representative (General Manager Operations) to demonstrate "Substantive Completion" addressing the key points indicated in the preceding. Desirably some supporting documentation should be provided or sighted.

There is scope and reasonable flexibility within this definition for BW to lead appropriate evidence to persuade the ESC that the MGP is complete and available for normal service.

2.3. MGP Capital Expenditure (Project Costs)

The following capital expenditure information in relation to MGP capital expenditure has been obtained from various documentation and information provided by Barwon Water.

- The MGP approved business case is based on a **P50** estimate of **$129.58M *(nominal $)*** - March 2010 Business Case Addendum approved by Board. This included amounts (in nominal $) of $13.43M for Contingency and $14.29M for indirect costs. The business case provided a high level breakdown of this P50 estimate.
- While KBR produced an initial project budget estimate, the approved business case was based on a P50 estimate produced by an independent estimator (Currie & Brown), whose report providing a detailed breakdown for a P50 and P90 estimate has been sighted. A summary of the form of risk based cost approach adopted and the impact on the approved cost estimate is indicated in BW's Business Case (23 June 2009) and Business Case Addendum (24 March 2010), as well as the outcomes of financial modeling undertaken by BW on impacts of the project and the Currie and Brown reports referred to above.
- The current Project Budget Cost Estimate is **$78.4M (*nominal $).*** A high level capital cost breakdown in terms of major line items to support this Budget Estimate has also been provided by Barwon Water (refer Capital Cost Breakdown, January 2012). This Project Budget Estimate was not separately approved as it was within the original approved Business Case amount.
- The current Project Budget Cost Estimate is for equivalent works and does not compromise the scope or key deliverables for the project.
- The final actual project cost is unlikely to exceed the revised MGP Project Budget Cost and may potentially be slightly less than $78.4M (nominal $) based on projected performance (as at mid January 2012). Actual expenditure as at 25 January 2012 was $64.29M (nominal $). An example of a project transaction spreadsheet exported from Barwon Water's financial system (25 January 2012) has been sighted.

- Offset funding of $20M has been received from external sources (government) to reduce the overall project cost to Barwon Water. ***External Funding Payments*** have been made as follows (all in nominal $, total $20M):
  - Draft Business Case: $1.5M [Payment December 2008]
  - Final Business Case: $1.5M [Payment June 09]
  - Construction 25% Complete (15 km pipeline): $6M [Payment April 2011]
  - Construction 50% Complete (30 km pipeline): $6M [Payment August 2011]
  - Construction 75% Complete (45 km pipeline): $5M [Payment December 2011].

In summary the key capital expenditure numbers for the MGP are

- Forecast Final Project Cost (Gross): $78.4 nominal, $68.46M (real, 1 January 2007).
- External Offset Funding Received: $20M nominal, $17.6M (real, 1 January 2007).
- Forecast Final Project Cost to BW (Net): $58.4M nominal, $50.86M (real, 1 Jan 2007).
- Barwon Water intends to hold a retention sum of approximately 5% of the Contractor Sum to cover the defects liability period and any items not completed. Given that this period will be truncated, it is assumed that these monies would be paid in 2012/13.

More detailed information on the capital expenditure and external funding profiles from 2008/09 to 2012/13 is provided in real $ (1 January 2007) at **Table 7** and **Table 9**. Withholding of any retention sum is not reflected in these tables.

Barwon Water has provided an explanation of the key high level reasons for the significant difference between the approved business case P50 amount of $129.58M (nominal) and the revised Project Budget Cost Estimate of $78.4M (nominal) for key project component line items. **Table 3** provides a summary of both identified material cost increases and decreases.

Overall, there are three key items which explain the net cost reduction achieved of $51.2M (nominal), with other lesser cost decreases and increases effectively netting out. These are

- Substantially lower contractor costs ($24.3M nominal)
  - This is due to effective structuring of the construction contract in a way that minimised potential risks to BW and the substantially changed and more competitive market conditions (with some other large projects finishing) at the time of tendering compared with when the original estimate was made. It is arguable that some of this should have been foreseen and been reflected in the original estimate or in the risk based approach, particularly as the Barwon Water Alliance establishment process which occurred at a similar time demonstrated market tightening.

- Reduced pipeline costs ($14.0M nominal)
  - This is due to direct procurement of key pipeline components by BW and substantially increased market competition for pipe supply in circumstances where GRP (Glass Reinforced Plastic) pipe is a viable alternative to the 'norm' of MSCL (Mild Steel Cement Lined) pipe. Barwon Water has adopted GRP as an acceptable alternative for the MGP water supply system. It would have been unreasonable to anticipate these market benefits in the original estimate, given that the use of GRP is still evolving.
- Contingency ($13.0M nominal)
  - A larger than usual contingency was included in the 2010 Board approved business case on the basis that there were at that stage still significant unresolved risks, including alignment finalisation, site access, environmental management requirements and planning and environmental approvals. This seems reasonable.

Table 3 Explanation of the MGP Project Cost Variance – Approved Business Case vs Revised Project Budget Cost

Item	Cost Savings [Nominal $M]	Comment
	Jan 2010 Business Case vs Revised Project Cost	
Decreases in Costs		
Contractor Costs	24.3	Includes: Werribee River Crossing, Little River Crossing, Lovely Banks Reservoir siteworks
Pipeline	14.0	Separate contract - use of GRP predominantly (not MSCL pipe)
Cowies Hill Pump Station	0.6	Approx. 18% lower price.
Geotechnical Investigations	2.1	Over provision.
Contingency	13.0	Unused portion.
Project Management	2.88	Barwon Water project management
Insurance	0.72	Project insurance premium.
Decreases Sub Total	**57.60**	
Increases in Costs		
Environmental Offsets	-2.75	Additional DSE requirements
Detailed Design	-1.53	Including changed alignment.
Land Purchase/Easement Compensation	-0.95	
Surge Control Facilities	-1.17	Increased requirement from detailed design.
Increases Sub Total	**-6.40**	
Total Net Cost Savings	**51.2**	

It is noted that Barwon Water has not incurred any capital expenditure for purchase of a BWE (Bulk Water Entitlement) for access to water from Melbourne's water supply system for the MGP. Barwon Water will pay only a volumetric charge. As per the Bulk Entitlement (Melbourne Headworks System) Order 2010, such volumetric charges are reflective of the proportion of the new regional water businesses bulk water entitlement volume compared with the total BWE volume of the Melbourne retail water businesses and no separate capital charge is payable. Consequently Barwon Water has included the volumetric charges payable in the commissioning cost of water (refer **Section 2.4**).

It is also noted that in reviewing the project cost documentation provided by Barwon Water that an item involving transfer of approximately $7M (nominal) to the "Trust for Nature" was included in the Capital Cost Breakdown (refer January 2012 project cost spreadsheet). Barwon Water has advised that as part of the MGP project, it was required to make a payment to the Treasury Corporation of Victoria [TCV] of $7.00M, to be held in trust to fund environmental impacts associated with this project. This payment has been made in accord with the "Trust For Nature" funding deed.

As per the audit opinion at 30 June 2011, the balance of $7.19M (including interest) was transferred from non-current debtors, with $3.59M to current miscellaneous debtors and $3.60M to capital works in progress. It is possible the $3.59M (plus additional interest) could be refunded to Barwon Water if the determination of environmental credits is as currently expected. This is not expected to impact the capital expenditure amounts identified for the MGP project.

SKM understands that the chlorination facility as part of the MGP is to be handed over to Melbourne Water after MGP Completion and that all future operational and maintenance costs will be borne by Melbourne Water for this (but recovered through its charges to Barwon Water).

Overall SKM considers that:

- A good project outcome has been achieved in delivery of the MGP.
- The final forecast project cost of $78.4M (nominal) and $68.46M (real, 1 January 2007) - and $58.4M (nominal), $50.86M (real) in net terms to BW after allowing for external funding - is reasonable and the capital expenditure profiles (as reflected in **Table 7** and **Table 9)** are also reasonable.
- The project appears to have been well managed from a risk and cost viewpoint.

2.4. MGP Operating Expenditure

This section assesses the impact of the MGP on operating expenditure in Water Plan 2 and Water Plan 3 years.

After commissioning and completing the MGP system, Barwon Water intends before 30 June 2013 to indefinitely "mothball" or decommission this asset until there is sufficient demand to justify its operation or overall water system operational requirements establish a need. Barwon Water has advised that water from the MGP has the highest unit cost compared with its other water sources. Based on current forecast water supply demands and the state of its water storages and other water sources, Barwon Water does not expect the MGP to be returned to service until after 2017/18 (i.e. until after the Water Plan 3 period).

On this basis there will be no MGP operating expenditure in the Water Plan 3 period.

However for the remaining Water Plan 2 period (2011/12 and 2012/13), Barwon Water has proposed that the MGP commissioning and 'mothballing' expenditure be allowed as operating expenditure.

The costs associated with these expenditures are based primarily on the volumes of water received and the proposed MGP commissioning and other activities pre-mothballing as indicated in **Table 4.**

Table 4 Summary of MGP Commissioning Activity Stages and Volumes [BW, 8 Feb]

Commissioning Activity	Date	Water Volume [from Melbourne Water]
Stage 1: Hydrostatic Testing and Disinfection	March 2012	50ML (from Melb Water system)
Stage 2: General Commissioning	April to June 2012	450ML (based on an average water take of 15ML/d for 6 week period)
Stage 3: Fine Tuning of System and Commissioning of Lovely Banks Basins 1 and 2 inlet works following completion of lining and covering works currently being undertaken by the Barwon Water Alliance (scheduled for July 2012 for Basin 2 and Oct 2012 for Basin 1).	July to Dec 2012	500ML
	TOTAL WATER VOLUME	**1,000ML**

Barwon Water intends, following completion of the hydrostatic testing and disinfection of the pipeline, that it will fully commission the (MGP) system and that the (operational) commissioning will be managed by Barwon Water with input from Abigroup (constructor) and KBR (designer) to assist with rectifying any issues and defects.

The volume required to fill the MGP is approximately 28ML (say 30ML) based on approximately 59kms of 770mm ID pipe. Thus for each of the commissioning and 'fine tuning' stages allowance for an approximately 20-fold turnover has been made. These volumes were established through discussions with various internal stakeholders and the contractor and designer. While these volumes may be considered a little high they are reasonable in all the circumstances.

The basis of the additional Water Plan 2 operating expenditure for the MGP as proposed by Barwon Water is:

- The assumed overall operational cost for water supplied from Melbourne Water's system for the MGP was estimated (by BW at February 2012) as $1,450/ML (nominal $). This includes an allowance of $1,400/ML (nominal $) for the purchase of the water (volumetric charge) plus an allowance of $50/ML (nominal $) which includes all other operational costs for the MGP including electricity, labour costs, etc.
- On this basis the anticipated operational costs for Water Plan 2 therefore total $1.45M (nominal) {= $1,450/ML x 1,000ML}. [NB: This compares with an estimated amount of $1.80M (nominal) as indicated by Barwon Water in its re-opening application (December 2011). This latter amount is clearly an over estimate and has been superseded.]

This Barwon Water estimate ($1.45M nominal) equates to approximately $0.62M in 2011/12 and $0.61M in 2012/13 in real terms (Jan 2007), i.e. a total of $1.23M real in the Water Plan 2 period.

A more accurate estimate has been obtained by considering the Melbourne Water Tariff Schedule 2011-12 where the volumetric charge (in nominal $, 1 January 2007) is broken down into volumetric service and volumetric usage charge components for both the headworks and transfer parts of Melbourne's water supply system. The aggregate volumetric charge in both nominal and real $ terms for 2011/12 is indicated in **Table 5.**

Advice has also been provided that there will be a 27.57% real increase in the scheduled charges for 2012-13. Thus the aggregate tariff for water supplied in 2012/13 would be $1483.40 /ML (nominal) or $1241.10 /ML (real, January 2007).

- **Table 5 MWC Tariff Schedule Charge Components [in 2011/12 $]**

MWC Tariff Schedule Storage Operator & Bulk Water Component	$/ML Nominal 2011/12 $
Service charges - headworks	155.61
Service charges - transfer	60.36
Usage charges - headworks	736.43
Usage charges - transfer	179.29
TOTAL	**$1131.69 /ML** **[or $972.86 /ML *Real*, Jan 2007]**

Using the above information the most realistic estimate of MGP commissioning and decommissioning costs in ***real terms*** (1 January 2007), including a 3.5% allowance for general non-water purchase costs, is $1.14M in aggregate but split as follows:

- For 2011/12: $0.50M
- For 2012/13: $0.64M

In the event as indicated in **Table 15,** Barwon Water has indicated that it has allowed $0.48M in ***real terms*** in 2011/12 operating expenditure and presumably $0.50M real in 2012/13 (although this is still not fully clear).

Furthermore it is noted that Barwon Water has used slightly different numbers compared with the above in its business model provided to the ESC to support its re-opening application. It is noted that this should be updated to be consistent with the above and to reflect best current information.

[NB: Barwon Water and KBR's time has been allowed for in the capital cost estimate provided in **Section 2.3** and there is sufficient contingency allowance in the project to manage any issues that may arise during commissioning in terms of remediation of any defects until Final Completion is achieved.]

Treatment of MGP Commissioning and Fine Tuning/Decommissioning Costs

Barwon Water has advised that the costs of the water used for MGP commissioning, fine-tuning and decommissioning will be charged as operating expenditure (and therefore do not form part of the capital cost estimate). The primary reason for this is that the majority of the 1000 ML will flow to Barwon Water's Lovely Banks basin and be on-sold to customers to meet customer demand. No more detailed explanation has been provided.

An alternative view is that, for the purposes of this re-opening, all MGP commissioning and other costs should be capitalised (with costs better recovered through the MGP asset capital value). This is largely because

- Customers do not receive a meaningful or material benefit from this asset in the short to medium term given that the MGP is to be immediately 'mothballed' post commissioning and completion. Thus while the MGP is 'available' customers do not get full enjoyment of the asset;
- The MGP commissioning costs are part of the Project Completion phase and could be reasonably, certainly up to 30 June 2012, be considered to be part of capital delivery of the project. In projects of a similar type SKM's experience is that the costs between Practical Completion and Completion should be capitalised unless driven by essential water supply system or other operational needs;
- The asset is not specifically being used to meet demands as part of "normal system" operation. Water delivered into the Lovely Banks reservoir is an incidental outcome of the commissioning and other activities for the MGP and, as advised by Barwon Water, it is not needed or essential to satisfy any current or other demands and this is its most expensive water source (other cheaper sources of water are available).

  Some consideration might be given as to whether some component of the "mothballing cost" (say post 30 June 2012 or more accurately post the Completion date) is allowed as operating expenditure equal to the incremental cost of the water supplied from the cheapest normal source of supply;
- The primary purpose of the commissioning and system proving is to consider the MGP project is complete; and
- Similarly the fine tuning phase is more aimed at proving system integration issues and to facilitate proving of other related capital works (e.g. Lovely Banks inlet and basin upgrade works) than as part of normal system operation.

On balance SKM considers for the purposes of this MGP re-opening event the most appropriate approach is that:

- The MGP commissioning and other related costs before 'mothballing' should be capitalised, and certainly those costs up to Completion (target date of 30 June 2012);
- On this basis, the actual/forecast operating expenditure (in ***real terms***, 1 January 2007)
  - For 2011/12: be reduced by the amount that BW has allowed in its opex, viz $0.48M
  - For 2012/13: be reduced by the amount that BW has allowed in its opex, viz $0.50M; and

- On this basis, the allowable MGP project capital cost (in ***real terms***, 1 January 2007)
  - For 2011/12: be increased by the corrected cost estimate [as per page 19] of $0.50M
  - For 2012/13: be increased by the corrected cost estimate [as per page 19] of $0.64M
- No operating expenditure relating to the MGP should be included in the Water Plan 3 period (consistent with Barwon Water's advice).

This is also indicated in **Sections 3.2** and **3.3** and expressly reflected in the operating expenditure scenarios identified in **Section 4.1**. It is noted that the above costs include some allowance for incidental costs other than the water purchase costs.

2.5. Other Factors

2.5.1. Project Asset Life

Barwon Water has advised that the following asset lives have been adopted for the various key components of the MGP based on recommendations from the designer (KBR) of their minimum design lives:

- Valves – 25 to 30 years
- Surge Vessels – 50 years
- Surge Tank – 50 years
- Pipeline – 75 years for GRP as the predominant pipe material used (noting that product documentation from Fibrelogic advises that a service life in excess of 100 years can be expected for GRP pipe).

Barwon Water has further advised that

- As part of a recent water industry asset revaluation review undertaken by engineering firm AECOM, it was indicated that GRP pipe (as used for the MGP) would have a useful life of 80 years. Barwon Water has adopted this asset life for GRP on the basis that it provides consistency with the asset revaluation review (which has been "endorsed" by the Victorian Auditor General's Office [VAGO]) and is the best basis for depreciation.
- In relation to the qualities of the GRP: Ortho-phthalic polyester resin (a mid-range resin) was used in its manufacture and no protective coatings were applied (with no information being provided on the type of embedded glass used, ECR or other, in the resin matrix).

SKM notes that the use of GRP extensively in Australia in both water supply, water recycling and sewerage system applications is only a recent phenomenon (last decade), partly driven by substantially lower unit pipe costs with the construction of local GRP pipe manufacturing facilities.

On a worldwide basis there are no long-life installations that can be cited as proven performance of GRP asset life. The longest installation is understood to be about 30 years old. Consequently the tendency is to adopt a conservatively shorter asset life than potential actual.

However it is also noted that GRP has been used in Melbourne Water's Northern Sewerage and Melbourne Main Sewer projects with a nominated design of 100 years, acknowledging that these applications are not in a pressurised pipe environment as is the case for the MGP.

On balance, for the purposes of this determination SKM considers that a pipeline asset life of 100 years would be appropriate and should be adopted. In part this is reinforced by the fact that the alternative pipe material which could have been chosen, namely Mild Steel MSCL, has an expected life of 100 years or greater.

2.5.2. Status of Water Purchase from Melbourne Water

As BW advised in early March it appeared unlikely that a formal BWSA (Bulk Water Supply Agreement) with Melbourne Water would be settled and signed off before end March 2012. It is noted that in lieu of this full Service Level Agreement being available, Barwon Water and Melbourne Water intend to commit to a MOU (Memorandum of Understanding) to allow water to be taken once the MGP is ready for commissioning.

While SKM has not sighted any draft or final versions of such documentation, it is clear from other information that negotiations between Barwon Water and Melbourne Water are proceeding constructively and in good faith. This is not considered an impediment to MGP project completion.

Furthermore Melbourne Water expects Barwon Water to take up to 1000 ML of water in 2012.

2.6. Conclusions / Summary

Overall MGP project

SKM considers that:

- A good project outcome has been achieved in delivery of the MGP.
- The project appears to have been well managed from a risk and cost viewpoint.
- The final forecast project cost (see information below) is reasonable, as are the capital expenditure profiles as reflected in **Table 9.**
- The ESC decision to defer inclusion of this project in the 2008 determination seems to be well justified as events have transpired.

Proof of MGP Completion

The MGP project must pass the threshold "Proof of Completion" test. This would involve satisfying the following minimum requirements as defined and detailed in **Section 2.2.3**, viz:

- Achievement of Practical Completion as a minimum critical specification *and also* one of either Achievement of Completion or Achievement of 'Substantive' Completion must be demonstrated; and also
- Provision of appropriate supporting verification documentation, including as a minimum the relevant certificates of completion and/or letter of assurances, signed off by Barwon Water's authorised representative nominated as its General Manager Operations.

MGP Capital Expenditure

In summary the key MGP capital expenditure facts considered reasonable are

- Forecast Final Project Cost (Gross): $78.4 nominal, $68.46M (real, 1 January 2007).
- External Offset Funding Received: $20M nominal, $17.6M (real, 1 January 2007).
- Forecast Final Project Cost to BW (Net): $58.4M nominal, $50.86M (real, 1 Jan 2007).
- Barwon Water intends to hold a retention sum of approximately 5% of the Contractor Sum to cover the defects liability period and any items not completed. Given that this period will be truncated, it is assumed that these monies would be paid in 2012/13.

More detailed information on the capital expenditure and external funding profiles from 2008/09 to 2012/13 is provided in real $ (1 January 2007) at **Table 7** and **Table 9**. These supporting capital expenditure profiles are also reasonable.

MGP Operating Expenditure

On balance SKM considers for the purposes of this MGP re-opening event the most appropriate approach is that:

- The MGP commissioning and other related costs before 'mothballing' should be capitalised, and certainly those costs up to Completion (target date of 30 June 2012);
- On this basis, the actual/forecast operating expenditure (in ***real terms***, 1 January 2007)
  - For 2011/12: be reduced by the amount that BW has allowed in its opex of $0.48M
  - For 2012/13: be reduced by the amount that BW has allowed in its opex of $0.50M; &
- On this basis, the allowable MGP project capital cost (in ***real terms***, 1 January 2007)
  - For 2011/12: be increased by the corrected cost estimate [as per page 19] of $0.50M
  - For 2012/13: be increased by the corrected cost estimate [as per page 19] of $0.64M
- No operating expenditure relating to the MGP should be included in the Water Plan 3 period (consistent with Barwon Water's advice).

3. Overall Expenditure Water Plan 2 (including MGP)

3.1. Capital Expenditure

3.1.1. Overview of Water Plan 2 Capex

A summary of Barwon Water's actual / forecast Total Capital Expenditure profile over the Water Plan 2 period (covering all projects undertaken) is shown at **Table 6.** This table provides two versions of the actual / forecast capex profile – one provided as part of Barwon Water's Re-Opening Application in December 2011 (light mustard row) and an updated version provided to the review team in February 2012 (light green row). **Table 6** also shows the variance of actual/forecast for both of these against the capital expenditure profile underpinning the ESC's 2008 decision.

- **Table 6 Total BW Water Plan 2 Capital Expenditure – [MGP & Non-MGP, real $2007]**

Total Capital [Source of Information]	Total Capital Expenditure [$M Real, 01/01/2007]					
	2008/09	2009/10	2010/11	2011/12	2012/13	Total WP2
ESC Determination [2008]	114.45	75.90	101.49	82.83	62.70	437.37
Actual / Forecast [BW re-opening application, Table 7, December 2011]	80.40	86.30	154.60	174.70	157.90	653.90
Variance [BW re-opening application, Table 7, December 2011]	34.05	-10.40	-53.11	-91.87	-95.20	-216.53
Actual / Forecast [BW, 8 Feb 2012]	80.91	86.19	157.14	196.77	141.31	662.32
Variance [BW, 8 Feb 2012]	33.54	-10.29	-55.65	-113.94	-78.61	-224.95

Note: These represent gross capital expenditure (i.e. are not net of offset funding from government and other sources). Negative red numbers represent an over-spend in capital expenditure relative to the 2008 ESC determination, black numbers indicate an under-spend in capital expenditure relative to the 2008 ESC determination.

3.1.2. Projects Contributing to Capex Over-spend

The key projects contributing to the additional capital expenditure over the Water Plan 2 period of $224.95M (real, as identified in **Table 6)** - above that forming part of the 2008 ESC determination are:

- New Projects (not considered at 2008 or included in the 2008 determination)
  - MGP Pipeline (considered here)
  - Black Rock Recycled Water Plant
  - Armstrong Creek Recycled Water Transfer & distribution
  - Torquay Recycled Water Dual Pipe
  - Cowies Creek Sewage Pumping Station Replacement
  - Meredith Water Supply Improvements
- Projects considered at 2008 but incurring additional expenditure
  - Northern Water Plant (increased contribution from Shell also being sought as offset)
  - Colac Pipeline Future Stages (brought forward from WP3, notional efficiency reasons)
  - Lovely Banks Basins Relining and Covering.

In addition two further projects have been recently identified (refer **Table 32**) which are planned to commence in 2012/13 and be completed in Water Plan 3 (indicatively 2013/14). These were not identified in the initial Water Plan 2 capex information provided by BW and are not reflected in the Water Plan 2 capital expenditure numbers and discussions in this section. These projects – namely New Accommodation facilities and the Apollo Bay Bulk Water Supply Upgrade – are briefly discussed in **Section 4.2**.

The Actual / Forecast Capital Expenditure for the key projects indicated above and the Variance in Capital Expenditure for them is indicated in **Table 7** and **Table 8** respectively.

Table 7 Actual / Forecast Gross Capital Expenditure of Key New/Changed Projects [Costs in Real $, 01/01/2007]

Project	2008/09 act.	2009/10 act.	2010/11 act.	2011/12 fcst	2012/13 fcst	Total
Melbourne - Geelong Pipeline	0.70	4.87	37.48	24.67	0.73	68.46
Black Rock Recycled Water Plant	-	0.56	3.39	16.79	14.83	35.56
Armstrong Creek Recycled Water transfer and distribution	0.07	0.23	3.96	8.68	19.32	32.26
Torquay recycled water dual pipe	-	-	0.12	0.65	8.61	9.39
Northern Water Plant	0.60	7.06	11.78	53.51	7.49	80.43
Cowies Creek sewage pumping station replacement	0.17	2.58	5.92	0.64	0.00	9.33
Colac Pipeline future stages	0.02	1.69	8.47	4.71	0.03	14.91
Meredith water supply improvements	-	1.37	4.67	0.38	0.00	6.43
Lovely Banks Basins lining and covering	-	0.40	2.51	5.57	2.66	11.14
						267.90

Note: The capital expenditure in this table is Gross Capital Expenditure in real terms (i.e. at Jan2007, and is not net capital expenditure for Barwon Water which would exclude external funding offsets).

Table 8 Variance to Capital Expenditure Forming part of 2008 Determination for Key projects [Costs in Real $, 01/01/2007]

Project	2008/09 act.	2009/10 act.	2010/11 act.	2011/12 fcst	2012/13 fcst	Total
Melbourne - Geelong Pipeline	0.70	4.87	37.48	24.67	0.73	68.46
Black Rock Recycled Water Plant	-	0.56	3.39	16.79	14.83	35.56
Armstrong Creek Recycled Water transfer and distribution	0.07	0.23	3.96	8.68	19.32	32.26
Torquay recycled water dual pipe	-	-	0.12	0.65	8.61	9.39
Northern Water Plant	- 5.12	- 14.67	- 23.05	46.65	7.21	11.03
Cowies Creek sewage pumping station replacement	0.17	2.58	5.92	0.64	0.00	9.33
Colac Pipeline future stages	- 0.08	- 0.06	6.72	4.01	- 0.07	10.51
Meredith water supply improvements	-	1.37	4.67	0.38	0.00	6.43
Lovely Banks Basins lining and covering	- 0.10	- 1.14	0.86	3.77	2.64	6.03
						188.99

Note: The capital expenditure in this table is Gross Capital Expenditure in real terms (i.e. at Jan2007, and is not net capital expenditure for Barwon Water which would exclude external funding offsets).

Barwon Water has also provided brief overview explanations of these variances and justification for the new projects not contemplated in the 2008 ESC decision. These will need to be explored in more detail during the Water Plan 3 review process.

Some broad initial observations (without the benefit of sighting more detailed supporting explanatory documentation) are:

- The aggregate variance for these nine (9) key projects of $188.99M (real terms Jan 2007, refer **Table 8**) accounts for approximately 84% of the Aggregate Variation in Total Capital Expenditure over Water Plan 2 of $224.95M (refer **Table 6)**.
- Subject to more detailed assessment, there seemed to be a reasonable economic argument supporting
  - the Colac Pipeline scheme and
  - Meredith scheme.
- The Armstrong Creek seems to have a strong growth driven justification.
- The Cowies Creek PS replacement seems necessary from a risk and asset management viewpoint, although it potentially reflects that the asset condition assessment systems are still not yet fully mature enough to predict this in a more timely and pro-active manner;
- The Northern Water Plant has attracted a greater share of offset funding from Shell because its waste is a major contributor to the change in scope and increased costs of this facility. Construction of this facility has been materially delayed. Originally planned to be fully operational by the end 2011, it is anticipated that this will not occur until early 2013 at the soonest.
- The BRWRP (Black Rock Water Recycling Plant) Project is a new project but was planned to be finished early in the 2013/14 year. It is now likely to be later than this as it is understood that construction has only recently commenced.

- Torquay Water Recycling Scheme: This is integrally linked with the BRWRP. Recycled water is supplied directly from the BRWRP with only a local storage at Torquay as supply buffering.
- The additional expenditure for Lovely Banks prima facie seems reasonable.
- All water recycled schemes would require further scrutiny in the Water Plan 3 review process.

The prudence and reasonableness of the capital expenditure during Water Plan 2 has not been assessed as part of this review. This would be expected to occur in more detail during the Water Plan 3 expenditure review and ESC determination, particularly for expenditure associated with the new/unplanned projects and /or projects with significantly greater than planned expenditure in Water Plan 2 (as well as the projects proposed for Water Plan 3 capital expenditure).

It is noted that there appears to be a history of delay on significant projects for which significant operating expenditure was allowed in the 2008 ESC decision or is proposed. These projects include:

- Biosolids facility
- Northern Water Plant
- BRWRP (Black Rock Water Recycling Plant).

Major Projects with Variances & Overall Variance Picture

Barwon Water has provided further information on the *nine (9) projects* with major capital expenditure variances which contribute to the aggregate variance indicated in **Table 6**.

This information for the nine (9) projects is summarised in **Table 9.** In particular it provides *actual / forecast capital expenditure* at a gross level, external funding offset information and the net capital expenditure incurred by Barwon Water.

The summary of the *overall variance* picture for ***all projects*** at Gross Capex and Net Capex (i.e. Gross capital expenditure less funding offsets from other sources) relative to the ESC 2008 decision is provided at **Table 10**.

- **Table 9 Barwon Water's Water Plan 2 Capex: Details for 9 Key Projects with Major Capital Expenditure Variance [Real $Jan 2007]**

Project		2008/09 $M	2009/10 $M	2010/2011 $M	2011/2012 $M	2012/13 $M	Total $M
Melbourne - Geelong Pipeline	WP2 2008 Decision	-	-	-	-	-	-
	Actual / Forecast	0.70	4.87	37.48	24.67	0.73	68.45
	Funding	2.81	-	5.33	9.46	-	17.60
	Net Capital Cost to BW	-2.11	4.87	32.15	15.21	0.73	50.85
	Variance [WP2 Dec'n - Net Cost]	**2.11**	**-4.87**	**-32.15**	**-15.21**	**-0.73**	**-50.85**
Black Rock Recycled Water Plant	WP2 2008 Decision	-	-	-	-	-	-
	Actual / Forecast	-	0.56	3.39	16.79	14.83	35.57
	Funding	-	-	-	6.88	1.67	8.55
	Net Capital Cost to BW	-	0.56	3.39	9.91	13.16	27.02
	Variance [WP2 Dec'n - Net Cost]	-	**-0.56**	**-3.39**	**-9.91**	**-13.16**	**-27.02**
Armstrong Creek Recycled Water Transfer & Distribution	WP2 2008 Decision	-	-	-	-	-	-
	Actual / Forecast	0.07	0.23	3.96	8.68	19.32	32.26
	Funding	-	-	-	-	-	-
	Net Capital Cost to BW	0.07	0.23	3.96	8.68	19.32	32.26
	Variance [WP2 Dec'n - Net Cost]	**-0.07**	**-0.23**	**-3.96**	**-8.68**	**-19.32**	**-32.26**

Project		2008/09 $M	2009/10 $M	2010/2011 $M	2011/2012 $M	2012/13 $M	Total $M
Torquay Recycled Water Dual Pipe	WP2 2008 Decision	-	-	-	-	-	-
	Actual / Forecast	-	-	0.12	0.65	8.61	9.38
	Funding	-	-	-	0.86	1.97	2.83
	Net Capital Cost to BW	-	-	-	-0.21	6.64	6.43
	Variance [WP2 Dec'n - Net Cost]	-	-	-	**0.21**	**-6.64**	**-6.43**
Northern Water Plant	**WP2 ESC 2008 Decision**						
	Gross capex adopted	5.72	21.73	34.83	6.86	0.27	69.40
	Funding Offset for NWP	4.28	16.27	26.09	5.14	0.13	51.9
	Net Capex to BW adopted	1.44	5.46	8.74	1.72	0.14	17.5
	Actual / Forecast outcome						
	Actual / Forecast Gross capex	0.60	7.06	11.78	53.51	7.49	80.44
	Actual Funding received	-	-	19.88	39.59	6.44	65.91
	Actual Net Capital Cost to BW	0.60	7.06	**-8.10**	13.92	1.05	14.53
	Variance Outcome [Net capex] compared with 2008 decision	**0.84**	**-1.6**	**16.84**	**-12.2**	**-0.91**	**2.97**
Cowies Creek Sewage Pumping Station Replacement	WP2 2008 Decision	-	-	-	-	-	-
	Actual / Forecast	0.17	2.58	5.92	0.64	0.01	9.32
	Funding	-	-	-	-	-	-
	Net Capital Cost to BW	0.17	2.58	5.92	0.64	0.01	9.32
	Variance [WP2 Dec'n - Net Cost]	**-0.17**	**-2.58**	**-5.92**	**-0.64**	**-0.01**	**-9.32**

Project		2008/09 $M	2009/10 $M	2010/2011 $M	2011/2012 $M	2012/13 $M	Total $M
Colac Pipeline future stages	WP2 2008 Decision	0.10	1.75	1.75	0.70	0.10	4.40
	Actual / Forecast	0.02	1.69	8.47	4.71	0.03	14.92
	Funding	-	-	-	-	-	-
	Net Capital Cost to BW	0.02	1.69	8.47	4.71	0.03	14.92
	Variance [WP2 Dec'n - Net Cost]	**0.08**	**0.06**	**-6.72**	**-4.01**	**0.07**	**-10.52**
Meredith water supply improvements	WP2 2008 Decision	-	-	-	-	-	-
	Actual / Forecast	-	1.37	4.67	0.38	-	6.42
	Funding	-	-	-	-	-	-
	Net Capital Cost to BW	-	1.37	4.67	0.38	-	6.42
	Variance [WP2 Dec'n - Net Cost]	-	**-1.37**	**-4.67**	**-0.38**	-	**-6.42**
Lovely Banks Basins lining and covering	WP2 2008 Decision	0.10	1.54	1.65	1.80	0.02	5.11
	Actual / Forecast	-	0.40	2.51	5.57	2.66	11.14
	Funding	-	-	-	-	-	-
	Net Capital Cost to BW	-	0.40	2.51	5.57	2.66	11.14
	Variance [WP2 Dec'n - Net Cost]	**0.10**	**1.14**	**-0.86**	**-3.77**	**-2.64**	**-6.03**
Overall [For these 9 projects]	Net Capital Cost to BW	**-1.25**	**18.76**	**52.97**	**58.81**	**43.60**	**172.89**
	Variance [WP2 Dec'n - Net Cost]	**2.89**	**-10.01**	**-40.83**	**-54.59**	**-43.34**	**-145.88**

Note: Of these 9 projects the Northern Water Plant was the only project that had an offset funding allowance as part of the 2008 ESC decision.

- **Table 10 Summary of Capital Expenditure Variance for WP2 [real $, 1 Jan 2007]**

Total Capital [Source of Information] Estimates as of Jan 2012 [Ex BW response 8 Feb 2012]	Water Plan 2 Total Capital Expenditure [$M Real, 01/01/2007]					
	2008/09	2009/10	2010/11	2011/12	2012/13	Total WP2
Actual / Forecast						
Gross Capex Actual / Forecast - from **Table 6**	80.91	86.19	157.14	196.77	141.31	***662.32***
Funding Offsets Actual / Forecast	9.56	10.81	20.74	56.17	12.31	***109.59***
Net Capex cost to BW [Gross capex – other funding]	71.35	75.38	136.40	140.60	129.00	***552.73***
ESC 2008 Decision						
Gross Capex adopted	114.45	75.90	101.49	82.83	62.70	***437.37***
Funding offsets adopted	6.61	18.24	28.60	9.20	2.20	***64.85***
Net Capex Cost to BW	107.84	57.66	72.89	73.63	60.50	***372.52***
Variance from ESC 2008 decision – all projects						
[**Gross capex basis** - Not allowing for funding offsets], also **Table 6**	**33.54**	**-10.29**	**-55.65**	**-113.94**	**-78.61**	**-224.95**
[**Net Capex cost basis** after allowing for funding offsets]	**36.49**	**-17.72**	**-63.51**	**-66.97**	**-68.50**	***-180.21***
Variance from ESC 2008 decision – 9 key projects [**Net Capex cost basis** allowing for funding offsets; refer **Table 9**]	**2.89**	**-10.01**	**-40.83**	**-54.59**	**-43.34**	***-145.88***
Unexplained /Other Variance [**Net Capex cost basis** after allowing for funding offsets]	**33.60**	**-7.71**	**-22.68**	**-12.38**	**-25.16**	***-34.33***

Note: Negative red numbers represent an over-spend relative to 2008 determination, black numbers indicate an under-spend relative to the 2008 determination. **Funding offsets** include revenue for projects received from other sources (e.g. government and customer contributions) but *excludes revenue from asset sales and depreciation*. NB: The total revenue from asset sales over WP2 is estimated to be $5.84M [real $1 January, 2007].

It is noted that:

- There is significant under expenditure relative to the 2008 ESC decision in the first year of WP2. This seems to be largely due to delays in getting projects started.
- Most of the Gross and Net additional capital expenditure (relative to the 2008 ESC decision) is largely explained by the additional expenditure on the 9 most significant and/or "new" projects identified by Barwon Water.
- The majority of the additional capital expenditure has occurred over the last two /three years of the Water Plan 2 period, including the current financial year and 2012/13.
- The MGP contributes approximately 28% to the total additional Net Capex cost incurred by Barwon Water over the whole Water Plan 2 period [$50.85M of $180.21M, real terms].
- The additional capital expenditure for the Northern Water Plant (NWP) has not contributed to any Net Increase in Capex to BW as the funding from Shell (and perhaps federal funding) has more than offset the increased capital expenditure.

3.2. Overview of Total Operating Expenditure - Water Plan 2

3.2.1. ESC 2008 Decision for WP2

The ESC's 2008 Final Decision on Barwon Water's prices and revenue for Water Plan 2 was underpinned by the Total Prescribed Operating Expenditure as shown at **Table 11.**

Table 11 Barwon Water's Total Prescribed WP2 Operating Expenditure [ESC 2008]

FINAL Decision Barwon Water Water Plan ($m Real 01/01/07)							
	Water Plan 2						
	2008/09	2009/10	2010/11	2011/12	2012/13	TOTAL WP2	%
Chemicals	2.28	2.53	2.53	2.90	3.48	**13.72**	4%
Materials (reduced by pandemic)	5.70	6.17	5.65	6.02	6.40	**29.94**	8%
Electricity	4.24	3.89	3.65	3.15	3.19	**18.12**	5%
Other Utilities	1.05	1.05	1.05	1.05	1.05	**5.25**	1%
External Resources (excluding biosolids)	24.37	22.00	20.87	20.54	20.45	**108.23**	28%
Biosolids	3.21	9.73	8.04	8.06	8.07	**37.11**	10%
Labour	25.95	26.09	26.26	26.79	27.30	**132.41**	34%
Capital Recovery	(3.24)	(3.24)	(3.24)	(3.24)	(3.24)	**(16.22)**	-4%
Insurance	0.91	0.91	0.96	0.99	1.02	**4.79**	1%
General Expenses	6.68	6.77	6.92	7.18	7.59	**35.14**	9%
Environmental Contribution	4.14	4.02	3.91	3.80	3.69	**19.56**	5%
TOTAL	**75.29**	**79.92**	**76.60**	**77.24**	**79.00**	**388.05**	100%
less Non-Prescribed	2.19	2.19	2.10	1.92	1.80	**10.20**	
TOTAL PRESCRIBED	**73.10**	**77.73**	**74.50**	**75.32**	**77.20**	**377.85**	

This outcome was achieved after a range of adjustments to the operating expenditure proposed by Barwon Water in its Water Plan 2 submission. The most significant individual adjustments made (in aggregate over the WP2 period) between Barwon Water's Proposal/Submission and the ESC's Final Decision were as indicated in **Table 12.**

- **Table 12 Significant Individual Line Item Adjustments to BW's Proposed WP2 Opex**

Item	Aggregate Adjustment Amount across WP2 $M
Electricity (non- borefields)	-7.95
Electricity (borefields)	-2.02
Labour (non-capital)	-2.82
Pandemic	-5.50
TOTAL Adjustments	**-$18.29M**

3.2.2. Actual / Forecast WP2 Operating Expenditure

A summary of Barwon Water's Actual / Forecast Total Prescribed Operating Expenditure as provided in its re-opening application (December 2011) and also an updated view provided in response to SKM's RFI1 (Request for Information No 1) on 8 February are shown in **Table 13**. *NB: BW's operating expenditure for 2011/12 and 2012/13 in* **Table 13** *still includes the MGP commissioning costs that are potentially to be capitalised.*

- **Table 13 Total Operating Expenditure Comparisons for WP2 [Real $, 01/01/2007]**

Total Prescribed Opex [Source of Information]	Operating Expenditure [$M Real, 01/01/2007]					
	2008/09	2009/10	2010/11	2011/12	2012/13	Total WP2
ESC Determination [2008]	73.10	77.73	74.50	75.32	77.20	**377.85**
Actual / Forecast [BW re-opening application, Table 10, December 2011]	67.80	69.30	70.00	80.40	86.30	**373.80**
Variance [ESC 2008 – Actual] [BW re-opening application, Table 10, December 2011]	5.30	8.43	4.50	**-5.08**	**-9.10**	**4.05**
Actual / Forecast [BW, 8 Feb 2012]	71.92	73.60	73.49	77.37	84.49	**380.87**
Variance [ESC 2008 – Actual] [BW, 8 Feb 2012]	1.18	4.13	1.01	**-2.05**	**-7.29**	**-3.02**

Notes: (1) Negative red numbers represent an over-spend (or additional expenditure) relative to 2008 determination, black numbers indicate an under-spend relative to the 2008 determination.

(2) The numbers provided by BW on 8 February 2012 are materially different from those provided in BW's re-opening application. BW has confirmed that the information provided on 8 February should replace that in its re-opening application. In doing so BW has advised that the re-opening application did not include the annual payment for the environmental contribution and that the revised forecasts are still in the very initial stages of 2012/13 business plan development and review and are subject to change.

SKM considers that the actual/forecast operating expenditure information provided by Barwon Water on 8 February 2012 is a reasonable representation of operating expenditure performance over the Water Plan 2 period and now appears internally consistent.

It is noted that the ESC will undertake an independent check to confirm that the actual operating expenditure information for 2008/09 to 2010/11, as indicated in **Table 13**, is consistent with that reported in Barwon Water's audited accounts as provided to the ESC for those years. The actual operating expenditure for 2011/12 will be verified as part of the Water Plan 3 Pricing Determination process.

The Total Prescribed Operating Expenditure information provided by Barwon Water on 8 February 2012 is supported by a more detailed breakdown along major functional line items (in real $, 01/01/2007) and some high level explanation of material variances. [*Refer cost breakdown tables obtained from BW on 8 February 2012*.]

SKM notes that there has been significant movement in both the actual and forecast numbers in Total Prescribed Operating Expenditure across the Water Plan 2 period compared with those provided by Barwon Water in its Re-Opening Application (December 2011).

SKM assumes that the movements correct some previous anomalies and further work undertaken since submission of Barwon Water's Re-Opening Application to the ESC in December 2011.

For example, at least some material movement appears to have occurred as follows:

- *2012/13 Forecast*: Reduction in labour costs forecast of approximately $1.5 to $1.8M in 2012/13 because of Barwon Water's intention to reduce labour numbers by approximately 13.8 FTEs compared with its pre-Christmas forecast. [*Refer information obtained from BW in its "Briefing Note (to SKM): Labour Analysis – 2008 Water Plan Comparisons"*.]
- *2011/12 Forecast*: Reduction in biosolids costs because of further delay in commissioning the new Biosolids Plant until the second half of 2012. Related to this it is noted that
  - No material increase in biosolids costs will now occur in 2011/12, but a net real increase of approximately $5.4M p.a. in 2012/13 would occur if the new Biosolids facility is commissioned and available for the whole year. [NB: This net increase is

slightly higher than in subsequent years because of the transition from the current arrangements (some short term management of biosolids at Melbourne Water's Western Treatment Plant). In later years the net real increase is approximately $5.0M.

Furthermore at one view of it, Barwon Water's increased actual/forecast operating expenditure in the last two years of Water Plan 2 compared with the 2008 ESC determination as indicated in **Table 13** (noting that there are other material changes +/- in the opex base as indicated in **Section 3.3**) could be simplistically explained as due to:

- *for 2011/12*: a number of one-off expenditures (e.g. lagoon desludging $0.6M, agency labour $0.48M, ASR consultants $0.48M and external resources); and
- *for 2012/13*: New biosolids plant costs (approximately $5.4M) and a number of one-off expenditures (e.g. lagoon desludging $1.03M, Black Rock Water Recycling Plant [BRWRP] Armour repairs $0.39M, and other external resources) and new operating costs for the Northern Water Plant [NWP] and the BRWRP of $0.49M. *[NB: While these NWP and BRWRP costs are currently in BW's expenditure estimates for 2012/13 it seems certain given their current construction status that the NWP opex will at least be materially reduced and the BRWRP opex will not occur at all. Refer* ***Section 4.1.1****.]*

3.3. Operating Expenditure Breakdown & Variances - Water Plan 2

3.3.1. Overview of Specific Items

Barwon Water has provided a breakdown of Total Operating Expenditure, aggregated to include both Total Prescribed Opex (as indicated in **Table 13)** and non-prescribed opex, in terms of the major functional line items considered at the time of the 2008 ESC determination. These line items are chemicals, material, electricity, other utilities, external resources (excluding biosolids), labour (aggregate), labour (capital projects recovery), insurance, general expenses and environmental contribution.

This breakdown is reproduced below in ***Table 14*** *(Actual /Forecast) and the variance in Operating Expenditure for the various functional line items is shown in* **Table 15**. This is obtained by comparing **Table 11** with **Table 14**.

Table 15 *(Variance to Water Plan 2, ESC 2008 Determination*) as presented here is considered to be more informative and appropriate than **Table 11** in Barwon Water's Re-opening application (December 2011). Further to facilitate understanding of material movements and obtain a meaningful overall picture of operating expenditure changes, a high level summary of the "Aggregate Cost Savings / Cost Increases across Water Plan 2 relative to the ESC 2008 Determination [in $M real, 1 Jan 2007]" is presented in **Table 16.**

- **Table 14 Operating Expenditure Breakdown – Actual / Forecast for Water Plan 2 [$M real, 1 January 2007]**

ACTUAL / FORECAST ($m Real 01/01/07)							
	Water Plan 2						
	2008/09 Actuals	2009/10 Actuals	2010/11 Actuals	2011/12 Q2 Fcst	2012/13 Forecast	TOTAL	%
Chemicals	1.91	1.89	1.79	1.88	2.23	9.70	3%
Materials	5.61	5.30	4.86	5.43	5.57	26.77	7%
Electricity	3.18	3.45	3.17	3.48	4.29	17.57	5%
Other Utilities	0.93	1.10	1.09	1.05	1.02	5.19	1%
External Resources (excluding biosolids)	23.02	22.01	22.42	24.30	23.33	115.08	30%
Biosolids	3.83	3.87	2.53	3.30	8.41	21.94	6%
Labour	27.59	31.20	34.72	34.48	35.01	163.00	42%
Capital Recovery	(3.70)	(4.97)	(6.68)	(7.23)	(6.48)	(29.06)	(7%)
Insurance	0.96	1.04	0.87	1.11	0.98	4.96	1%
General Expenses #	5.87	6.03	6.16	7.06	7.54	32.66	8%
Environmental Contribution	4.24	4.13	4.02	3.89	3.78	20.06	5%
TOTAL	73.44	75.05	74.95	78.75	85.68	387.87	100%
less Non-Prescribed	1.52	1.45	1.46	1.38	1.19	7.00	
TOTAL PRESCRIBED	71.92	73.60	73.49	77.37	84.49	380.87	

Note: The General Expenses include $0.48m in 11/12 for MGP volume / service charges and a similar amount assumed to be $0.50M in 2012/13. The bracketed numbers for the "capital recovery" line item represent the labour costs to be deducted from the "Labour" costs line item to yield the net figure for prescribed operating expenditure.

The non prescribed costs comprise only approximately 1.8% of the overall operating costs (based on actual / forecast $). Barwon Water therefore considers this immaterial and that the overall trend between lines (prescribed and total opex) does not change.

The variance in Operating expenditure for the various functional line items is shown in **Table 15.** This is obtained by comparing **Table 11** with **Table 14**.

- **Table 15 Operating Expenditure Variance Water Plan 2 – Key Functional Line Items [$M real, Jan 2007] – Table 11 vs Table 14**

VARIANCE ACTUAL/FORECAST TO WP - FAVOURABLE (UNFAVOURABLE)						
	2008/09 Actuals	2009/10 Actuals	2010/11 Actuals	2011/12 Q2 Fcst	2012/13 Forecast	TOTAL
Chemicals	0.37	0.64	0.74	1.02	1.25	**4.02**
Materials	0.09	0.87	0.79	0.59	0.83	**3.17**
Electricity	1.06	0.44	0.48	(0.33)	(1.10)	**0.55**
Other Utilities	0.12	(0.05)	(0.04)	0.00	0.03	**0.06**
External Resources (excluding biosolids)	1.35	(0.01)	(1.55)	(3.76)	(2.88)	**(6.85)**
Biosolids	(0.62)	5.86	5.51	4.76	(0.34)	**15.17**
Labour	(1.64)	(5.11)	(8.46)	(7.69)	(7.71)	**(30.59)**
Capital Recovery	0.46	1.73	3.44	3.99	3.24	**12.84**
Insurance	(0.05)	(0.13)	0.09	(0.12)	0.04	**(0.17)**
General Expenses	0.81	0.74	0.76	0.12	0.05	**2.48**
Environmental Contribution	(0.10)	(0.11)	(0.11)	(0.09)	(0.09)	**(0.50)**
TOTAL	**1.85**	**4.87**	**1.65**	**(1.51)**	**(6.68)**	**0.18**
less Non-Prescribed	0.67	0.74	0.64	0.54	0.61	**3.20**
TOTAL PRESCRIBED	**1.18**	**4.13**	**1.01**	**(2.05)**	**(7.29)**	**(3.02)**

Note: The General Expenses line item includes $0.48m in 11/12 for MGP volume / service charges and a similar amount assumed to be $0.50M in 2012/13. Bracketed numbers represent an over-spend (or additional expenditure) relative to 2008 determination, un-bracketed black numbers indicate an under-spend relative to the 2008 determination.

- **Table 16: Summary of Aggregate Cost Savings / Cost Increases across WP2 relative to ESC 2008 Determination [$M real, 1 Jan 2007]**

Item	More detail	Aggregate Amount [$M]
Cost reductions / savings		
1. Chemicals, materials, electricity, general expenses and other utilities	Refer **Table 17** & **Table 18.**	10.28
2. Biosolids	Refer explanation.	15.17
***Sub-Total** – Cost reductions / savings*		**$25.45M**
Cost increases / additional opex		
1. Labour (net of labour on capital projects or capital recovery)	Refer detailed discussion below.	**-17.75**
2. External Resources (excluding biosolids)	Refer **Table 20**	**-6.85**
3. Environmental contribution		**-0.50**
4. Insurance		**-0.17**
5. Non-prescribed (distributed amongst a number of line items; only approx 1.8% of total opex)	Not separated out against line items.	**-3.20**
***Sub-Total** – Cost increases /addit'l opex*		**-$28.47M**
Net Outcome [Prescribed opex]		**-$3.02M**

Note: BW has not split out costs associated with generating non-prescribed revenue from the above functional line item opex numbers. In aggregate such costs average around $1.4M p.a. actual/forecast (in WP2) and are approximately $0.65M p.a. greater than provided for in the ESC 2008 decision. This table also still includes MGP commissioning costs to be potentially capitalised (refer opex scenarios).

- **Table 17: Breakdown of Chemical, Materials & Electricity Cost Savings across WP2**

Description	Major Variances Itemised ($m Real 1/1/07)					
	2008/09 Actuals	2009/10 Actuals	2010/11 Actuals	2011/12 Q2 Fcst	2012/13 Forecast	TOTAL
Chemicals						
Anglesea Groundwater project	0.07	0.30	-	-	-	0.37
Optimisation of coagulation process	0.05	-	-	-	-	0.05
Reduced flow levels at reclamation plants	0.05	0.34	-	-	-	0.39
Reduced chemical across various areas	0.20	-	0.34	1.02	1.13	2.69
Other variances in chemicals			0.40			0.40
Chemicals sub-total	**0.37**	**0.64**	**0.74**	**1.02**	**1.13**	**3.90**
Materials						
Reduced demand for tanks and rain flush systems	0.16	0.44	-	-	-	0.60
NWP additional Requirements	-	0.53	-	-	(0.28)	0.25
Reduced Maintenance requirements	-	-	0.40	-	1.46	1.86
Other variances in Materials	(0.07)	(0.10)	0.39	0.59	(0.35)	0.46
Materials sub-total	**0.09**	**0.87**	**0.79**	**0.59**	**0.83**	**3.17**
Electricity						
Anglesea Groundwater project	0.24	0.23	-	0.17	-	0.64
Black Rock WRP	0.32	-	-	-	-	0.32
Other variances in electricity	0.50	0.21	0.48	(0.50)	(1.10)	(0.41)
Electricity sub-total	**1.06**	**0.44**	**0.48**	**(0.33)**	**(1.10)**	**0.55**
Other utilities	**0.12**	**(0.05)**	**(0.04)**	-	**0.03**	**0.06**

Table 18 below has explanations provided by BW to support **Table 17**. Barwon Water has also provided a commentary on the sustainability of those savings in materials, chemicals and general expenses achieved in WP2 continuing into WP3 and/or the implications for Water Plan 3 operating expenditure.

- **Table 18: Supporting detailed explanation provided by Barwon Water to support the Opex reductions /cost savings in Water Plan 2**

Major Item	Overview	Explanation	Implications for WP3
Chemicals	Savings for Anglesea groundwater project; Optimisation of coagulation process; Reduced flow levels at reclamation plants; Reduced chemicals across various levels	As a result of further testing required at Anglesea borefield due to trigger levels being hit, less water has been pumped than originally forecast. In addition, significant rainfall has increased surface storage levels and therefore BW has not needed to pump as much water from borefields. Due to the ongoing drought during 2009 and 2010, less flows has entered Black Rock reclamation plant which has resulted in less chemical being required.	Increasing water consumption and higher treatment volumes, along with chemical pricing pressures are expected to see escalation in costs through WP3.
Materials	Reduction in annual maintenance costs due to: reduced demand for tanks and rain flush systems, delays in completion of Northern Water Plant.		Increasing treatment facilities, including recycled water facilities is expected to see increases into WP3. However as the schemes are new this should be at the low end of the scale of maintenance requirements.
Electricity	Savings in electricity for the Anglesea Borefield and Black Rock WRP and some from various other sites.	Similar comments as for chemical usage at Anglesea Borefield and Black Rock.	Additional infrastructure, particularly energy intensive recycled water facilities, along with pricing pressures will see increases in WP3.
General Expenses	Small reductions in expenditure compared to Water Plan 2 budget.	Includes items such as repairs & maintenance, fuel, registration, bulk water charges, licensing costs.	

Savings in chemicals and materials are due to favourable revised contract terms, and lower forecast water volume compared to the 2008 determination. These savings may be impacted by future chemical and material prices. Barwon Water has noted that budgets for 2012/13 and Water Plan 3 are currently being developed, reviewed and will be provided to the BW Board as part of the 2012/13 Corporate Plan process and WP3 development.

3.3.2. Biosolids Costs

A summary of the Biosolids only costs across Water Plan 2 is shown at **Table 19.**

- **Table 19 Biosolids Costs across WP2 [2008 Determination, Actuals, Variances]**

Total Prescribed Opex [Source of Information]	Operating Expenditure [$M Real, 01/01/2007]					
	2008/09	2009/10	2010/11	2011/12	2012/13	Total WP2
ESC Determination [2008]	3.21	9.73	8.04	8.06	8.07	**37.11**
Actual / Forecast [BW, 5 March 2012]	3.83	3.87	2.53	3.30	8.41	**21.94**
Variance [ESC 2008 – Actual] [BW, 5 March 2012]	-0.62	5.86	5.51	4.76	-0.34	**15.17**
Net Increase in Biosolids Opex had new facility been operational [based on ESC 2008 decision info]	-	5.85	5.50	5.00	5.00	**n/a**

Notes: Negative red numbers represent an over-spend (or additional expenditure) relative to 2008 determination, black numbers indicate an under-spend relative to the 2008 determination.

The lower biosolids management costs across WP2 in *aggregate* (of **$15.17M**, refer **Table 19**) relative to the ESC 2008 determination are not true or bona-fide savings. Rather the reduced biosolids management costs are a result of deferral in commissioning of the new biosolids management facility.

Plenary Environment (Barwon) is installing a new biosolids facility under a design, build, finance and operate arrangement (DBFO) on land leased from Barwon Water at its Black Rock Wastewater Treatment Plant. This facility is to process all sewage sludge from Barwon Water's treatment plants using gas-fired thermal drying technology.

The biosolids management contract (Partnerships Victoria public-private partnership contract format) is for a 20-year period post commissioning. At the end of the 20 year concession period the contract requires Plenary to remove the facility, remediate the site and return the

land to Barwon Water to ensure that Barwon Water is not left with a liability at the end of the contract term.

In the interim until this biosolids facility is operational Barwon Water as a short term measure, amongst other things, has been disposing of its sludge to Melbourne Water's Western Treatment Plant.

The Biosolids facility was originally intended, and expected at the time of the 2008 ESC determination, to be installed and commissioned during the 2009/2010 financial year. Installation and commissioning has been delayed due to a range of issues and is now not expected to occur until the second half of 2012 – a delay of approximately 3 years.

At the time of the *ESC's 2008 determination* the anticipated ***net*** increase in biosolids opex was expected to be approximately $5.0M p.a. (real) in the medium to longer term but slightly higher in the first couple of years after commissioning of the facility due to continuation of the disposal operations at Melbourne Water's Western Treatment Plant (WTP) with a progressive ramping down over an 18 month to two year period to allow for processing of Barwon Water's remaining stockpiled material and rehabilitation of the WTP site.

The net increase of $5.0M p.a. referred to is based on 12 months of monthly fees payable to Barwon Water by Plenary. It is assumed that if the facility is delayed in commissioning in 2012/13 and is only operational for say nine (9) months of a year that only nine lots of monthly fees would be payable (i.e. 75% of the annual amount).

As is evident from the bottom two rows of **Table 19** the *Variance* for the years for which operation/commissioning of the biosolids facility has been delayed almost exactly matches the *"Net Increase in Biosolids Opex on operation /commissioning of the new biosolids facility***"** as anticipated at the time of the ESC's 2008 decision. Further the actual / forecast biosolids opex for 2012/13 is close to that implied in the ESC's 2008 decision (i.e. Variance is small).

It can be concluded that:

- *The biosolids costs operating expenditure picture is entirely consistent with the ESC'S 2008 decision, except transposed in time;*
- *While the biosolids facility opex costs are a "new cost" to be embedded in the opex base from 2012/13 onwards as it has transpired – but this is only a delayed cost which was fully anticipated at the time of the 2008 decision and there are no real new biosolids costs in Barwon Water's overall operating expenditure base taken from the viewpoint of the 2008 ESC decision. Once the new facility is commissioned and such costs are included in the*

biosolids operating expenditure base, the base biosolids management opex costs will effectively only return to that reflected in the 2008 ESC determination.

- *The net increase in biosolids costs with commissioning of the new facility is not an explanation of the underlying increase in base operating expenditure across the WP2 period or of "unallowed for" or real new costs materially contributing to Barwon Water's overall Opex variance with respect to the ESC 2008 determination.*

Further while the new biosolids facility is expected to be commissioned in late 2012, this may not be certain. It seems unlikely that the monthly contract fees would be incurred for the full year. Barwon Water's advice is noted that:

- The contractual payment terms require Barwon Water to pay a monthly fee to Plenary based on facility availability plus a cost per tonne of wet biosolids sent to the facility. No costs are payable until the performance of the facility has been proven by Plenary through satisfactory completion of independently verified ***completion tests***.
- These ***completion tests*** are currently underway for the core facility, which includes the two gas-fired driers and associated process trains. However, a technical design problem with the conveyor connecting the biosolids driers with the Black Rock WRP has resulted in Plenary deciding to replace this conveyor with a sludge pump. This pump is expected to be operational in June 2012. Commercial Acceptance will be granted once operation of the complete facility including the Black Rock WRP input pump has been proven.
- Payments to Plenary will commence once ***Commercial Acceptance*** is achieved. The current program shows ***Commercial Acceptance*** occurring in June 2012. [NB: This program has not been sighted, so surety of this timing is unknown.]
- The original date for Commercial Acceptance [at the time of contract commencement (August 2007)] was June 2009. The project is effectively running three years behind the original program. Reasons for project delay include
  - issue of the EPA Works Approval later than the statutory time limit;
  - a subsequent VCAT appeal against the issue of the Works Approval (8 months delay);
  - technical issues with overseas manufacture of key components of the biosolids driers requiring extensive remediation;
  - inappropriate selection of sludge input conveyor requiring complete redesign and change in technology; and,
  - general delays during construction.
- There is a provision in the contract with Plenary that provides Barwon Water with a 20 percent share of income received by Plenary on the sale of processed pellets. This however is not expected to produce a material financial benefit to Barwon (at least in the short term).

Barwon Water's forecast costs during 2012/13 and WP3 [Plenary only costs]

Barwon Water has provided information confirming the forecast costs for the Plenary contract fee payments (only) for 2012/13 and for the Water Plan 3 period. This information included those costs that are reasonably expected to be incurred directly under the PPP contract with Plenary. They do not include any costs for consultants or other functions such as transport (which are allowed for in other operating expenditure). The costs assume a starting input volume of 52,416 tonnes growing at 0.77% p.a. and ***Commercial Acceptance*** occurs in June 2012 (as per the current program). It is assumed that there is no shared income at this point.

This cost information is broadly consistent with that previously sighted by SKM at the 2008 expenditure review.

3.3.3. Operating Expenditure Increase Items

Cost increases have occurred in total operating expenditure primarily in two main areas

- ***External resources*** (excluding biosolids) costs have increased by approximately **$6.85M** (real terms) *in aggregate* over the Water Plan 2 period compared with that allowed for in the 2008 ESC decision. For the present the breakdown provided is noted. The basis for these increases should be more rigorously explored in the Water Plan 3 Review process.
- ***Net Labour costs*** (i.e. aggregate labour costs less labour costs through recovery from capital projects) have increased by a net **$17.75M** *in aggregate* over the Water Plan 2 period compared with that allowed for in the 2008 ESC determination.

Some lesser "increases" have occurred in Environmental Contributions and insurance.

Note: Barwon Water has provided variances on a Total Operating Expenditure basis (i.e. operating costs supporting non-prescribed revenue have not been separated out).

External resources and labour are now discussed in more detail in the following sections.

External Resources

The variance in the external resources costs (excluding biosolids) over WP2, by comparing actuals/forecasts with the ESC 2008 Decision, is presented in **Table 15** (refer also **Table 11** and **Table 14**). A further breakdown of those variance against line items on two different bases is presented in **Table 20** (excluding biosolids) and **Table 21** (including biosolids) respectively.

- **Table 20: External Resources (*excl'g biosolids)* Cost Variance Breakdown in WP2 [$real, 1 Jan 2007]**

Line Item & Components	Operating Expenditure [$M Real, 01/01/2007]					
External resources (excluding biosolids)	**2008/09**	**2009/10**	**2010/11**	**2011/12**	**2012/13**	**Total WP2**
Newlingrook investigation halted	2.55	0	0	0	0	2.55
Aquifer storage & Recovery	0.61	0	0	0	0	0.61
Sewer Outfall Cleaning	-0.90	0	0	0	0	-0.90
Aqueduct demolition	0	0	0	0	0	0
Lagoon desludging	0	0	0	-0.60	-1.03	-1.63
BRWRP Armour Repairs	0	0	0	0	-0.39	-0.39
NWP & BRWRP	0	0	0	0	-0.49	-0.49
CCMA Contract	0	0	0	0	0	0
Agency Labour	0	0	0	-0.49	0	-0.49
ASR Consultants	0	0	0	-0.48	0	-0.48
Efficiency review	0	0	0	-0.18	0	-0.18
Other variances in external resources	-0.91	-0.01	-1.55	-2.01	-0.97	-5.45
Ext'l resources (excluding biosolids): Sub-Total	**1.35**	**-0.01**	**-1.55**	**-3.76**	**-2.88**	**-6.85**

*Note: In **Table 20** negative red numbers represent an over-spend (or additional expenditure) relative to 2008 determination, black numbers indicate an under-spend relative to the 2008 determination.*

On the basis of **Table 20** and other information, the following is noted:

- One-off expenditure that should not occur in WP3 includes
  - *Sewer outfall cleaning*: Approximately $3M was allowed for in the 2008 ESC decision spread across 2008/09 and 2009/10. A significant over-expenditure on sewer outfall cleaning appears to have occurred in 2008/09 of ($0.9M). Consequently $3.9M should not be carried forward in the base into WP3. It is unclear whether any other sewer outfall cleaning has been undertaken in recent years. It appears not as this should be reflected in the variance table above. [NB: This seems to be at odds with **Table 11** in BW's re-opening application, December 2011.]
  - *Aqueduct demolition*: Barwon Water has not specified the quantum for this work although it is noted that this did not contribute materially to the overall Variance.
  - *Lagoon desludging*: An additional (unplanned for?) expenditure of $1.69M for lagoon desludging is spent/forecast for 2011/12 and 2012/13. This is required to allow use of the related land area at the Black Rock WWTP site for the Class A recycled water plant. It is unclear whether this is a new or additional expenditure on top of the $1.12M allowed for WWTP (wastewater treatment plant) sludge removal as part of the 2008 ESC decision.
  - *Agency labour* and *efficiency review*: Total of $0.76M.
  - *Unexpected maintenance* activities for significant infrastructure.

- *Northern Water Plant* [NWP] operating costs (excluding energy) of approximately $1.77M and $3.51M were provided for in the ESC 2008 decision for 2011/12 and 2012/13 respectively. However the construction of the Northern Water Plant is not yet complete. This is also evident from the actual / forecast capital expenditure profile for the 2011/12 and 2012/13 years (refer **Table 9**). At best it appears that the NWP would not be commissioned and operational until the first half of 2013 at the earliest. Consequently it is unclear why Barwon Water has indicated that there is an unfavourable variance of $0.49M for the "NWP and the BRWRP [Black Rock Water Recycling Plant]" – refer **Table 20** - when in fact there should be a $5.28M (less perhaps the $0.49M) under-spend variance item for 2011/12 and 2012/13 (combined) compared with the ESC 2008 decision. If this picture is true then some of the other variance figures might need to be further explored. Some further explanation at least is required. At best it appears that the opex for the NWP will be about $0.5M to $0.9M in 2012/13. Full year NWP operational expenditure is not expected to occur until 2013/14 at the earliest.
- *Black rock Water Recycling Plant*: This plant is similarly still under construction, in fact it is understood that construction is in its early stages and is unlikely to be completed before the end of 2013. Consequently any operating expenditure for this plant is unlikely to occur until the first half of 2014 at the earliest. This plant is to supply recycled water to Torquay and Armstrong Creek.
- *Other increases* largely to do with the operation of new infrastructure and increased maintenance activity. With a fully mature asset management system expenditure on such "unplanned" activities should be less likely to occur.

Table 21 would appear to indicate that

- Expenditure on consultants in the last four years of WP2 (2009/10 to 2012/13) is greater than implied in the 2008 ESC decision producing an aggregate "additional spend" variance of $4.74M. This is predominantly driven by planning work for the greater than originally planned number of capital projects and the associated increase in capital expenditure. The consultant costs would be for initial planning and design and are part of operational expenditure. Assuming there is a reduced capital expenditure program in WP3 it would be expected that some drop off in this expenditure in WP3 overall would occur.
- Additional contractor sludge removal costs, presumably from BW's smaller WWTPs and/or districts, have produced an aggregate "overspend" variance of $1.15M. Part or all of this seems likely to continue into WP3 as an increase in the base (although in the forecast for 2012/13 there is a nil variance).

Many of these issues should be explored more fully at the Water Plan 3 expenditure review.

- **Table 21 External Resources (*incl'g biosolids)* Cost Variance Breakdown in WP2**

	Year 1 2008/09	Year 2 2009/10	Year 3 2010/11	Year 4 2011/12	Year 5 2012/13	Total - 2008/09 to 2012/13
VARIANCE ($m Real 01/01/07)						
External Resources exc biosolids	1.35	(0.01)	(1.55)	(3.76)	(2.88)	**(6.85)**
Biosolids	(0.62)	5.86	5.51	4.76	(0.34)	**15.17**
Total External Resources variance to Water Plan	**0.73**	**5.85**	**3.96**	**1.00**	**(3.22)**	**8.32**
External Resources by Category						
Fee - External Audit	0.02	0.09	0.10	(0.02)	0.01	**0.21**
Agreement	(0.08)	(0.51)	(0.10)	(0.23)	0.00	**(0.93)**
Consultant	2.90	(1.34)	(1.62)	(3.04)	(1.65)	**(4.74)**
Consultant - Medical	(0.01)	0.00	0.00	0.00	0.00	**(0.00)**
Contractor	(1.44)	7.62	5.91	5.45	(1.59)	**15.95**
Contractor - Sludge Removal	0.07	(0.13)	(0.26)	(0.82)	0.00	**(1.15)**
Agency Labour	(0.29)	0.25	(0.49)	(0.40)	0.00	**(0.93)**
Plant Hire - External	(0.49)	(0.08)	0.35	0.10	0.00	**(0.12)**
Trainee Labour	(0.01)	(0.02)	0.02	0.01	0.00	**(0.00)**
Water Supply Little River	0.01	0.01	(0.01)	0.00	0.00	**0.01**
Central Highlands Water Authority	0.05	(0.03)	0.06	(0.05)	0.00	**0.03**
Total External Resources variance to Water Plan	**0.73**	**5.85**	**3.96**	**1.00**	**(3.22)**	**8.32**

Bracketed numbers represent an over-spend (or additional expenditure) relative to the 2008 ESC determination, un-bracketed black numbers indicate an under-spend relative to the 2008 ESC determination.

Labour Opex

The variance in the *labour* costs across Water Plan 2, by comparing actual/forecast operating expenditures with the 2008 ESC Decision is presented in **Table 15** (refer also **Table 11** and **Table 14**). It is noted that:

- Total labour expenditure and "capital recovery" expenditure are identified as separate line items with variances provided for each year across WP2.
- Labour costs associated with capital projects are assumed to be included in the capital expenditure for those projects and so does not need to be considered further here. With increased levels of capital expenditure during WP2, a higher amount of capital recovery has been capitalised to projects each year than originally budgeted in Water Plan 2.
- Labour Operating expenditure and variances are obtained by netting out the two of these. The netted out labour operating expenditure figures are the basis of the following comparisons.

Table 23 provides another view of the *"Summary of Labour Operating Expenditure in WP2 (2008 ESC decision, Actual/Forecast, Variance) & Variance Breakdown [$real, 1 Jan 2007]"*.

SKM has separately obtained information from Barwon Water that provides a more detailed variance breakdown and explanation against a range of line items and satisfactorily explains the underlying reasons for the significant increase in labour operating expenditure across WP2.

Some key overall points in relation to *Labour Cost increases* during Water Plan 2 are:

- Labour cost increases above the ESC 2008 decision represent the most significant contributor to the increase in operating expenditure over the Water Plan 2 period and are substantially in excess of the net variance impact (overspend of $3.02M) over the 5years.
- A simplistic summary of the Variances indicated in **Table 15** is that
  - The cost savings in chemicals, electricity and materials ($7.74M) has funded the increased expenditure on external resources ($6.85M); and
  - The cost reductions due to deferral of the new biosolids facility ($15.17M) have effectively funded the increased aggregate labour operating expenditure ($17.75M).
- ***Aggregate/Gross Labour costs*:** These have increased significantly in the Water Plan 2 period. Most of this increase occurred
  - from 2007/08 to 2008/09: of approx. $5.2M p.a.,
  - from 2008/09 to 2009/10: a further additional increase of approx. $3.5M p.a. and
  - from 2009/10 to 2010/11: a further additional increase of $3.5M p.a.

A total increase in annual labour operating expenditure at the end of Water Plan 2 of approximately $12M p.a. on a total labour cost of $35M p.a. in aggregate.

- ***Net Labour Costs***: The aggregate labour costs are offset by costs recovered from use of some labour on capital projects (designated as a "capital recovery" line item). The net labour cost impact on *total operating expenditure* allowing for this is
  - from 2007/08 to 2008/09: net increase of approx. $1.5M p.a.,
  - from 2008/09 to 2009/10: a further additional net increase of approx. $3.5M p.a. and
  - from 2009/10 to 2010/11: a further additional net increase of $2.5M to $3M p.a.

  An aggregate increase in total annual operating expenditure of approximately $7.5M p.a. built into the opex cost base at the end of Water Plan 2 on a total labour cost of $35M p.a. in aggregate. That is, there is a greater than 20% real increase in labour costs over the Water Plan 2 period above that provided for in the 2008 ESC determination.

[NB: This picture would not materially change but may need to be modified slightly to take into account any differences or minor matters arising from consideration of breakdown of Non-Prescribed Opex.]

A high level summary of the key components contributing to the variance in labour costs (in aggregate) is indicated in **Table 22**.

Table 22 Summary of contribution of key components to WP2 Labour Cost Increases.

Component of Labour cost increase	%age Contribution to Overall Labour Cost Variance [Aggregate across WP2]	Comments
Additional labour FTEs	53.5%	Largely in base?
Various labour cost components	32%	In base
Top up Contribution to Super Fund	11%	One-off
Workcover Premium	3.5%	In base?

- **Table 23 Summary of Labour Operating Expenditure in WP2 (2008 ESC, Actual/Forecast, Variance) & Variance Breakdown [$real, 1 Jan 2007]**

Labour Prescribed Opex - WP2	2008/09	2009/10	2010/11	2011/12	2012/13	TOTAL
Water Plan 2: ESC 2008 Decision	27.90	28.42	28.79	29.36	30.23	**144.70**
Actual / Forecast / Budget	27.59	31.20	34.72	34.48	35.79	**163.78**
Variance to WP2	-0.31	2.79	5.92	5.12	5.56	**19.08**

Notes: Negative red numbers represent an over-spend (or additional expenditure) relative to 2008 decision, black numbers indicate an under-spend relative to the 2008 decision.

It is noted that the numbers in **Table 23** above (as provided by Barwon Water for the purposes of considering labour cost impacts) has some differences when compared with **Table 14** and **Table 15**. This does not alter the overall picture or commentary on labour costs in this section. The further detailed information sighted supports the above summary.

It is further noted that

- The above numbers are for total labour expenditure (includes labour operating expenditure and capital labour expenditure)
- The 2008 ESC determination labour expenditure figures seem too high.
- The aggregate Variance of $19.08M (over-spend) covering all labour costs is greater than the Variance for Prescribed Labour operating expenditure of $17.74M (refer **Table 15**).

Labour FTEs

For 2012/13: BW has provided supporting explanatory information on forecast Net Labour Costs and the actions it is undertaking to reduce labour costs in 2012/13. The interim outcomes of these are assumed to be reflected in the forecast operating expenditure information (refer **Table 14**, although it is noted that in **Table 14** an increase in labour operating expenditure is apparent - see later discussion in this section).

In particular Barwon Water has indicated that:

- The 2012/13 labour 'budget' was 440.5 FTEs compared with 393.8 FTEs underlying the 2008 ESC determination with the greatest increase being in Customers & Communication (+27 FTEs), strategy & Technology (+9.5 FTEs) and organisational development (+6 FTEs);
- On the basis of recent internal reviews, Barwon Water intends to reduce the labour 'budget' in 2012/13 by 13.8 FTEs. It is estimated that this is equivalent to approximately $1.0M to $1.5M p.a. BW has indicated that this labour cost saving is reflected in the revised 2012/13 total prescribed operating expenditure (refer **Table 14**, other information obtained from BW, 8 February). The FTEs outcomes are reflected in **Table 24**.

Table 24 Labour FTEs Forecast for 2012/13

2012/13 Water Plan FTE	2012/13 Forecast FTE	2012/13 Variance	2012/13 Variance (%)
393.83	426.74	32.91	8.36

Notwithstanding Barwon Water's proposed endeavours for 2012/13 as indicated above there is still a substantial increase in labour expenditure in 2012/13 in real terms compared with 2011/12 of approximately $2.88M (real, refer **Table 14**). This is inconsistent with **Table 23** where an increase in labour expenditure in 2012/13 in real terms compared with 2011/12 of approximately $1.31M is shown.

In other information provided by Barwon Water the actual/forecast increase in labour FTEs operating expenditure in 2012/13 compared with 2011/12 is approximately $0.7M (real terms). This latter figure may be explained by the increase of 12 FTEs in 2011/12 (refer **Table 25**) where the full year cost effect may not be apparent until 2012/13. However there is still either approximately $0.61M or $2.18M that needs further explanation. This differential may be in part due to increases in various labour on-costs (based on information obtained from BW in response to RFI3).

What seems apparent is that there is scope to reasonably reduce labour operating expenditure in the context of the Water Plan 3 environment (and possibly also further than already inferred in 2012/13). Many of the labour reductions flagged appear to be related to capital expenditure.

It is also clear that some further explanation is required to address the apparent inconsistencies between the inferred reduction in 2012/13 labour opex (linked with lower FTEs) and increased operating expenditure in 2012/13 (compared with 2011/12) as reflected in the opex expenditure information obtained from BW (real terms). This needs to be further explored in the Water Plan 3 expenditure review.

Overall it seems likely that a significant proportion of the increased net labour cost at end WP2 (above that forming part of the 2008 ESC determination) may not be readily wound back. The reasonableness of this materially increased net labour cost base at the end of WP2 is a matter that probably should be explored further as part of the Water Plan 3 expenditure review.

Drivers for increased FTEs

BW has advised that the internal and external drivers for the resourcing required at Barwon Water during Water Plan 2 and beyond (that resulted in increased labour FTEs) included:

- Unprecedented capital works investment, resulting is the establishment of a competitively appointed Alliance (involving Barwon Water and private sector design and contractor partners) to ensure achievement of the Water Plan deliverables;
- Increased regional growth in the Geelong region leading to increased developer works and requirements;
- Water resource shortages related to drought and climate change resulting in a requirement to diversify water supply, primarily through the use of recycled water;
- Extensive stakeholder feedback regarding Barwon Water's direction, operations and performance from employees, customers and developers;
- The development of a new strategic direction and launch of a cultural change program to support delivery of the Water Plan and meeting employee and customer expectations;
- Significant major projects including the implementation of a new billing system and new office accommodation;
- Increased regulatory compliance requirements including in the area of health and safety; &
- Ongoing business efficiency reviews

More details of Barwon Water's additional labour FTEs across the Water Plan 2 period are indicated in **Table 25.** These are aggregate FTEs contributing to both operating expenditure and capital expenditure. SKM has obtained further detailed explanations and position descriptions from Barwon Water to support the information provided in **Table 25**.

- **Table 25 Additional Labour FTEs Profile across Water Plan 2 against Drivers**

Driver	2008/09	2009/10	2010/11	2011/12	2012/13	Total Addit'l FTEs
Unprecedented capital Works	Strategic Engineer (1); OH&S adviser (1); Environmental Planner (1); Capex admin (1); Community engagement (1) PA (1)	Systems operators (2) Survey (1) ***not in WP3*** Water resource engineer (1)	BR Plant operator (0.5) Modeller (1) Boilermaker (1)	Civil Maintenance (1)		13.5
Development of BW Alliance	Alliance interface manager (1)		Performance analyst (1)			2 (capital)
Increased Regional growth, developer works & Feedback		Connections (1)	Dev't Services admin (1.5) Connections (1.5)			4
Drought management & Recycled Water		Recycled water (1) Planning engineers(1)	RW business Coord'tor (1)	Recycled water (1) Planning engineer (1)		5
Strategy Development		Strategy analyst (1)				1
Cultural Change	People & Culture adviser (1) Gen'l Mgr Org'l Development (1)	PA (1)				3
Customer Perception Survey Response	On-line communications (1) Marketing & Communications (1)		Colac Customer Serv. (1) Business development (1)			4
New Billing System				Project Coordinator (1); Project officers (4); IT Support (1)		6 ltd tenure, not in WP3.
Office Accommodation			Facilities Service Off (1)			1
Health, Safety & Env't reg'ns	Return to Work Coordinator (1)	Civil Mtce Pool (3)		Lead Health & Safety adviser (1)		5
Other external regulations			Information security (1)	Technologist [Fluoride, DHS] (1)		2
Business Efficiency/restructure	Water conservation (0.8)	Tech. Writer (1); Stores (1), Field Services (1)	Fitter (1)	Elec engineer (1)		5.8
TOTAL	**12.8**	**15**	**12.5**	**12**		**52.3**

It is noted in the context of increased labour FTEs and increased labour costs of approximately 20% above the ESC 2008 determination that:

- Customer numbers have increased approximately 5 to 6 % overall across Water Plan 2 and is projected to increase by approximately 15% overall across the combined Water Plan 2 and Water Plan 3 period.
- The increase in capital expenditure in Water Plan 2 largely to service future needs and growth increased by approximately 50%.
- The increased labour costs are reasonable if somewhat on the high side.
- The feasibility of some winding back labour costs in Water Plan 3, in addition to that planned by Barwon Water for 2012/13, given the reduced capital program will no doubt be considered by Barwon Water and should be explored as part of the Water Plan 3 process.

Environmental Contribution

There is a small but minimal variance in annual environmental contributions. Barwon Water has advised that this has resulted from incorrect indexation factors being applied initially. Environmental contributions have increased slightly each year.

Insurance

There is a small unfavourable variance in annual insurance premiums. With increased levels of capital expenditure resulting in higher fixed assets, incorporated with the above expected real increases in premiums. Barwon Water has made positive endeavours to minimise the impact of increased premiums, for example by self insuring of the vehicle fleet.

3.4. Water Plan 2 Conclusions / Summary

SKM recommends that the ESC:

- Consider SKM's commentary in **Section 3** on Barwon Water's forecast operating and capital expenditure for Water Plan 2 in assessing the robustness of its pricing decision in relation to Barwon Water's re-opening application; and in particular
- Take account of the operating expenditure breakdowns and explanations as outlined in **Section 3.3**.

4. Overall Expenditure - Water Plan 3

4.1. Total Prescribed Operating Expenditure – Water Plan 3

The Total Prescribed Operating Expenditure currently estimated by Barwon Water for Water Plan 3 is shown in **Table 26.** *[NB: All costs in this section are in Real $, 01/01/2007 unless otherwise indicated.]*

- **Table 26 Total Operating Expenditure WP3 [BW Estimate, Real $, 01/01/2007]**

Total Prescribed Opex [Source of Information]	Operating Expenditure [$M Real, 01/01/2007]							
	2011/12 [WP2]	2012/13 [WP2]	2013/14	2014/15	2015/16	2016/17	2017/18	Total WP3
Forecast [BW, 8 Feb 2012]	77.37	84.49	83.47	83.45	83.62	83.52	83.43	417.49

Note: This table also still includes those MGP commissioning costs in 2011/12 and 2012/13 to be potentially capitalised. Exclusion of such costs from BW's operating expenditure for those years is dealt with under the WP3 opex scenarios in Section 4.1.1.

At this stage, Barwon Water has not provided any detail on the breakdown of the operating expenditure forecasts for Water Plan 3 to support **Table 26**. In particular no breakdown (for key functional line Items) of the WP3 Total Prescribed Operating Expenditure and/or some incisive commentary on opex trends and issues at least for the first two years of the WP3 period have been provided. Barwon Water has indicated that it is still developing and refining this information for the Water Plan 3 submission.

These Water Plan 3 operating expenditure forecasts will need to be reviewed in more detail in the Water Plan 3 expenditure review process. The following comments are made noting that Barwon Water is still going through an internal process that is incisively challenging all aspects of its operating expenditure cost base and is refining its operating (and capital) expenditures for its Water Plan 3 submission later this year.

In comparing Total Prescribed Annual Operating Expenditure in Water Plan 2 (**Table 13)** with Water Plan 3 (**Table 26**) it is noted that the:

- Total Prescribed Annual Operating Expenditure in first three years of Water Plan 2 was reasonably flat and below the ESC determination (2008) but has increased in the last two years by about $10M p.a. (real, 01/01/2007). The current forecast total operating expenditure in 2012/13 is $84.49M (real, 01/01/2007) which is $7.29M (real, 01/01/2007) above the 2008 ESC determination figure for 2012/13.

- Total Prescribed Annual Operating Expenditure for Water Plan 3 is currently projected by Barwon Water to be reasonably flat through the 5 year period at approximately $83.5M (real, 01/01/2007).
- Projected Total Prescribed Annual Operating Expenditure in all years of Water Plan 3 is less (in real terms) than the forecast operating expenditure in the last year of Water Plan 2 (2012/13) but approximately $6.1M above 2011/12 which is proposed as the base year for assessing Water Plan 3 operating expenditure.

The increase in the current BW forecast total opex for 2012/13 of $7.29M (real, 01/01/2007) above the 2008 ESC determination figure can be broadly explained due to the following main "new cost" components. [NB: This has been imputed from information provided by Barwon Water but not directly explained or justified.]

- Biosolids cost increase ($5.1M)
- Labour Cost Increase taking effect in 2012/13 ($1.3M)
- MGP commissioning cost ($0.48)
- Other (including NWP?) ($0.4M)

4.1.1. Water Plan 3 Operating Expenditure Scenarios

In lieu of Barwon Water not being in a position to provide a breakdown of costs for Water Plan 3 a number of operating expenditure scenarios have been developed for 2012/13 and the WP3 to assist the ESC in assessing the stability of BW's operating expenditure from WP2 to WP3 and in undertaking appropriate modelling to test the robustness of its pricing decision.

In particular a key purpose of this approach is to assess the potential for a price scissor effect to occur and to ensure that the risk of such a "scissor effect" across the WP2 / WP3 boundary is minimised or eliminated. [NB: A "scissor effect" refers to the potential for any price increase now to be immediately followed by a potential price decrease.]

The following approach was adopted to develop reasonable operating expenditure profiles for each of the scenarios identified later:

- 2011/12 is taken as the Base Year for estimating future costs – with BW's current actual / forecast operating expenditure of $77.37M (refer **Table 26**) being adopted as a starting point. *[NB: This includes MGP commissioning costs in 2011/12 to be potentially capitalised.]*
- A ***Revised Base Year 2011/12*** opex of **$76.89M** (real, Jan 2007) is established by deducting the $0.48M MGP commissioning costs forecast for 2011/12 from the $77.37M forecast by BW (on the basis that these costs would be capitalised, refer **Section 2.6**).

- For each of the WP3 years, a base opex for that year is then established by *progressively escalating* the 2011/12 Revised Base Year opex in line with the increases in customer numbers over those years (based on the customer numbers information provided by Barwon Water to the ESC and SKM). Customer numbers typically increase by 1.6 to 1.7% p.a. for 2012/13 and over the Water Plan 3 period.
- For each of the WP3 years, a *revised base opex* for that year is then established by *progressively de-escalating* the base opex for the WP3 years (obtained from the above) by 1.0% p.a. to ensure that the ESC's nominated 1% p.a. productivity target is met.
- A 'final' estimated operating expenditure for each of the WP3 years is then obtained by
  - Adding various costs to the *revised base opex* (after adjustment of customer numbers/growth and productivity) for the relevant year, for example new opex associated with new infrastructure); and
  - Subtracting various costs to the *revised base opex* (after adjustment of customer numbers/growth and productivity) for the relevant year.

The last two items (additions and deductions to the revised base year opex) are obtained by making various assumptions to develop a reasonable range of scenarios to be modelled. These do not represent absolute views but rather present a feasible range of possible scenarios to be considered. It is also acknowledged that SKM does not have the detailed cost information at its disposal and is therefore is relying on interpretation and interpolation of information otherwise provided by Barwon Water, general knowledge and general experience.

Five Scenarios for Barwon Water's possible operating expenditure profile from 2012/13 through Water Plan 3 to 2017/18 were identified as worthy of assessment and modelling, including BW's Water Plan 3 operating expenditure profile provided to SKM [8 February 2012], identified as Scenario 1 in the following. The four other scenarios are presented (each compared with Scenario 1, BW's proposal) in **Table 27, Table 28**, **Table 29** and **Table 30**.

Scenario 5 has been specifically introduced to provide a view on what might be a 'lower bound' operating expenditure scenario for Water Plan 3.

Other relevant assumptions and notes underpinning the scenarios developed include:

- $0.50M (real) has been deducted in 2012/13 in all scenarios (MGP commissioning costs to be capitalised;
- Chemicals, materials and energy savings – there is either no or some small bounce back from savings achieved in WP2 (noting BW advice that contract savings achieved and growth allowed for separately);

- New Biosolids facility costs are variously assumed to be delayed by between 1 month to 9 months in 2012/13 (lower bound scenario);
- Northern Water Plant (NWP, new opex) costs are delayed due to delays in construction and commissioning. There are known NWP delays which will result in a material deferral of opex costs built into the current BW forecast for 2012/13. Lower bound assumes the NWP not commissioned until first half of 2014. The new NWP opex costs (real terms) used here are based on those indicated for the 2008 determination.
- Black Rock Water Recycling Plant (BRWRP): Construction of this plant is understood to have just commenced. Therefore it is highly unlikely that there will be any associated new opex costs in 2012/13. Some new opex may be incurred in 2013/14 (baseline opex), with the lower bound based on first costs occurring in 2014/15. The costs used are based on those of similar facilities and assumes that only operating costs are significant in the early years (minimal maintenance costs) and that in later years some component of maintenance costs would be incurred.
- External resources: This ranges from acknowledging that either the full or part of the "one-off" increases above variance (of $2.88M real) in 2012/13 apply but in the Water Plan 3 there is a substantial progressive reduction in or winding back of such "one-off" expenditure items which have been built into the opex base in WP2, for example including the $2.88M over-spend proposed in 2012/13, sewer outfall cleaning in earlier years ($3.9M in total), efficiency review ($0.76M) and other similar items. This ranges from approximately $1.0M reduction in 2013/14 to – in the lower bound case – a $8.5M reduction in 2017/18.
- Labour: Assumes no further real increase in labour costs but rather a progressive real reduction in labour costs across WP3 up to approximately $3M p.a. real in 2017/18. This is based on the materially lower capex environment and those FTEs for shorter term needs are no longer required. This is expected to occur from 2012/13.
- Super fund contribution: Assumed that there is either no further top-up required or one other modest top-up amount required in 2012/13 or 2014/15.

Other items which would need to be considered in the context of the Water Plan 3 operating expenditure review, but which have not been allowed for in the scenarios developed include:

- Impacts of carbon tax on energy prices and costs.
- Environmental contributions real increases: Although it is understood that over the Water Plan 2 period these have increased by approximately 4.0% p.a. compared with 2.9% p.a. as used in the ESC's 2008 model. This would have an impact of increasing environmental contributions by approximately $0.05 to $0.10M p.a.

- **Table 27 Operating Expenditure Scenarios – Scenario 1 and Scenario 2 Comparison [$real, 1 January 2007]**

Scenario	Item description	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	WP3 Total
	Base OPEX - adjusted for increased customers nos.	76.89	78.221	79.55	80.88	82.21	83.54	84.87	411.06
	Base Opex adjusted for Customers & productivity improvement	76.89	77.45	77.99	78.52	79.03	79.51	79.99	395.04
Scenario 1	As per BW's information 8 February 2012	**77.37**	**84.49**	**83.47**	**83.45**	**83.62**	**83.52**	**83.43**	**417.49**
Scenario 2	**Additions**								
	Biosolids [Net]		4.10	5.00	5.00	5.00	5.00	5.00	
	Bounce back from chemical, material etc WP2 cost savings		0	0	0	0	0	0	
	New water recycling facilities [BRWRP]		0	0.20	0.39	0.756	0.763	0.769	
	Northern Water Plant		0.50	3.51	3.57	3.63	3.69	3.74	
	External Resources		1.30						
	Super Fund contribution		0	0	0	0	0	0	
	Deductions								
	External Resources			-3.00	-6.00	-6.00	-6.00	-6.00	
	MGP	revised	-0.50	0	0	0	0	0	
	NWP Facility								
	Labour			-1.9	-2.15	-2.4	-2.6	-2.85	
	Scenario 2 [Total adjusted base +/- as above]		**82.85**	**81.81**	**79.33**	**80.02**	**80.36**	**80.59**	**402.11**

Table 28 Operating Expenditure Scenarios – Scenario 1 and Scenario 3 Comparison [$real, 1 January 2007]

Scenario	Item description	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	WP3 Total
	Base OPEX - adjusted for increased customers nos.	76.89	78.221	79.55	80.88	82.21	83.54	84.87	411.06
	Base Opex adjusted for Customers & productivity improvement	76.89	77.45	77.99	78.52	79.03	79.51	79.99	395.04
Scenario 1	As per BW's information 8 February 2012	**77.37**	**84.49**	**83.47**	**83.45**	**83.62**	**83.52**	**83.43**	**417.49**
Scenario 3	**Additions**								
	Biosolids [Net]		4.50	5.00	5.00	5.00	5.00	5.00	
	Bounce back from chemical, material etc WP2 cost savings		0	0.30	0.30	0.30	0.30	0.30	
	New water recycling facilities [BRWRP]		0	0.20	0.48	0.76	0.77	0.78	
	Northern Water Plant		0.50	3.51	3.57	3.63	3.69	3.74	
	External Resources		2.88						
	Super Fund contribution		0	0	0.50	0	0	0	
	Deductions								
	External Resources			-1.00	-2.00	-3.00	-4.00	-5.00	
	MGP	revised	-0.50	0	0	0	0	0	
	NWP Facility								
	Labour		-1.30	-1.55	-1.8	-2.05	-2.3	-2.58	
	Scenario 3 [Total adjusted base +/- as above]		**83.53**	**84.45**	**84.57**	**83.67**	**82.97**	**82.23**	**417.89**

Table 29 Operating Expenditure Scenarios – Scenario 1 and Scenario 4 Comparison [$real, 1 January 2007]

Scenario	Item description	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	WP3 Total
	Base OPEX - adjusted for increased customers nos.	76.89	78.221	79.55	80.88	82.21	83.54	84.87	411.06
	Base Opex adjusted for Customers & productivity improvement	76.89	77.45	77.99	78.52	79.03	79.51	79.99	395.04
Scenario 1	As per BW's information 8 February 2012	**77.37**	**84.49**	**83.47**	**83.45**	**83.62**	**83.52**	**83.43**	**417.49**
Scenario 4	**Additions**								
	Biosolids [Net]		4.50	5.00	5.00	5.00	5.00	5.00	
	Bounce back from chemical, material etc WP2 cost savings		0	0.30	0.30	0.30	0.30	0.30	
	New water recycling facilities [BRWRP]		0	0.20	0.50	0.52	0.54	0.56	
	Northern Water Plant		0.9	2.35	3.57	3.63	3.69	3.74	
	External Resources		2.88						
	Super Fund contribution		0.50	0	0	0	0	0	
	Deductions								
	External Resources		-1.50	-2.40	-3.30	-4.20	-5.10	-6.00	
	MGP	revised	-0.50	0	0	0	0	0	
	NWP Facility								
	Labour		-1.3	-1.55	-1.80	-2.05	-2.30	-2.58	
	Scenario 4 [Total adjusted base +/- as above]		**82.93**	**81.89**	**82.79**	**82.23**	**81.64**	**81.02**	**409.57**

- **Table 30 Operating Expenditure Scenarios – Scenario 1 and Scenario 5 ["Lowest Opex" scenario] Comparison [$real, 1 January 2007]**

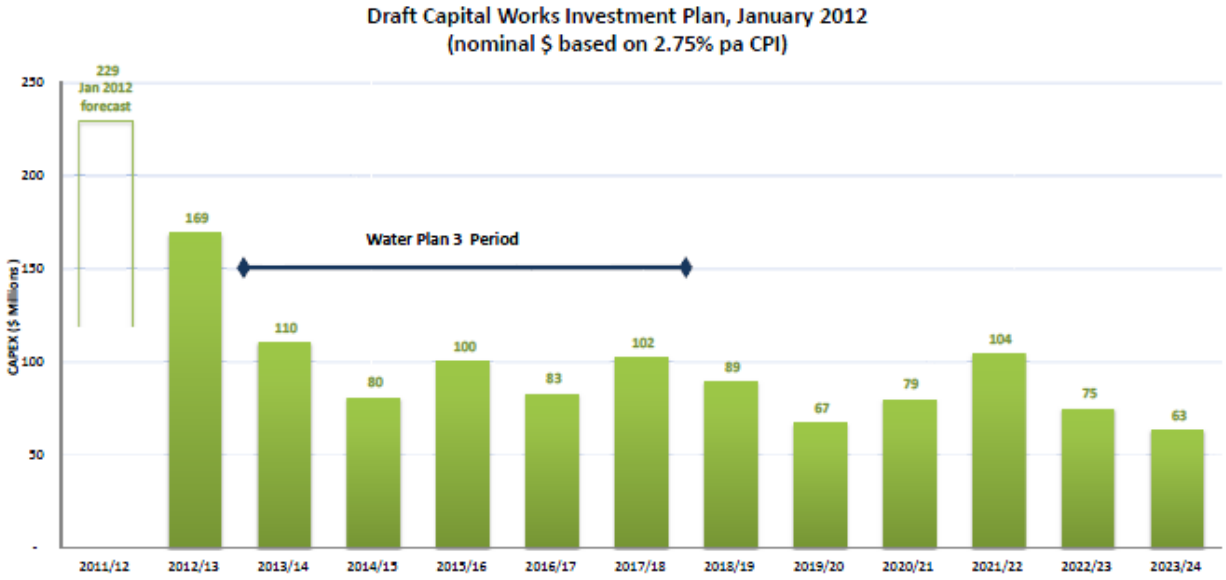
Scenario	Item description	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	WP3 Total
	Base OPEX - adjusted for increased customers nos.	76.89	78.221	79.55	80.88	82.21	83.54	84.87	411.06
	Base Opex adjusted for Customers & productivity improvement	76.89	77.45	77.99	78.52	79.03	79.51	79.99	395.04
Scenario 1	As per BW's information 8 February 2012	**77.37**	**84.49**	**83.47**	**83.45**	**83.62**	**83.52**	**83.43**	**417.49**
Scenario 5	**Additions**								
	Biosolids [Net]		1.20	5.00	5.00	5.00	5.00	5.00	
	Bounce back from chemical, material etc WP2 cost savings		0	0	0	0	0	0	
	New water recycling facilities [BRWRP]		0		0.20	0.39	0.756	0.763	
	Northern Water Plant		0	0.50	3.51	3.57	3.63	3.69	
	External Resources		0.90						
	Super Fund contribution		0	0	0	0	0	0	
	Deductions								
	External Resources			-4.50	-6.00	-7.25	-8.50	-8.50	
	MGP	revised	-0.50	0	0	0	0	0	
	NWP Facility								
	Labour		-1.90	-2.15	-2.4	-2.6	-2.85	-3.10	
	Scenario 5 [Total adjusted base +/- as above]		**77.15**	**76.84**	**78.83**	**78.14**	**77.55**	**77.84**	**389.20**

4.2. Aggregate Capital Expenditure - Water Plan 3

Barwon Water has provided information on capital expenditure for Water Plan 3 (obtained from RFI Nos. 2/3 responses, February/March 2012), noting this is of a preliminary nature.

Figure 1 provides Barwon Water's current gross capital expenditure forecast and profile (nominal $) for Water Plan 3 and 20 year outlook. **Table 31** provides a current forecast ($real Jan 2007) and a "Summary of Barwon Water's Gross Capital Expenditure, Funding Offsets & Net Capital Expenditure for both Water Plan 2 and Water Plan 3". Barwon Water has also provided a capex profile for significant projects proposed for Water Plan 3, refer **Table 32**.

- **Figure 1: Current Capital Forecast for Water Plan 3 [NB: Nominal $]**



It is noted that:

- BW's currently proposed capital expenditure in Water Plan 3 is materially lower than that which has occurred in Water Plan 2.
- There are at least two projects identified to commence in 2012/13 which have substantial expenditure both in 2012/13 and in the early year(s) of Water Plan 3. These were not identified by BW as potential capital expenditure variances as part of the WP2 assessment in Section 3.1 (and specifically in the information for **Table 10**). These include
  - A new accommodation project
  - Apollo Bay water supply project

These projects and other WP3 capex projects warrant further assessment. Presumably this will occur in more detail as part of the Water Plan 3 expenditure review.

- **Table 31 Summary of BW's Water Plan 2 and Water Plan 3 Gross Capex, Funding Offsets & Net Capex**

Total Capital [Source of Information] Estimates as indicated	Water Plan 2 Total Capital Expenditure [$M Real, 01/01/2007]						Water Plan 3 Total Capital Expenditure [$M Real, 01/01/2007]					
	2008/09	2009/10	2010/11	2011/12	2012/13	Total WP2	2013/14	2014/15	2015/16	2016/17	2017/18	Total WP3
Actual / Forecast [Gross] **[Re-opening Application, Dec 2011]**	80.40	86.30	154.60	174.70	157.90	**653.90**	110.12	80.65	39.80	33.90	34.59	**299.06**
Actual / Forecast **[BW response 8 Feb 2012]**												
Gross Capex Actual / Forecast - from **Table 6**	80.91	86.19	157.14	196.77	141.31	***662.32***	89.73	63.79	77.36	61.93	74.73	***367.54***
Funding Offsets Actual / Forecast	9.56	10.81	20.74	56.17	12.31	***109.59***	12.28	12.43	8.92	5.20	5.24	***44.07***
Net Capex cost to BW [Gross capex – other funding]	71.35	75.38	136.40	140.60	129.00	***552.73***	77.45	51.36	68.44	56.73	69.49	***323.47***
ESC 2008 Decision												
Gross Capex adopted	114.45	75.90	101.49	82.83	62.70	***437.37***						
Funding offsets adopted	6.61	18.24	28.60	9.20	2.20	***64.85***						
Net Capex Cost to BW	107.84	57.66	72.89	73.63	60.50	***372.52***						

Note: **Funding offsets** include revenue for projects received from other sources (e.g. government and customer contributions) but ***excludes*** revenue from asset sales and depreciation – for both WP2 and WP3.

- **Table 32 Barwon Water's Major Proposed projects in Water Plan 3 (greater than $10M) – ex BW 26 March 2012**

Projects with Capex > $10m over 10-Year Period	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	10-Yr Total ($ Million)
Main Outfall Sewer Duplication					3.3	36.5	28.7				**68.5**
New Accommodation	16.0	15.4	8.7								**40.1**
Fyansford WRP					2.9	24.1	12.1				**39.1**
Colac Water Source Augmentation		0.1	1.0	1.1	25.2						**27.4**
Black Rock Recycled Water Plant	17.7	0.1	0.1								**18.0**
Apollo Bay Bulk Water Supply	14.1	3.8									**17.9**
Ocean Grove Tank Augmentation									0.8	15.5	**16.2**
Clifton Springs RM No.1 Replacement								1.0	11.0	2.9	**14.9**
Grovedale Diversion Sewer								0.7	6.6	6.8	**14.0**
Bellarine Transfer Main Stage 6								0.7	6.4	6.6	**13.6**
Lara West servicing	0.1	0.2	1.1	9.2	0.7	0.6	0.1	0.2	0.6	0.7	**13.4**
Torquay RW RM, Pump & Balance Tank	5.9	6.0									**11.9**
Black Rock WRP Inlet Hydraulic Cap Up		0.2	2.7	8.4							**11.3**
Inverleigh Low Level Feeder Main		0.7	10.3	0.1							**11.2**
Fyansford - Potable Water FM and PRV	0.2			10.5							**10.7**
Lethbridge Water Supply Improvements Stage 2						0.6	10.1				**10.7**

Note: The NWP ($7.5M) and Armstrong Ck Water Recycling Scheme (19.32M) capex in 2012/13 has not been included in **Table 32**.

4.3. Water Plan 3 Conclusions / Summary

SKM recommends that the ESC:

- Consider SKM's commentary in **Section 4** on Barwon Water's forecast operating and capital expenditure for Water Plan 3 in assessing the robustness of its pricing decision in relation to Barwon Water's re-opening application; and in particular
- Take account of the operating expenditure scenarios outlined in **Section 4.1.1**.