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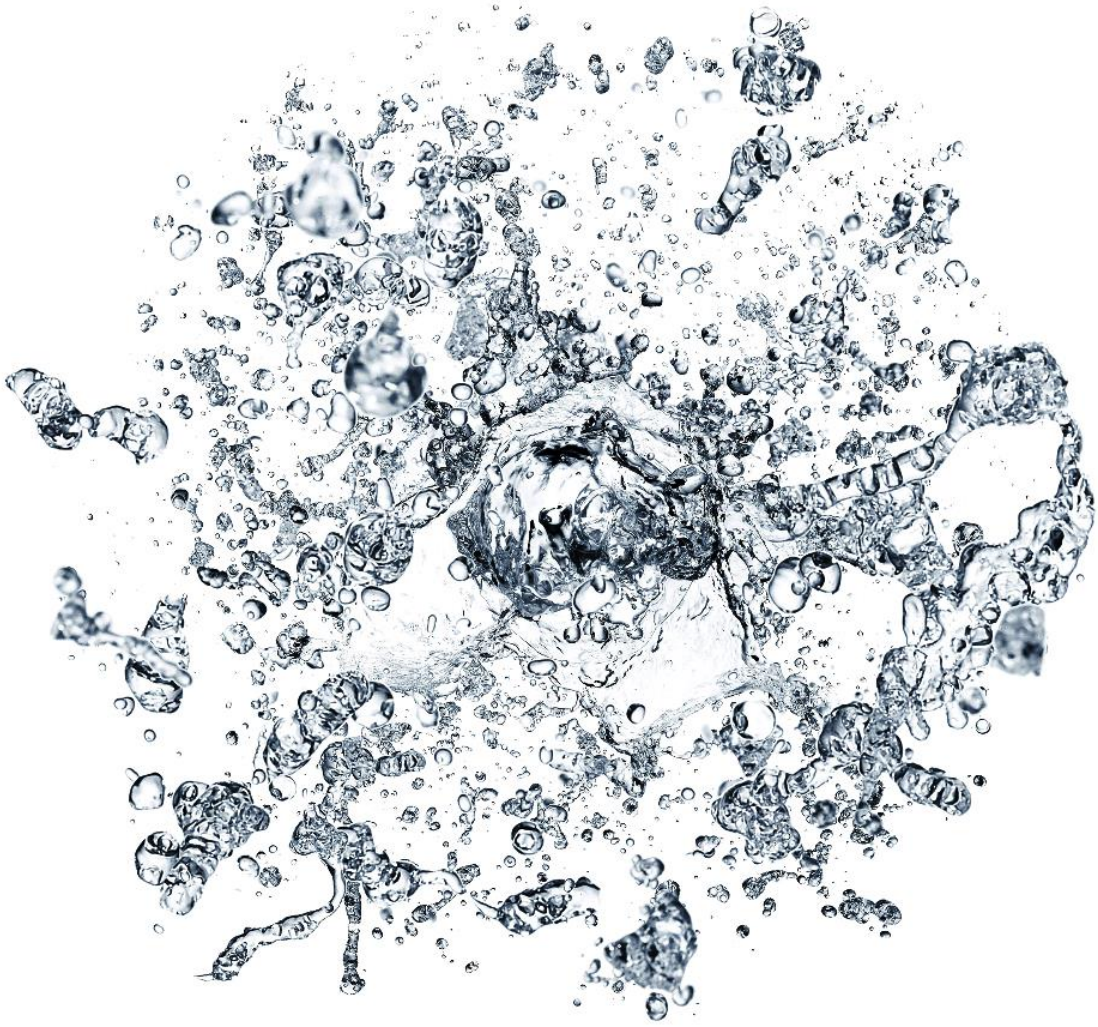


Coliban Water – expenditure review for 2018 water price review

Report for the Essential Services Commission – FINAL REPORT

February 2018

Contents

Tables

Figures

Executive Summary

The Essential Services Commission (ESC) is currently conducting a review of the proposed prices to be charged by Victoria's water businesses for the period 1 July 2018 to 30 June 2023. Deloitte has been engaged by the ESC to review the expenditure forecasts made by the metropolitan businesses and regional urban water businesses. In undertaking this review, Deloitte's key responsibilities are to:

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

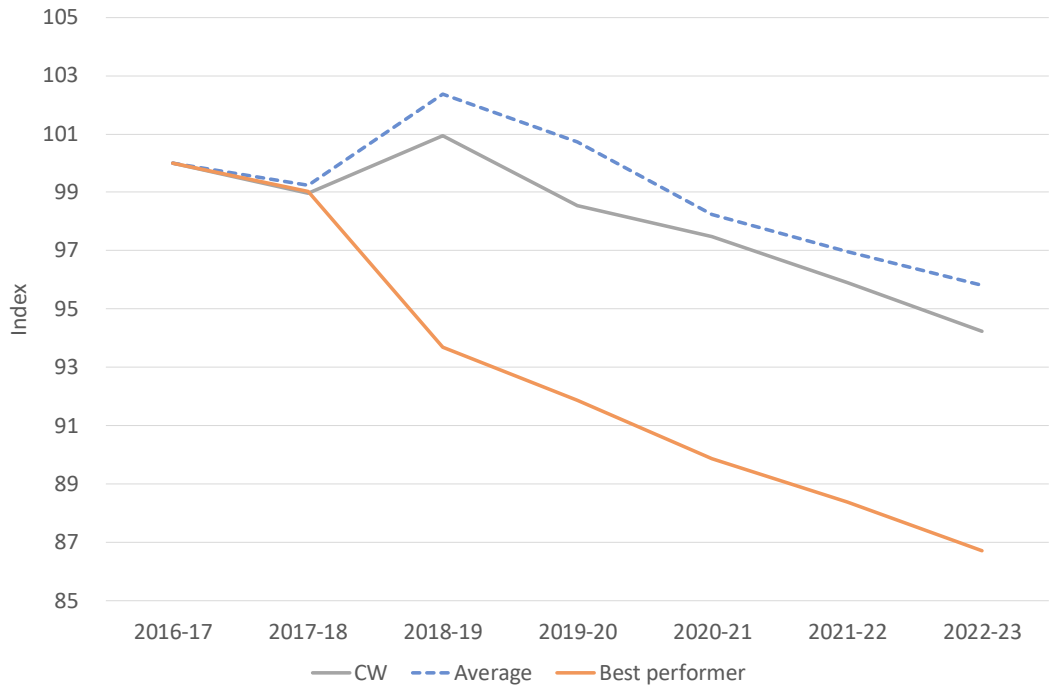
Operating expenditure (opex)

The key features of Coliban Water's opex forecast include:

- Baseline controllable operating expenditure in 2016-17 of $57.8m, which is $5.6m (8.8%) less than the 2013 forecast for 2016-17 ($63.4m)
- A forecast average customer growth rate of 1.7% per annum
- A cost efficiency improvement rate of 1.5% per annum
- Variations to baseline operating expenditure of $8.6m in total across RP4.

The net result of Coliban Water's cost efficiency improvement rate and proposed variations to the growth adjusted baseline is an average reduction in controllable opex per connection of 1.0% per annum across RP4 (excluding rural). Changes in Coliban Water's controllable opex per connection for RP4 are below the average of the regional urban businesses.

Figure 1.1 Change in controllable opex per connection – index



We have recommended a reduction of **$4.38m** to Coliban Water's RP4 forecast controllable opex, with the most significant cuts relating to electricity ($2.57m). The key reasons for these recommendations are outlined in Chapter 3.

Capital expenditure (capex)

Coliban Water proposed a total of $142m in capital expenditure over RP4. This is lower than the actual capex delivered over RP3 of $185m.[1]

Coliban Water's proposed capex is a reduction of 23% on actual, and 20% on planned expenditure for RP4 period when compared to RP3. Key aspects of the RP4 capex programme include:

- Top 10 Major Projects total $64.7m which accounts for around 46% of total proposed capital expenditure
- Coliban Water has forecast a significant budget for compliance and growth expenditure. Compliance and growth represents 75% of the capex program.

We have recommended a reduction of **$3.90m** to Coliban Water's RP4 forecast based on our view that the information provided by Coliban Water concerning forecast capex for the digital metering project is not sufficient to demonstrate that the proposed expenditure is prudent and efficient. As such, we have recommended an adjustment to the forecast to allow a trial to be conducted to provide further information to assist Coliban Water's decision-making process on a full roll-out across the business.

The key reasons for these recommendations are outlined in Chapter 4.

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[1] Note that these figures exclude capitalised BOOT payments

1 Introduction

1.1 Introduction

The Essential Services Commission (ESC) is currently conducting a review of the proposed prices to be charged by Victoria's water businesses for the period 1 July 2018 to 30 June 2023, referred to in this document as 'the next regulatory period' or fourth price submission period (RP4).

The businesses have submitted price submissions to the ESC for the RP4 period. The price submissions include forecasts of operating expenditure (opex), capital expenditure (capex) and demand, proposed service standards and prices.

1.2 PREMO framework

In RP4, the ESC is applying a new regulatory framework Performance, Risk, Engagement, Management and Outcomes (PREMO) for the first time. PREMO aims to put customer engagement at the centre of water corporation's proposals whereby service levels and expenditure must reflect outcomes that customers' value. The expectation is that water corporations engage early and then re-test proposals in pricing submissions.

PREMO also provides a range of incentives on a number of levels to encourage businesses to:

- Reveal their efficient costs (and knowledge of efficiency opportunities), by rewarding businesses for both setting and achieving ambitious targets
- Avoid making ambit expenditure claims, as higher financial rewards are available for more ambitious proposals
- Prepare submissions of a high standard, to open the door for a fast-tracked regulatory process (and receive recognition for having done so).

The PREMO model incentivises businesses to self-select appropriate targets for operating parameters that make up the building block calculation. The ESC incentivises and rewards businesses based on the relationship between the quality of the proposal and the return on equity – businesses have the flexibility to prepare their own combinations of service levels and expenditure, as long as these are fundamentally driven by delivering outcomes of value to customers.

The ESC's model also includes a fast-track process whereby the higher quality proposals are not subjected to a detailed review of expenditure (and other key items) but are instead fast-tracked to an early draft decision. In addition, of the businesses that were not fast-tracked, there is further differentiation between those businesses that only require a review on some elements of the proposal (e.g. specific items where expenditure is increasing) and those businesses that require a detailed review.

The expectations of water business proposals are further detailed in the ESC's guidance paper *2018 Water Price Review Guidance Paper November 2016* ('the Guidance Paper').

1.3 Scope of review

Deloitte has been engaged by the ESC to review the expenditure forecasts made by the metropolitan businesses and regional urban water businesses. In undertaking this review, Deloitte's key responsibilities are to:

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

In relation to opex we have been asked to provide advice on whether the businesses are fulfilling their obligations and meeting customer service expectations as cost efficiently as possible and that forecast divergences can be readily explained. Although we have not been asked to review pricing outcomes,

which may be influenced by a number of factors in addition to expenditure, we have had regard to the factors outlined in the ESC's guidance for the level of PREMO rating that has been proposed by each business. Benchmarking has been mainly undertaken on the basis of changes from the baseline expenditure identified by businesses as prudent and efficient.

In reviewing capex we have focussed on the major projects that comprise a significant proportion of the total capex.

1.4 Approach

1.4.1 Operating expenditure

Our approach to assessing opex for each business can be summarised as follows:

1. Determine an appropriate baseline year (2016-17) by examining the actual expenditure incurred by water businesses in 2016-17 and considering: 1) how it compares to the benchmark established by the ESC in the 2013 price review and 2) removing any abnormal items (that are not already accounted for)
2. Benchmark the overall opex package against peers, in particular opex changes from the baseline and opex per connection. This benchmarking has regard to the net effect of efficiency targets, growth rates and adjustments for new opex initiatives.
3. Identify any individual items that are resulting in an increase in forecast expenditure from the 2016-17 baseline and assess the prudency and efficiency of these items. Any proposed expenditure that is above the baseline needs to be fully explained and justified. The types of expenditure that could be considered reasonable in terms of being above the baseline include:
   a. New obligations from regulators or government (such as changes to the Statement of Obligations, taxes, etc.)
   b. Customer preferences – where customers are willing to pay more for improved outcomes
   c. Significant increases in costs that are not able to be managed by the business.

   In assessing prudency and efficiency for each business, we have also benchmarked expenditure with other water businesses where possible.
4. Identify cuts consistent with prudent and efficient expenditure.

A more detailed explanation of our approach to opex is set out in section 3.

1.4.2 Capital expenditure

In forming a view as to whether expenditure meets the requirements in the WIRO, and consistent with advice in the ESC's Guidance Paper, we have had regard to the following questions:

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

With respect to individual capex projects or programs, the ESC has requested that there be a focus on two items in particular – renewals expenditure and digital metering.

- **Renewals expenditure**. There are significant increases in renewals expenditure for some businesses (these businesses have also proposed a price rise). In some cases, this is linked to customer consultation, but for the most part this increase suggests that there are potential issues in asset management and planning. For these specific businesses, the focus of the expenditure review will be on decision making and decision-making tools.

- **Digital metering.** There are a number of proposals to roll out digital meters. Each proposal was reviewed in detail, particularly where businesses have proposed to undertake full rollouts. Each business case should have a sound basis and have undertaken adequate pilots or trials (e.g. non-residential or new developments first) to better understand costs and benefits.

In arriving recommendations for reductions in individual businesses capital programs we have had regard to the following:

- Comparison of overall historical capital expenditure with that proposed for RP4. Where proposed Capex exceeds historical projections, justification for these increases should be provided, namely in a requirement to meet new or expanded obligations or customer requests/engagement which has resulted in new service standards.
- Review of 4 of the Top 10 project business cases to provide an overview of the business case and project development process. It is expected that the business cases should also link to customer outcomes and service levels to justify the decision making process and selection of individual projects. Further, where individual projects are not able to demonstrate suitable business cases, reductions to those projects will be recommended.
- A review of particular capex programs where increases above historical expenditure is proposed. Where this isn't based on meeting new obligations, customer expectations, or rectifying declining performance of assets (evidenced by increased events such as spills, bursts, and leaks), renewals programs will be proposed to be reduced to historical levels. Further, benchmarking of renewals programs will be used to review underlying costs for these programs across the businesses.

1.5 Process for review

Our review of opex and capex has involved the following key steps.

- Initial planning and workshop with the ESC
- An initial review of price submissions, financial model templates and associated documentation
- Benchmarking of water business submissions in relation to overall opex and capex and individual expenditure items
- A further workshop with ESC staff to identify and discuss key issues for the focus of the review
- Preparation of queries/areas for discussion was provided to each water business prior to site visits
- Site visit was undertaken with Coliban Water on 15 December 2017, with the key objective to discuss queries and gather information as required
- Detailed review and analysis of supporting information provided
- A Draft Report was prepared and provided to Coliban Water for comment
- A Final Report (this report) provided to the ESC to inform the draft price determinations.

Through the process review, water businesses have been given some key opportunities to provide information to support their expenditure proposals. This included:

- Subsequent to final pricing submissions, and prior to our site visits, we wrote to each business identifying additional supporting information required
- During our site visits, businesses had the opportunity to present and provide information
- Following our site visits, there was the opportunity to provide further information on expenditure
- All businesses were provided with draft versions of our reports and recommendations and provided with 10 business days to provide further supporting information.

1.6 Structure of this report

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

- Chapter 2 briefly summarises Coliban Water's Price submission with respect to expenditure forecasts and outlines key drivers of expenditure such as government obligations, service standards and demand forecasts
- Chapter 3 provides our analysis, conclusions and recommendations on key issues with respect to Coliban Water's opex forecast
- Chapter 4 provides our analysis, conclusions and recommendations on key issues with respect to Coliban Water's capex forecast.

Note that unless stated otherwise, all dollar figures shown in this report exclude the impact of inflation and are expressed in $2017-18.

2 Summary of Coliban Water's forecast

This chapter provides a summary of Coliban Water's forecast expenditure including key underpinning assumptions such as efficiency, growth, service standards and demand.

2.1 PREMO rating

Coliban Water has rated its submission as 'Advanced' under the ESC's PREMO framework.

2.2 Key drivers of expenditure

2.2.1 Community expectations and service standards

Coliban Water has 67,314 residential customers, 6,849 non-residential customers, and 1,374 rural customers.

Coliban Water reports that its customers have told it that while they do not want service standards to decline they expect Coliban Water to do all that it can to keep bills as low as possible. As such, it has committed to price changes averaging CPI minus 1% for RP4 and the following five year regulatory period.

Coliban Water has established 45 performance measures to report on each year, including 20 measures that relate to existing ESC Service Standards and 25 new measures. In terms of the ESC Service Standards, improvements are proposed for the following measures:

- Average planned customer minutes off supply, improving from 13 to 11.5 over RP4
- Average frequency of planned water supply interruptions, improving from 0.105 to 0.096 interruptions per customer
- Sewer blockages per 100km or main, improving from 42 to 35 over RP4.

2.2.2 Demand for services

Coliban Water has forecast an average customer growth rate of 1.70% over the next five years. Average customer growth over the last three years of RP3 (2014-15 to 2016-17) was 1.5%.

2.2.3 New obligations

Coliban Water has not identified any new obligations from regulators or government that require additional funding above the growth adjusted baseline for this regulatory period.

2.3 Operating expenditure

2.3.1 Overview

The key features of Coliban Water's opex forecast include:

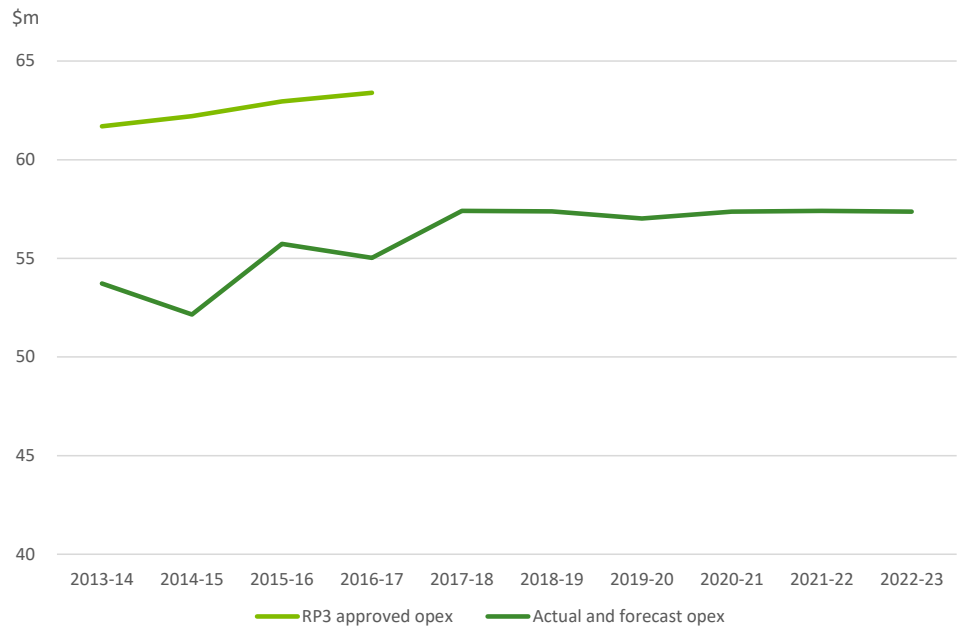
- Baseline controllable operating expenditure in 2016-17 of $57.8m, which is $5.6m (8.8%) less than the 2013 forecast for 2016-17 ($63.4m)
- A forecast average customer growth rate of 1.7% per annum
- A cost efficiency improvement rate of 1.5% per annum
- Variations to baseline operating expenditure of $8.6m in total across RP4.

The net result of Coliban Water's cost efficiency improvement rate and proposed variations to the growth adjusted baseline is an average reduction in controllable opex per connection of 1.0% per annum across RP4 (urban).

2.3.2 Controllable opex forecast

The chart below shows Coliban Water's total controllable opex across RP3 and RP4. Coliban Water's controllable opex was around 9% below the ESC benchmark for RP3 in 2013-14. Controllable opex for RP4 has since risen by around 7%, but remains below the benchmark for RP3.

Figure 2.1 Controllable opex – Coliban Water ($2017-18)



2.4 Capital expenditure

2.4.1 Overview

Coliban Water proposed a total of $142m in capital expenditure over RP4. This is lower than the actual capex delivered over RP3 of $185m.[2]

Coliban Water's proposed capex is a reduction of 23% on actual, and 20% on planned expenditure for RP4 period when compared to RP3. Key aspects of the RP4 capex programme include:

- Top 10 Major Projects total $64.7m which accounts for around 46% of total proposed capital expenditure
- Coliban Water has forecast a significant budget for compliance and growth expenditure. Compliance and growth represents 75% of the capex program
- Note that capitalisation of non-operating BOOT (Build Own Operate Transfer) and bio-solids removal expenditure has not been included in comparison table in the submission to aid comparability.

2.4.2 Capex forecast

Coliban Water's actual and forecast water and sewerage capital expenditure is shown in Figure 2.2. Total net capital expenditure for RP3 was forecast to be $178m compared with RP3 actual net expenditure of $185m which represents a 4% increase.[3]

The key drivers of forecast capital expenditure are compliance and growth. Examples include the Western Bendigo Region Water Network Augmentation project ($13.3m) and the Strathfieldsaye Region Water Network Augmentation ($9.1m), both of which are in Coliban Water's Top 10 projects.

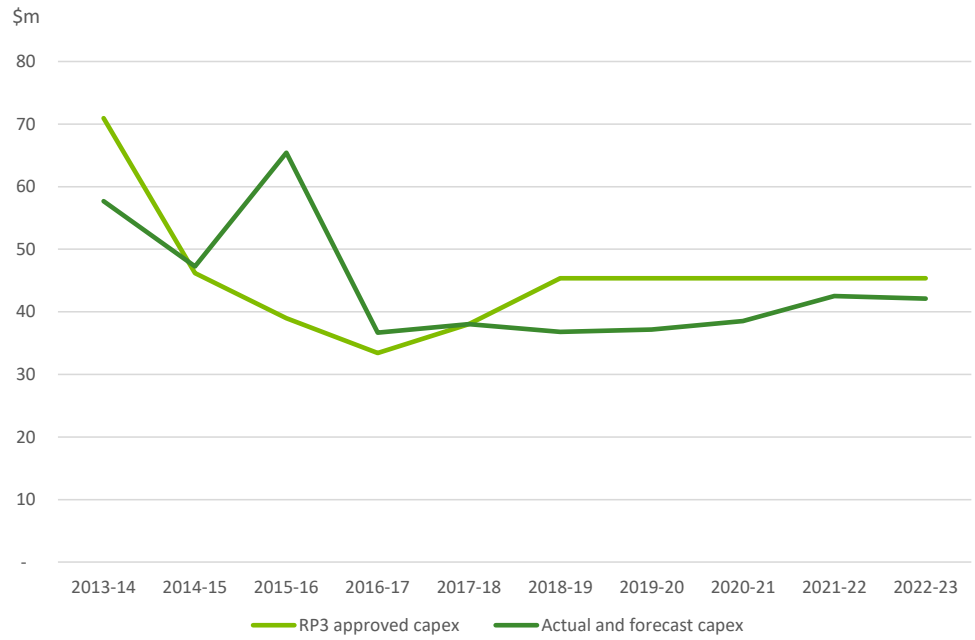
[2] Note that these figures exclude capitalised BOOT payments
[3] Note that these figures exclude capitalised BOOT payments

Sewerage capex has decreased slightly from RP3 $82.34m to RP4 $77.69m (6%). Sewerage Treatment expenditure has changed from $30.56m to $56.28m (84% increase).

Recycled capex is relatively constant from RP3 $5.94m to RP4 $5.03m. Noting expenditure classified as Recycled Treatment has increased $1.08m to $4.04m (275% increase) and expenditure classified as corporate capex has no forecast capital expenditure at all (there was spending in RP3).

Various capex projects have not been included in pricing (five in total identified) due to uncertainty around timing of implementation or project need.

Figure 2.2 Capex forecast – Coliban Water ($2017-18)



3 Assessment of opex

This chapter assesses Coliban Water's forecast operating expenditure.

3.1 Overview

With respect to opex forecasts, the Guidance Paper outlines that a prudent and efficient operating expenditure forecast would have the following characteristics:

- Baseline year expenditure is reflective of efficient operating costs and is used as a basis to forecast expenditure
- Forecast operating expenditure incorporates expectations for a reasonable rate of improvement in cost efficiency
- Expenditure requirements above the baseline year (adjusted for growth and efficiency improvements) are fully explained and justified.

Under the approach adopted by the ESC, operating expenditure is disaggregated into four separate elements. The elements are:

- **Baseline expenditure** – operating expenditure incurred in 2016-17, adjusted upwards or downwards to reflect any specific factors that mean that expenditure 2016-17 is not representative.
- An adjustment for **customer growth** – the ESC generally considers that increases in operating expenditure in line with customer growth are reasonable. In our view this is a conservative assumption and arguably generous to the water businesses, as many costs of operating water and sewerage systems are fixed or would be expected to grow at a lower rate than customer growth.
- An **efficiency improvement factor** – reflecting general productivity improvements across the economy, water businesses are expected to achieve year-on-year productivity improvements. Businesses are free to propose their own individual improvements
- **Cost increases** – for example those arising from new obligations imposed by regulators or government, major increases in costs which it is not reasonable to expect the business to absorb or manage within the ebb and flow of expenditure from year to year, or new initiatives that customers seek and are willing to pay for.

Our task is primarily to review the baseline expenditure and the cost increases, and to consider these in the context of the net impact of all the above four factors. For example, we are more likely to consider an opex forecast to be reasonable for a business with a low efficiency improvement factor, but an intention to absorb additional expenditure items within its overall expenditure budget, rather than a business with a higher efficiency factor but cost increases for a large range of items not required by regulators or sought by customers.

The concept of baseline expenditure is that it is the level of expenditure necessary to provide a defined level of service. Implicit is the assumption that the actual activities undertaken by a business from year to year to deliver services will change and there will be a number of once-off areas of expenditure in any one year that are not required every year. For example, a business may prepare a sewerage strategy in one year, prepare a water supply demand strategy in another, and do a number of once-off repairs in another year. That is, there will be a number of minor inclusions and exclusions from year to year associated with the normal ebb and flow of work requirements and changes in the industry and wider business environment. Given this, and the additional allowance provided for customer growth, it is therefore not the case that businesses should simply be able to recover increases in all opex line items. An efficient business would be expected to absorb many of these increases within their baseline and growth allowance.

The box below provides a hypothetical and simplified example of the above. Data is only shown for a single year, but the same principle applies across all five years of the RP4 period. Under the example below, and all other things being equal, we would be more likely to recommend reductions to Business A's expenditure, despite it having a nominally higher efficiency factor.

	Business A	Business B
Customer growth (%)	2.0%	1.0%
Proposed efficiency factor (%)	3.0%	1.5%
Growth-efficiency factor (%)	-1.0%	-0.5%
Cost increases ($m)	4	0.3

	Business A ($m)	Business B ($m)
2016-17 Expenditure	100.0	100.0
2016-17 Adjustments	1.0	-2.0
Baseline expenditure	101.0	98.0
Growth-efficiency adjustment	-1.0	-0.5
Growth adjusted expenditure	100.0	97.5
Cost increases	4.0	0.3
Proposed expenditure	104.0	97.8
Change compared to baseline	3.0	-0.2

The tools and approaches we have applied to consider each of the elements and the overall proposed opex package include:

- Benchmarking – of both the level of costs, and changes in costs, against historic and peer expenditure
- Comparing business forecasts to independent forecasts of changes in key expenditure items (for example labour, energy)
- Reflecting Government and regulator policies and requirements
- Considering information on current service levels, customer preferences and willingness to pay
- Reviewing material items of expenditure on a case-by-case basis.

Generally, we note that from an opex perspective, cost pressures on water businesses at this time are weak. Many cost increases that were anticipated at the commencement of RP3 largely did not eventuate. Increases to energy costs aside, inflation is currently weak, wages growth across the economy is at historically low levels, and there are few if any material changes in regulatory obligations that will increase costs. Only a small number of businesses have major capital works that will materially increase operating costs.

While we have examined the costs proposed by each business on its merits, we do hold the view that the current environment provides a strong opportunity for businesses to tightly control their costs and achieve (growth-adjusted) efficiencies. There are a range of systemic opex issues that are material for all businesses. Regardless of whether there are cost increases for these items, they have been reviewed for each business:

- **Labour costs.** Given labour costs are a significant component of opex, each businesses labour forecast has been reviewed, in particular how EBAs have been treated, Victorian Government wages policy, salary progressions, vacancy rates and other expectations from the government.
- **Energy costs.** Energy costs are expected to increase for all businesses particularly in the first year or two of RP4, however the magnitude of the increase is presently uncertain. Given this inherent uncertainty, our review provides indicative adjustments only. Final adjustments will be made by the ESC between its draft and final reports based on actual contract quotes.

- **Emission reduction programs.** Businesses have been asked by the Victorian government to reduce emissions from energy use via various means and most have proposed to do so. We have reviewed these proposals and checked that reductions in energy use are accounted for (capex and opex must be aligned), appropriate feed in tariffs are used, and any Government funding support is reflected.
- **Savings in RP3**. A number of businesses appear to have made temporary savings in RP3, but have not maintained them through the end of RP3, and are not forecasting to maintain them for RP4. We have identified where this is the case.

3.2 Errors and adjustments to submitted template

We note that Coliban Water resubmitted its template to the ESC to correct for minor errors. The adjustments resulted in no change to forecast expenditure for RP4.

3.3 Assessment of baseline expenditure

As outlined above, the first step in our approach to assessing baseline expenditure is to define efficient expenditure in the base year of 2016-17.

Coliban Water's actual total controllable expenditure was $57.10m in 2016-17. Coliban Water has made a net upward adjustment to its baseline of $0.71m to remove 'negative' contractor payments and adjust for much lower than typical pumping via the Goldfields Superpipe (and therefore electricity use) in that year.

In its 2013 price review, the ESC set a benchmark of $63.39m for 2016-17 ($2017-18). Coliban Water's baseline expenditure is significantly lower than this benchmark. The lower expenditure appears to be largely the result of shifting BOOT costs from opex to capex from 2013-14 onwards. As noted in its submission, Coliban Water has capitalised biosolids expenditure and non-operating components of its two BOOT plants.

We have assessed Coliban Water's 2016-17 adjusted baseline and we believe that it reflects an efficient baseline and therefore consider no further adjustment is necessary.

3.4 Benchmarking opex to other water businesses

A key component of our methodology is to benchmark the opex outcomes of the water businesses. Figure 3.1 below compares the regional urban water businesses' change in controllable opex per connection over RP4.

This chart shows that Coliban Water is forecasting better than the average performance of the regional urban businesses with respect to changes in controllable opex per connection for RP4.

Figure 3.1 Change in controllable opex per connection – index

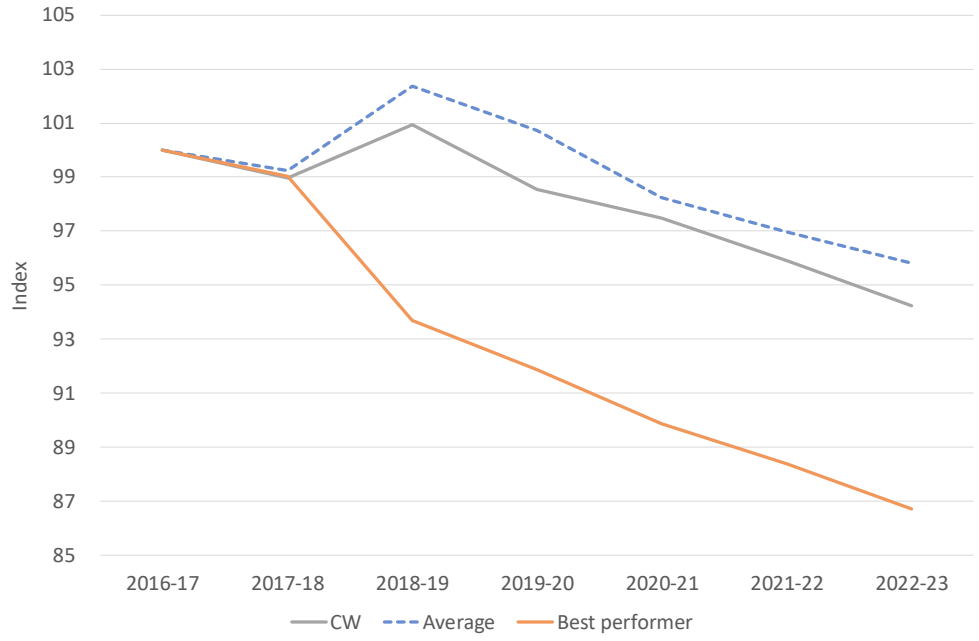


Table 3.1 Comparison of Victorian water businesses' change in controllable opex

Water business	Efficiency target (avg. % per annum)	Growth rate (% per annum)	Forecast variations to baseline (total RP4 $m)	Reduction in controllable opex per connection (avg. % per annum)
Westernport	2.7%	1.9%	0.00	2.6%
Yarra Valley	2.5%	1.7%	8.61	2.2%
South East	2.3%	2.3%	9.58	1.8%
Goulburn Valley	3.1%	1.3%	10.12	1.5%
Barwon	2.3%	1.6%	22.67	1.3%
Lower Murray – urban	1.0%	1.1%	0.26	1.2%
City West	2.0%	2.6%	20.66	1.1%
Coliban	1.5%	1.7%	8.55	1.0%
North East	1.2%	1.2%	6.24	0.9%
East Gippsland	1.2%	1.3%	1.91	0.9%
GWMWater – urban	1.5%	0.5%	8.73	0.8%
Central Highlands	1.6%	1.6%	12.71	0.6%
South Gippsland	1.5%	1.5%	7.03	0.0%
Gippsland	1.0%	1.2%	16.78	-0.2%

Water business	Efficiency target	Growth rate (% per annum)	Forecast variations to baseline	Reduction in controllable opex per connection
	(avg. % per annum)		(total RP4 $m)	(avg. % per annum)
Wannon	1.0%	0.8%	25.41	-1.8%

Note: GVW forecast variations are adjusted for its $2.3m p.a. efficiency dividend

3.5 Individual opex items

Coliban Water has identified $8.55m of forecast variations to baseline expenditure in total for RP4. Key items to be reviewed as part of that increase include:

- Trade Waste monitoring ($0.34m)
- Land Development ($0.32m)
- Data connections ($0.25m)
- Hardship ($0.43)
- Lockington desludging ($0.11m)
- Consequentials (opex from capex) ($0.54m)
- Variation due to electricity ($5.51m)
- Other adjustments ($1.06m).

These items are explored further in this section. We also comment briefly on labour expenditure, on the basis that this is a significant element of operating expenditure for all water businesses.

3.5.1 Labour

Coliban Water, like the several other water businesses, has not forecast any variations to baseline operating expenditure as a result of real changes to labour costs. The table below summarises proposed variations from the baseline across businesses.

Table 3.2 Proposed variations to baseline expenditure due to labour

Water business	Forecast variations to baseline opex (total RP4 $m)	Total controllable opex (total RP4 $m)	Labour variations as a % of total controllable opex
Wannon	11.85	201.8	5.9%
Gippsland	10.59	364.2	2.9%
Goulburn Valley	5.90	220.2	2.7%
North East	3.62	196.6	1.8%
Barwon	7.90	453.3	1.7%
GWMWater	2.85	161.1	1.8%
Central Highlands	3.80	266.0	1.4%
East Gippsland	0.32	90.4	0.4%
South Gippsland	0.12	95.8	0.1%
City West	-	534.7	0.0%
South East	-	622.6	0.0%
Yarra Valley	-	674.4	0.0%

Coliban	-	301.3	0.0%
Westernport	-	66.5	0.0%
Lower Murray – urban	-0.37	103.2	-0.4%

As outlined above, proposed expenditure should only be added to the baseline where the water business can demonstrate that it is required (e.g. new obligation, customer preference or cost that cannot be managed). All Victorian water businesses are owned by the State Government and are subject to the same wages policy, which is overseen by DELWP and DTF. We would therefore expect to see a similar application of this wages policy across all water businesses.

In assessing labour expenditure we note that although all businesses are experiencing an increase in labour costs as a result of wage increases above CPI, only seven water businesses have proposed material labour cost increases above the growth adjusted baseline.

Coliban Water's EBA has annual pay increases of 3.25% in 2017-18 and 2018-19, and 3.00% in 2019-20 and 2020-21. As noted above, Coliban Water has not proposed a variation above baseline expenditure to manage these costs. Given that most water businesses have been able to manage this cost component within the baseline, we are of the view that it should not be included as additional expenditure.

3.5.2 Electricity

Coliban Water has forecast electricity expenditure to increase by a total of $5.51m in RP4 compared to the 2016-17 baseline. Coliban Water is one of only six businesses to propose increases above the baseline of more than 1% of total controllable opex.

Coliban Water's proposed adjustment of 1.8% of total controllable operating expenditure for RP4 is the third highest of any business. However, we also note that Coliban Water has among the highest energy use of any business and as such, energy costs make up a relatively high proportion of Coliban Water's annual controllable opex when compared to other businesses.

Table 3.3 Comparison of energy forecast for RP4 of the Victorian water businesses

Water business	Energy costs as a % of 2016-17 controllable opex ($m)	Forecast variations to baseline opex (total RP4 $m)	Total controllable opex (total RP4 $m)	Energy variations as a % of total controllable opex
Wannon	7.6%	5.1	201.8	2.5%
Central Highlands	7.4%	5.5	266.0	2.1%
Coliban	6.6%	5.5	301.3	1.8%
Gippsland	4.7%	6.2	364.2	1.7%
Lower Murray – urban	8.3%	1.6	103.2	1.6%
Barwon	4.7%	5.0	453.3	1.1%
Goulburn Valley	9.6%	1.7	220.2	0.8%
North East	10.1%	1.3	196.6	0.7%
City West	1.5%	3.0	534.7	0.6%
GWMWater	7.9%	0.8	161.1	0.5%
South Gippsland	4.5%	0.2	95.8	0.2%
East Gippsland	5.1%	0.1	90.4	0.1%
South East	3.3%	-	622.6	0.0%
Yarra Valley	4.0%	-	674.4	0.0%

Water business	Energy costs as a % of 2016-17 controllable opex ($m)	Forecast variations to baseline opex (total RP4 $m)	Total controllable opex (total RP4 $m)	Energy variations as a % of total controllable opex
Westernport	4.2%	-	66.5	0.0%

Key aspects of Coliban's energy cost forecasts are as follows:

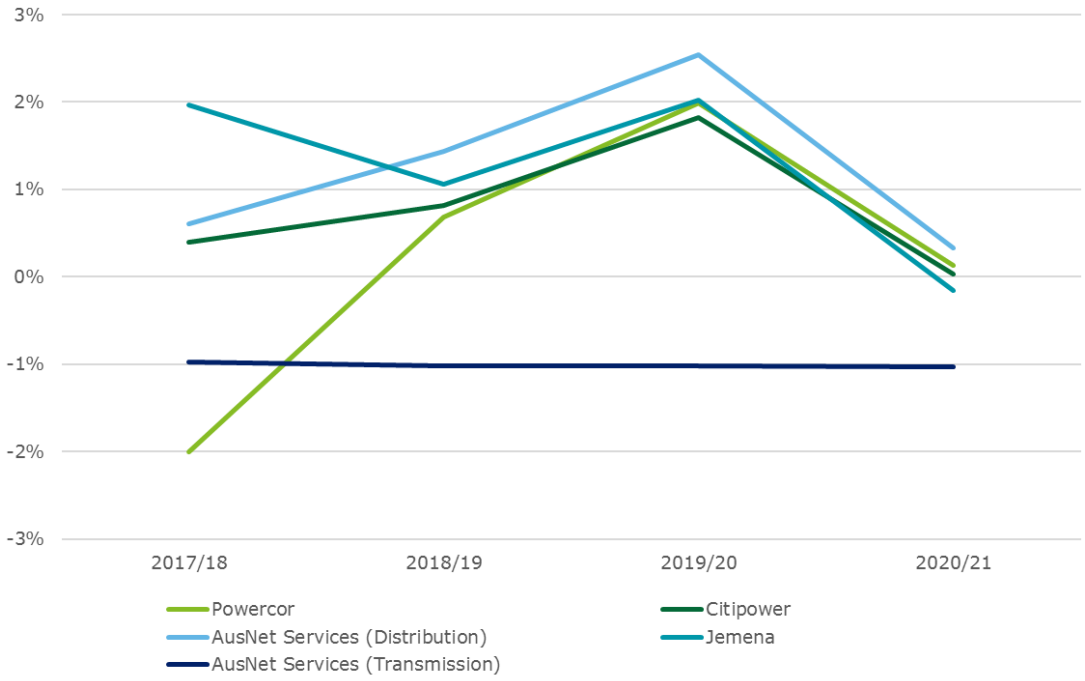
- Coliban Water's electricity expenditure forecast is based on actual usage from small sites in 2016/17 as a baseline, forecast to increase by customer growth (1.70%) and adjusted for efficiency (1.5%), resulting in net growth of 0.18%. The Goldfields Superpipe is estimated separately given its variability and significant impact on overall electricity use.
- The forecast price of peak and off-peak energy is based on actual tender prices for 2017/18 to 2019/20. For the remainder of RP4, Coliban used a range of sources to estimate its electricity prices, including:
    - VicWater's Supply Chain Excellence Program 5-Year Electricity Price Forecast Report June 2017
    - a publically available report by Jacobs for the Australian Energy Market Operator in September 2017 on forecast retail electricity prices[4], and
    - ASX energy futures data.
- Forecast energy costs are based on half-yearly estimates, summed annually.

Retail electricity prices in Victoria have risen significantly over the last year, driven largely by increases in wholesale electricity prices. There is considerable uncertainty around how prices will change over RP4 due to a range of factors, including policy uncertainty, fuel prices including coal and natural gas, and the potential entry and exit of generation capacity. This makes it difficult to accurately forecast electricity prices for the purposes of the price submission.

In Victoria, transmission network services are provided by AusNet Services, and distribution network services are provided by one of the five distribution network service providers (DNSPs) (AusNet Services, CitiPower, Powercor, Jemena and United Energy) in different parts of the State. Network prices are determined by the Australian Energy Regulator (AER). The AER made final decisions on revenue allowances for the five DNSPs in May 2016 for the 2016-20 period[5], and made a final decision for AusNet Services (transmission) in April 2017 for the 2017-22 period. The annual change in smoothed revenue allowances for each of the network businesses is presented in Figure 3.2 below.

[4] Jacobs, 21 September 2017, *Retail electricity price history and projected trends*
[5] The AER made a mathematical error in the inflation calculation in these decisions. It has proposed to revoke the decisions and substitute new determinations correcting the error by March 1 2018. We don't expect this to have a material impact on electricity prices.

Figure 3.2 Annual change in expected revenue (smoothed, real $2017-18)



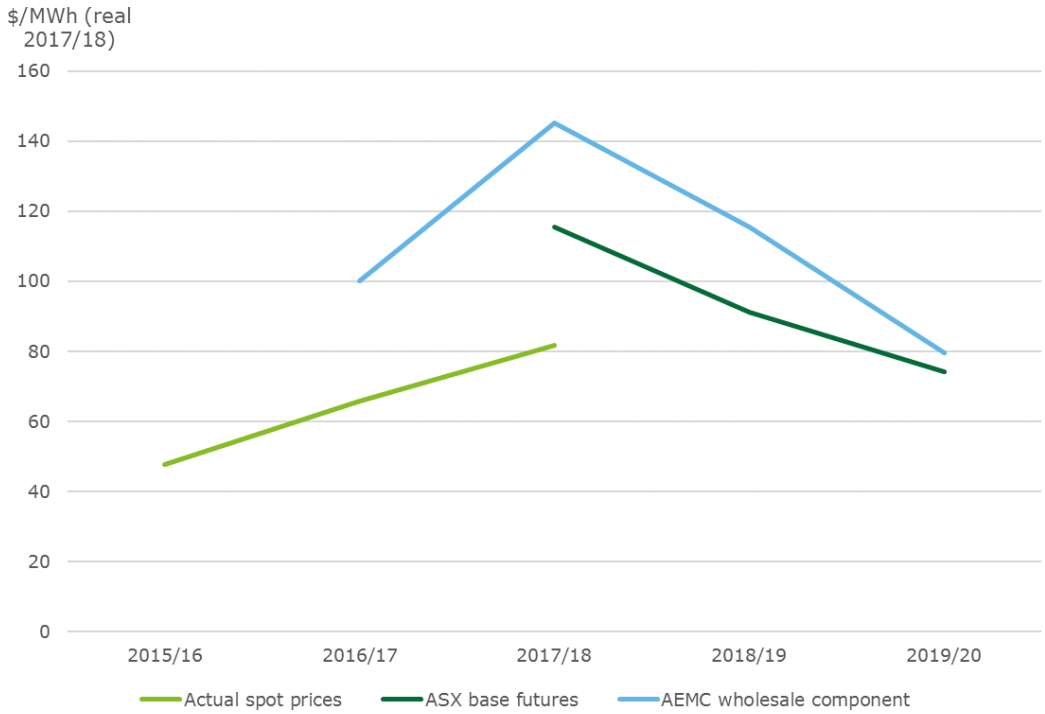
Source: Deloitte analysis of AER decisions

Overall, the revenue allowances for the network business are relatively flat, with small real increases for most of the DNSPs, and a small real decrease for AusNet Services Transmission. Coliban is in the Powercor network, which has small real revenue increases from 2018-19 onwards (less than 1% average). The change in prices for certain customer types may differ from this overall trend, however this does not provide strong evidence of real price increases in the network component of prices. Prices may also follow a slightly different trajectory to account for over or under recovery of revenue in previous years, however this should not have a material impact over the course of a regulatory period.

Wholesale prices are harder to forecast accurately, with a wide range of forecasts produced by different bodies over the past year. In December 2017, the Australian Energy Market Commission (AEMC) published a wholesale electricity price forecast (including spot prices, hedging, ancillary services and market fees) in its annual report on residential electricity price trends, based on analysis prepared by Frontier Economics.[6] The AEMC forecasts wholesale prices to peak in 2017-18 before decreasing and falling below the real 2016-17 price by 2019/20. This forecast movement in wholesale electricity prices is broadly in line with the price of Victorian ASX base energy futures, which are approximately $115/MWh for the remainder of 2017-18, decreasing to $74/MWh by 2019-20. These values are presented in Figure 3.3, along with actual average spot prices up to 31 December 2018.

[6] AEMC, 18 December 2017, *Final Report 2017 Residential Electricity Price Trends*

Figure 3.3 Wholesale electricity prices and electricity futures in Victoria



Source: Deloitte analysis of: AEMO data collected through NEOExpress, AEMC 2017 Residential Electricity Price Trends data, and ASX energy futures data accessed 17/01/2018

However, some publicly available reports provide quite different outlooks from the AEMC report. The September 2017 report prepared for the Australian Energy Market Operator by Jacobs referred to by Coliban Water forecast wholesale market prices to continue to increase to a peak in 2019-20, with retail prices following a similar trajectory.[7] The divergence of views on wholesale costs reflects the overall uncertainty in the market, as well as quickly changing market conditions and expectations. In our analysis, we have placed more weight on the AEMC outlook as this is the more recent analysis.

In reviewing Coliban Water's proposal, we have considered the evidence provided by Coliban Water and recent forecasts of network and wholesale price movements. We consider that Coliban Water's proposed electricity price increases for 2018-19 and 2019-20 (which reflect a price increase of approximately 46% and 34% above 2016-17 prices, respectively) are reasonable, and our preliminary recommendation is that these be approved, subject to updated contract offers before the final decision. However, we do not consider there is strong evidence to support a continued price increase beyond 2019-20, and recommend that additional expenditure should not be approved for the remainder of RP4. This results in a reduction of $2.6m in total for RP4 from Coliban Water's proposal.

Coliban Water has advised that it considers its approach to energy procurement (procuring the bulk of its energy supply for the maximum period afforded by the market in 2013-14) has generated significant savings compared to actual 2016-17 spot prices, and if it had applied an alternative approach to procurement (including spot market and shorter term contracts), its base year expenditure would have been up to $0.9m higher. We note that the average energy price in Coliban Water's template, while lower than the average for the industry as a whole, is not the lowest in the industry, and is within 3% of the average cost in c/kWh for businesses using more than 20GWh per year. If Coliban Water's energy costs were $0.9m higher, its average cost for energy in 2016-17 would be almost 30% higher than other businesses using more than 20GWh per year.

[7] Jacobs, 21 September 2017, *Retail electricity price history and projected trends*

We note that the ESC intends to make a decision on allowable energy cost increases using updated contract offers post the finalisation of our reports. Therefore, our recommendations are indicative only.

3.5.3 Trade waste monitoring

Coliban Water proposed an additional $0.34m in opex above the baseline for RP4 ($0.07m per year) for increased trade waste monitoring. The basis for the increased costs is to introduce a new 'intermediate' tier of trade waste categorisation, in addition to the current major and minor categories, to ensure a more granular treatment of customers that may impose costs on Coliban Water's system.

We understand that the new category is intended to improve cost reflectivity of trade waste charging, and more accurately reflect the costs that this group of trade waste customers is imposing on the system. Coliban Water has noted the expenditure will lead to "*enhanced environmental outcomes and customer monitoring that is better aligned with the risk that a customer imposes on [Coliban Water's] network.*"[8]

Coliban Water has also stated that the expenditure results in no additional costs on the broader customer base, because additional revenue will be collected from the intermediate customer group due to increased prices for these customers.

We note that Coliban Water has not identified any specific enhanced environmental outcomes as a result of this expenditure. Nor has Coliban Water identified any reductions in costs that it expects to see as a result of providing more accurate signals to customers. In general, we would expect that expenditure to provide more accurate price signals to customers about the costs they impose on the network should be at least offset by reductions in costs to the business as a result of customers responding to those price signals.

In the absence of details on improved outcomes from the expenditure, we consider that the expenditure for this activity should be at least offset by reductions in costs on Coliban Water's system, and therefore that the increased monitoring activity should be able to be undertaken without the need for a net increase in expenditure above the baseline. We therefore recommend removing the proposed variation to baseline expenditure. This adjustment is outlined in Table 3.4.

3.5.4 Land development

Coliban Water has proposed an additional $0.32m in opex above the baseline for RP4 ($0.06-0.07m per year) for improving services to developers, predominantly in terms of improved response times from customers applying for new fast-tracking services.

Coliban Water has developed a fast track option for mains extension applications for developers in need of faster processing times. We understand that the additional costs of providing the service will be recovered from developers requesting fast tracked services. This proposal appears to be supported by customer engagement, with Coliban Water noting that customers have requested a higher level of service than is currently provided.

On the basis of customer support for the improved outcomes, we have not recommended any adjustments to this expenditure.

3.5.5 Data connections

Coliban Water has proposed an additional $0.25m in opex above the baseline for RP4 ($0.05m per year) to provide internet connections at each of its 19 water treatment plants to support enhanced monitoring of water quality.

We note that Coliban Water has had some issues with water quality. In 2016-17, there was one instance of an *Escherichia coli (E. coli)* detection in a treated water tank at Fryerstown, and Coliban Water made

[8] Coliban Water Pricing Submission 2018 – Supplement C, p.18

six notifications in total to the Water Program of the Department of Health and Human Services (DHHS) under Section 22 of the Safe Drinking Water Act 2003.[9]

Coliban Water is one of only three businesses to have failed to achieve 100% compliance with the ESC's microbiological water quality (per cent of customers receiving drinking water meeting E. coli requirements) standard over the last five years, and had the 6th highest level of water quality complaints in 2015-16.[10]

Coliban Water has not linked this increase in operating expenditure to any measurable outcomes, but has proposed improvements in performance which could be related to this expenditure:

- One of its new performance measures 'Customer satisfaction with water quality (customer satisfaction survey)' is proposed to improve from 75% in 2017-18 to 83% in 2022-23. However, without any baseline data for this new performance measure it is not clear if the target reflects improved performance from current levels
- 100% compliance with ADWG and DHHS requirements (it is not clear whether this also means reducing notifications to DHHS under section 22).

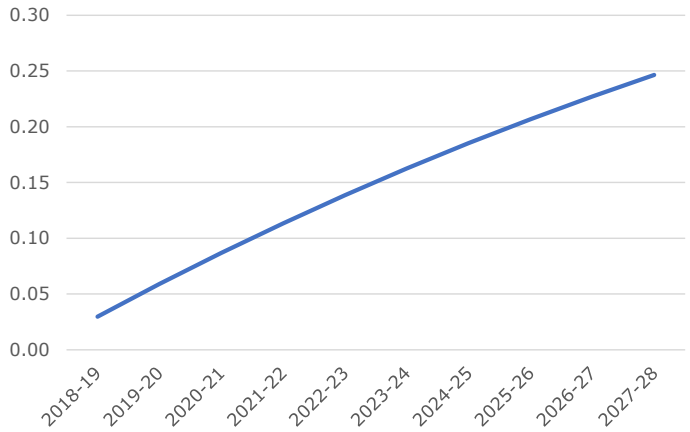
We note that the requirement to comply with water quality standards is not a new obligation for Coliban Water, and there is no apparent link between the proposed expenditure and outcomes. However, given that there appears to be a need for Coliban Water to increase its efforts to improve water quality outcomes, and the expenditure is relatively minor, we have not recommended any adjustments to this expenditure.

3.5.6 Hardship

Coliban Water has proposed an additional $0.43m in opex above the baseline for RP4 to provide support to customers in financial hardship through its Coliban Assist Program (CAP). In our consultation, Coliban Water advised that the expenditure is related to payment matching (for customers who nominate an amount they can pay) and debt waivers.

In its submission, Coliban Water noted that it will continue to identify customers in financial hardship without removing customers in long-term hardship from the CAP, and therefore it is planning for an increase in expenditure relating to financial hardship payments to customers. The figure below illustrates the increasing level of expenditure above the growth adjusted baseline proposed by Coliban Water.

Figure 3.4 Proposed expenditure above the baseline for hardship



We note that in the ESC's most recent performance report, Coliban Water restricted more customers for non-payment of bills than any other business. Therefore, the initiative from Coliban Water to take a less

[9] Under section 22 of the Safe Drinking Water Act 2003, water businesses are required to report known or suspected contaminations to DHHS, where they suspect that drinking water may cause and illness or pose a risk to public health, or cause widespread public complaint.
[10] ESC (2016), 2015-16 Water Performance Report – Metropolitan and regional urban water businesses, Dec

punitive approach to managing customers in hardship appears reasonable. We also note that there is a range of evidence that supporting customers in financial hardship can result in benefits for businesses.[11]

However, in our view increasing operating expenditure to allow for direct financial assistant to customers, such as payment matching and debt waivers, is not consistent with prudent and efficient expenditure and does not provide appropriate incentives to the business. In requesting an ongoing and increasing level of expenditure (to be funded by the broader customer base) to cover the costs of non-payment of bills, Coliban Water is proposing to transfer the risk of non-payment to its customers. We also note that the ESC has historically not provided expenditure allowances to businesses for the purpose of providing direct financial assistance to customers. Where the ESC has accepted increases in expenditure for hardship programs in other decisions, we understand this has been for matters such as additional personnel to manage the program, and initiatives to provide increased education and customer awareness.

Therefore, we recommend that Coliban Water's increased payment matching and debt waivers not be reflected as increases to baseline expenditure. These adjustments are outlined in Table 3.4.

3.5.7 Lockington desludging

Coliban Water has proposed an additional $0.11m in opex above the baseline for RP4 ($0.06m in 2018-19 and $0.05m in 2022-23) to undertake desludging of customer septic tanks in Lockington. Coliban Water expects to undertake this activity once every three years, at a cost of $300 per customer, with some reductions in costs over time.

Coliban Water undertook a customer forum for Lockington (and Elmore) customers to identify customer preferences for the service, and the consequences for prices.

We have some concerns that Coliban Water has sought additional expenditure above the growth adjusted baseline for such a minor expenditure item (amounting to 0.04% of proposed controllable operating expenditure over RP4). This suggests that Coliban Water is passing on the risks of increases in expenditure on to its customers, rather than seeking to manage these costs within the ebb and flow of opex.

However, given that Coliban Water has provided evidence of customer support for the expenditure, and the impact on prices will be negligible, we have not recommended any adjustments to the proposed expenditure.

3.5.8 Consequential opex from new capex

Coliban Water has proposed an additional $0.54m in opex above the baseline for RP4 for operating expenditure arising from capital expenditure projects where the change in operating expenditure is not already budgeted for, or cannot be accommodated within existing budgets. The projects and programs have both a negative and positive impact on baseline expenditure.

In its submission, Coliban Water noted that it had identified 13 projects and programs that had a material impact on operating expenditure and were not enablers of the efficiency target.

In response to our consultation questions, Coliban Water provided a list of the 13 projects and programs, with expenditure broken down for each year of RP4, but no details on the outcomes from the projects or why the expenditure could not be managed within the growth-adjusted baseline. Most of the items are very small, with as little as $4,000-5,000 in opex in some years.

Coliban Water has not provided any information about improved customer outcomes relating to the expenditure, or why these costs cannot be managed within the growth-adjusted baseline. In general, we would expect minor changes in operating expenditure arising from projects and programs to be able to be managed by the business within its growth adjusted baseline. We also note that other regional water businesses face similar changes in expenditure but the majority have not sought a variation to baseline expenditure.

[11] See for example, ESC (2016) *Energy Hardship Inquiry Final Report*, February

On the basis of the information provided we recommend that this expenditure be removed. These adjustments are outlined in Table 3.4.

3.5.9 Other adjustments

Coliban Water's template includes an additional $1.06m in opex above the baseline for RP4 for 'other adjustments'. This is the second largest forecast variation to baseline opex, behind electricity. There is no further information in the price submission on this item. In response to our consultation questions Coliban Water provided a list of six items, with expenditure broken down for each year of the regulatory period:

- Regulatory sampling
- Recycled water membrane challenge and supernatant strategy
- Contract renewal preparation
- Contracts legal
- Network monitoring calibrations
- Asset revaluation.

Coliban Water also provided additional, detailed information about expenditure for contracts renewal and a five-yearly statutory asset revaluation.

With respect to contract renewal expenditure, we note that Coliban Water has historically outsourced a significant proportion of its functions, and has proposed to undertake a major review contracting structure and service delivery model. Coliban Water has excluded any labour costs associated with the contract renewal process, in accordance with its commitment to manage labour costs within the growth-adjusted baseline. We consider that these costs are suitably justified as increases from the growth adjusted baseline.

With respect to the asset revaluation, we note that this is an obligation likely to be faced by all water businesses, but no other businesses have identified it as necessitating increased expenditure above the baseline. Our view is that this type of activity, particularly with regard to minor expenditure items, should be able to be managed within the normal ebb and flow of expenditure from year to year (the amount in question in this case is $0.1m). As such, we recommend not including a variation above baseline expenditure to accommodate the activity, which should be able to be undertaken within a growth-adjusted baseline.

For the other items, Coliban Water did not provide any explanatory material for the other expenditure items. These activities appear to be business as usual activities that should be able to be managed within a growth-adjusted baseline. Therefore, we recommend that this expenditure be removed from Coliban Water's forecast.

The net effect of our recommended adjustments is a $0.50m reduction in the proposed variation above baseline expenditure. These adjustments are outlined in Table 3.4.

3.6 Recommended changes to forecast opex

This table below summarises the changes to opex above baseline expenditure. We have recommended a reduction of $4.38m to Coliban Water's RP4 forecast controllable operating expenditure as per the table below.

Table 3.4 Coliban Water forecast controllable operating expenditure and recommended adjustments

Operating expenditure item	Actual	Price submission forecast					Total
	Baseline 2016-17	2018-19	2019-20	2020-21	2021-22	2022-23	RP4
Proposed controllable operating expenditure ($m)	57.82	60.44	59.98	60.30	60.33	60.29	301.34
Recommended adjustments							
Electricity		0.00	0.00	-0.89	-0.83	-0.85	-2.57

Operating expenditure item	Actual	Price submission forecast					Total
	Baseline 2016-17	2018-19	2019-20	2020-21	2021-22	2022-23	RP4
Trade waste monitoring		-0.07	-0.07	-0.07	-0.07	-0.07	-0.34
Hardship		-0.03	-0.06	-0.09	-0.11	-0.14	-0.43
Consequential opex from capex		-0.01	-0.06	-0.13	-0.14	-0.20	-0.54
Other adjustments		-0.17	0.12	-0.01	-0.33	-0.12	-0.50
Total recommended adjustments		**-0.28**	**-0.06**	**-1.18**	**-1.48**	**-1.38**	**-4.38**
Recommended operating expenditure		**60.15**	**59.92**	**59.12**	**58.85**	**58.91**	**296.96**

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

4 Assessment of capex

This chapter of the report sets out our assessment of Coliban Water's capital expenditure proposal for RP4 including:

- An overall assessment of capital planning and asset management approach
- A summary of major projects with a significant impact on the capital expenditure proposal (top four by total expenditure) and assessment of each project
- A summary of our recommendations.

4.1 Our approach to the assessment of capex

Our approach to assessing capital expenditure is set out in Section 1.4.2., while this section provides some specific detail on the requirements of the ESC Guidance Paper. In relation to capital expenditure, the Guidance Paper includes the following instructions to businesses:

- Avoid including speculative capital expenditure. That is, where projects are not fully scoped, costed or internally approved (for example, though an approved business case) businesses should consider including only development costs, development costs with a notional allowance for construction, or not at all (relying instead on adjustments for uncertain and unforeseen events)
- Include only capital expenditure that that would be incurred by a prudent service provider acting efficiently to achieve the lowest cost of delivering service outcomes, taking into account a long-term planning horizon (**prudent and efficient forecast capital expenditure**). Prudent and efficient capital expenditure has the following characteristics:
  - is based on a P50 cost estimate
  - has an optimised contingency allowance
  - for renewals, is based on a reasonable rate of improvement in cost efficiency
  - has the risk of project delays and cost overruns managed through contractual arrangements
- Identify expenditure by major service category and by cost driver – renewals, growth and improvements/compliance – including current and forecast expenditure
- Identify expenditure by either major projects (top 10), capital programs (ongoing work) or other capital expenditure (smaller projects or programs)
- Provide supporting information for projects / programs including:
  - Project name, scope, and major service and asset category
  - Justification for project including cost driver
  - Start and completion dates (for projects)
  - Total capital cost itemising government and customer contributions by each year
  - Historical annual costs and explanations for increases / decreases in average annual expenditure (for programs)
  - Objectives of project as aligned with customer outcomes
  - Business case outlining options considered and approach to identifying optimal solution
  - Risk assessment approach
  - Incentive / penalty arrangements (for projects)
  - Tendering arrangement (for projects)
  - List of projects included in program for next regulatory period with business cases and options analyses (for programs)
- Justify the total forecast capital expenditure with reference to the characteristics of prudent expenditure identified above, taking into account forecast demand, benchmarking, and the substitution possibilities between capital expenditure and operating expenditure.

We have applied these specific requirements to our assessment of each businesses' forecast capital expenditure.

4.2 Overall assessment of capital planning and asset management

Coliban Water appears to have taken a standard approach to capital planning. That is, the identification and prioritisation of projects has been undertaken on the basis of a typical risk based approach considering financial return, business risks and benefits to business, community and the environment. It is not evident that Coliban Water has shaped its capital planning to specifically address feedback or engagement with customers. Although, within the prioritisation process, the consideration of 'benefits' potentially addresses a component of customer feedback. However, this link is not clear and we consider that most of the projects proposed would have likely been included in RP4 regardless of the customer consultation.

Coliban Water has improved its approach and delivery of asset management across RP3, including expansion of condition assessment programs such as CCTV. This is further supported through a new role in IT relating to Asset Management and expenditure on IT systems. Further development and integration of Coliban Water's asset management system would appear necessary to continue to proactively identify and manage the risk of poor condition assets leading to significant leaks, bursts or spills.

In general, Coliban Water appears to have been thorough and to have taken a risk based approach to capital planning without excessive conservatism and has given due consideration to long-term planning.

4.3 Major projects and programs

The following table provides an overview of the top 10 projects (by capital expenditure), showing the primary driver and forecast expenditure over RP4. It also highlights the four projects or programs that were reviewed in more detail through this review.

Table 4.1 Coliban Water forecast capital expenditure

Capital expenditure item	Primary Driver	Price submission forecast expenditure						
		2018-19	2019-20	2020-21	2021-22	2022-23	Total RP4	% of total
Western Bendigo water network augmentation	Growth	4.00	5.34	3.10	0.90	0.00	13.34	9%
Bendigo WRP sludge processing upgrades	Improvements / Compliance	0.00	0.00	0.50	5.61	5.00	11.10	8%
Strathfieldsaye water network augmentation	Growth	0.10	5.00	3.56	0.45	0.00	9.11	6%
Kyneton WRP	Improvements / Compliance	2.00	0.10	3.20	1.50	0.00	6.80	5%
Castlemaine WRP	Improvements / Compliance	0.00	0.00	0.10	1.70	3.80	5.60	4%
Digital customer metering	Improvements / Compliance	0.98	1.05	0.99	0.99	0.99	5.00	4%
Echuca West storage tank	Growth	0.00	0.07	2.65	1.50	0.00	4.22	3%
Heathcote WRP	Improvements / Compliance	1.60	0.59	0.00	1.85	0.00	4.04	3%
Echuca WTP water storage	Growth	0.05	0.00	0.00	0.56	2.25	2.86	2%
Epsom Huntly water main augmentation	Growth	0.00	0.00	0.10	0.00	2.52	2.62	2%
Subtotal - Top 10 Projects		**8.73**	**12.15**	**14.20**	**15.06**	**14.55**	**64.69**	**46%**
Water Network Growth	Growth	0.94	0.98	1.76	4.27	6.42	14.39	10%
Sewer Network Growth	Growth	3.36	0.80	1.15	2.14	1.11	8.56	6%
Water Network Renewals	Renewals	1.24	1.33	1.24	1.48	2.44	7.72	5%
Sewer Network Renewals	Renewals	1.72	0.89	1.16	1.07	1.16	5.99	4%
WTP renewals	Renewals	1.03	1.60	0.84	0.84	0.84	5.15	4%
Rural channels renewals	Renewals	0.51	1.61	1.61	1.13	0.26	5.11	4%
Intelligent Business (Water & Sewer)	Improvements / Compliance	0.98	0.90	0.90	0.90	0.90	4.60	3%
Biosolids	Improvements / Compliance	0.69	1.14	0.78	0.34	0.94	3.88	3%
WTP Compliance	Improvements / Compliance	1.49	0.00	0.02	2.01	0.00	3.52	2%
WRP renewals	Renewals	0.72	0.35	0.38	0.36	0.66	2.48	2%
Subtotal - Top 10 Programs		**12.68**	**9.60**	**9.83**	**14.55**	**14.73**	**61.40**	**43%**
Total		**21.41**	**21.75**	**24.03**	**29.61**	**29.28**	**126.09**	**89%**

4.4 Programs Expenditure

An overview of the top 10 capital programs is provided in Table 4.1 above.

In looking at the total spend per category, expenditure under the Water category is broadly similar for RP4 as in RP3, however within this category, pipelines/networks has a significant increase (these figures include projects and programs).

Spending on Rural Water and Corporate is reduced significantly and Recycled Water remains relatively unchanged in the capex budgets proposed in RP4, therefore any programs under these headings haven't been reviewed in detail.

Spending on Sewerage in total is similar across RP4 and RP3 however the composition of the spending has shifted significantly in that the network spending has decreased (due to backlog scheme completion) and spending has increased in treatment due to a few major projects including the Bendigo WRP. Given the net decrease in spending in Sewerage, and noting the relatively low proportion of capex on these programs in comparison with Water, the renewals programs for sewerage have not been reviewed in detail.

Further assessment of the Water Programs is provided below.

4.4.1 Water Programs

Total Water expenditure in RP4 is $107.8m and includes:

- Top 10 projects ($37.2m)
- The Business As Usual ('BAU') programs listed in the table below ($12.7m)
- Capitalised non-operating BOOT expenditure ($30.8m)
- Targeted water maintenance programs to reduce breaks/leaks/blockages include $3.9m for water network proactive maintenance
- Other non-top 10 projects.

Coliban Water stated in its submission that 50% of costs associated with 'likely' greenfield works have been included in the capital program. It is understood that these costs are associated with the Water Network Growth program.

Table 4.2 Comparison of RP3 and RP4 BAU Program spending ($m)

BAU Programs	RP3	RP4
Water Treatment Maintenance	1.9	1.2
Water Storage Renewals	1.1	0.8
Land Management Program	1.8	0.4
Reservoir Renewals	0.5	0.2
Filter Refurbishments Program	0.9	0.8
WTP Master Planning Program	0.3	0.7
PCRM to Capital	3.4	2.8
Gifted Assets Overhead	0.7	1.2
Vehicle Replacements	0.8	0.5
Intelligent Business	1.8	1.9
IT Infrastructure	0.4	0.3
Water Pump Replacement Program	Not Applicable	0.6
OH&S Renewals	2.2	1.3

4.4.2 Analysis

Including major projects, all spending classified under Water has increased 6% from RP3 to RP4 ($101.95m to $107.82m) in part reflecting higher forecast customer growth of 1.7%. A notable change has been in Pipeline/network spending $18.94m to $59.93m however most of this is accounted for in the major projects and program spending seems to be relatively consistent with previous years.

BAU programs classified as Water are similar to previous Water Plan spending, RP3 had $15.8m overall for BAU programs compared with $12.7m proposed for RP4.

Major Programs include:

- Water Network Growth $14.39m
- Water Network Renewals $7.72m.

Coliban Water has taken a view on the certainty of the Water Network Growth projects and has stated that it has only included 50% of costs associated with 'likely' projects. This appears to be reasonable, with some risk being taken on the business associated with these growth related projects.

As noted in section 3.5.5 above, Coliban Water has had some issues with water quality. In 2016-17, there was one instance of an *Escherichia coli (E. coli)* detection in a treated water tank at Fryerstown, and Coliban Water made six notifications in total to the Water Program of the Department of Health and Human Services (DHHS) under Section 22 of the Safe Drinking Water Act 2003.[12] Under the Safe Drinking Water Regulations 2015, all water businesses that operate and maintain drinking water treatment processes are required prepare risk management plans that, inter alia, identify shortfalls between the water treatment processes and the pathogen risk in the source water. The risk management plant must also include measures to mitigate any impacts from identified deficiencies. In response to our queries about the adequacy of Coliban Water's plans for water treatment plant upgrades given their recent performance, Coliban Water provided us with a summary of its planned works across its various water treatment plants and assessment of risk at each as well as other works to improve water quality. Coliban Water noted that it expected to be compliant with all requirements under the Safe Drinking Water Act 2003 (as reflected in its Price Submission).

4.4.3 Recommendation

Based on the documentation provided by Coliban Water, the level of spending for Water Programs appears adequately justified as a prudent and efficient forecast. We have made no recommendations for reductions to the capex proposed for these programs for RP4.

4.5 Western Bendigo Region Water Network Augmentation Project

4.5.1 Description of project

This project comprises the duplication and upsizing of several water mains through Maiden gully and Marong to provide additional flows and increased water pressure to a rapidly expanding region. The existing main is undersized for current demands and represents a significant security of supply risk to customers.

The growth rate adopted for Maiden Gully assumes 1,050 new connections by 2028 (growth of around 70% from 2015 connections of 1,525). Marong growth figures are based on forecasts provided by the Bendigo City Council, with 1,280 connections by 2028 (growth of around 180% from 2015 connections of 455). A number of low water pressure areas, with pressure at customer nodes falling below 20m, have been identified. These concerns as well as security of supply were considered in selecting the preferred option.

The business case identifies three options for network augmentation considered and reviewed using Multi-Criteria Analysis (MCA).[13]

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[12] Under section 22 of the Safe Drinking Water Act 2003, water businesses are required to report known or suspected contaminations to DHHS, where they suspect that drinking water may cause and illness or pose a risk to public health, or cause widespread public complaint.

[13] Note: the appendices of the Business Case provided were not available for review, as they required links to Coliban Water's IT network.

4.5.2 Analysis

Business case and growth forecasts suggest high demand growth in addition to current low levels of service on peak demand days due to low pressures. Based on the information presented, it is evident there is an immediate need to rectify level of service pressures due to current failures with some customers having no pressure in early 2017.

The business case looks at long-term solutions to pressure/service levels as well as accommodating new customer connections (over 1,900 new connections by 2028, an extra 96% on current 2,066 customers).

The MCA used to analyse the three options identified and presented in the business case uses economic, environmental, social and technical categories. However, the definitions of each category is not clear, and there is no clear link to customer benefits with regards to criteria for prioritisation/preference between the options.

The project options considered by Coliban Water have similar capital cost estimates however Options 2 and 3 have significantly higher ongoing operating costs due to pumping (power costs and maintenance). Option 1 clearly has the lower financial impact over the long term based on lower opex, however, it is not clear how this supports customer driven outcomes. It is assumed that this option will deliver the stated outcomes of the project, i.e. increased water pressure and network expansion to support residential development.

The benefits of options with regards to level of service and risk of service failure in the context of current and increasing demand are unclear. It is also unclear how the uncertainty around growth will be managed i.e. the level of spending per year to account for growth noting that greenfield developer works will source funding from elsewhere (separate business case). However, in general we consider that the business case includes an appropriate options analysis, the selected option appears to represent the most efficient and prudent solution, and we also note that the forecast expenditure for the chosen option is based on a P50 estimate.

This business case is for immediate works based on current issues and anticipating short term growth. We note that further network augmentation is anticipated to 2043 based on longer term growth forecasts and new development.

4.5.3 Recommendation

Based on the documentation provided the capex forecast for this project appears consistent with the prudent and efficient capex criteria in the guidance paper. We have therefore not recommended any adjustments to forecast expenditure.

We recommend that a high level masterplan is developed for future staging (if not already completed), particularly as this project represents one stage in an augmentation that is anticipated to occur from now until to 2043. While this project requires a level of flexibility in its planning due to uncertainty around growth, there is some risk in funding an initial stage without clarity on future capital expenditure. Based on the Business Case it appears approximately 50% of the total capex is to be spent in RP4.

4.6 Strathfieldsaye Region Water Network Augmentation Project

4.6.1 Description of project

This project involves the construction of a new main from Edwards Road Tank to the Strathfieldsaye township to provide additional flows and pressures to a growing suburb. This will provide Strathfieldsaye customers with additional security of supply and alleviate a worsening pressure problem in the area.

For Strathfieldsaye, the growth rate adopted assumes 3,160 total connections in 2028. The number of new customers in Strathfieldsaye is expected to increase by 42% over the next seven years. Modelling shows that about 30% of Strathfieldsaye will experience less than 5m head at times of peak demand (which is well below the required service level).

The business case identifies two options for network augmentation, which were considered and reviewed using Multi-Criteria Analysis (MCA).[14]

4.6.2 Analysis

Business case and growth forecasts suggest high residential demand growth in addition to current low levels of service on peak demand days due to low water pressure. Approximately half of the existing customers in these areas receive pressures of less than 5m head on peak demand days (minimum required pressure is generally 12m). We consider that the drivers of the project are clear.

The business case considers a long term solution to pressure/service levels as well as accommodating new customer connections (over 1,300 new connections from current to 2028, an additional 73% on current number of 1,789 customers).

The MCA used to analyse the two options identified and presented in the business case uses economic, environmental, social and technical categories. However, the definitions of each category are not clear and there is no clear link to customer benefits with regards to criteria for prioritisation/preference between options. Options have similar capital cost estimates however Option 1 has significantly higher ongoing operating costs due to pumping.

Option 1 proposes a tank and pump station at a site already owned by Coliban Water. However it is not at the required elevation which is problematic given the area is expected to experience further growth, meaning pressure issues would arise again in future requiring greater pumping and/or further augmentation to the existing network (exclusive of any new development works).

The benefits of the options with regards to impact on service and risk of service failure given current and increasing demands are unclear. It is also unclear how the uncertainty around growth will be managed under the proposed spending profile. The preferred option has allowance for new storage to be installed in a subsequent regulatory period (2033-2043).

This business case is for immediate works based on current issues and anticipating short-term growth, noting that further network augmentation is anticipated to 2043 based on longer term growth forecasts. We consider that the business case includes an appropriate options analysis, the selected option appears to represent the most efficient and prudent solution. We also note that the forecast expenditure for the chosen option is based on a P50 estimate.

4.6.3 Recommendation

Based on the documentation provided the capex forecast for this project appears consistent with the prudent and efficient capex criteria in the guidance paper. We have therefore not recommended any adjustments to forecast expenditure.

We would recommend that a high level masterplan be developed for future staging (if not already completed), particularly as this project represents one stage in an augmentation that is anticipated to continue over the period to 2043. While the project requires a level of flexibility in its planning to respond to uncertainty around growth, there is some risk in funding an initial stage without clarity on future requirements. Based on the Business Case it appears approximately 50% of the total capex is to be spent in RP4.

4.7 Bendigo Water Reclamation Plant

4.7.1 Description of project

This project comprises an increase in treatment capacity of the sludge handling system at Bendigo Water Reclamation Point (WRP). The project involves construction of a new aerobic digestion system and supernatant pump station with a future conversion of the existing Biological Nutrient Removal (BNR) aerators to a BNR plant bioreactor system. This also includes the decommissioning of the existing Autothermal Thermophilic Aerobic Digesters (ATAD) system.

[14] NB. The appendices of the Business Case provided were not available for review which required links to Coliban Water's IT network.

The business case and associated documents state that the objective of the project is to address major operational issues and high operating costs with existing sludge handling processes and to ensure EPA compliance.

A total of three options were compared using Multi Criteria Analysis. In addition to the Business Case, a Master Plan (prepared by GHD) and an Independent peer review of the Master Plan (by pH Water Consultants) were provided to assist us in our review.

The project is targeted towards two Customer Outcomes outlined in Coliban Water's pricing submission:

1. Provide infrastructure and services to meet customer needs now and into the future; and
2. Reduce our environmental footprint and achieve a socially responsible, sustainable business for future generations.

4.7.2 Analysis

The Business Case provides justification for the project based on compliance (EPA), efficiency and operational constraints, which have led to high operational costs and odour complaints. The underlying risk assessment determines a high level of financial, legal and service risks.

The options analysis undertaken by Coliban Water appears to have included a suitable range of options, including options for deferral (as set out in the Independent Review of the Master Plan). Coliban Water has advised that it has considered expenditure options for different elements of expenditure linked to this project, and that the preferred solution leads to an optimal NPV.

A total of total $11.1m in capex to cover Stage 1 costs are outlined in the documentation. It is stated that if these works are not undertaken or delayed then $2m annually will be incurred in operating costs for sludge handling. However, the business case only states a saving of $0.7m per year if the works are completed ($3.5m over a 5 year Regulatory period). This equates to only 6% of the overall capital cost annually. It is not clear whether the remaining $1.3m relates to an ongoing requirement for sludge handling or other increased operating costs.

Stages 2 and 3 are planned for subsequent regulatory periods (Stage 2 in RP5 and Stage 3 in RP6). Estimates of costs have not been provided in the business case for these stages, nor is there a provision for what may happen if funding isn't secured in subsequent regulatory periods with regards to outcomes of this project. Some preliminary cost estimates have been provided in the Master Plan with a significant cost associated with Stage 3 (close to $19m).

Based on the Master Plan, Coliban Water has determined that the current loads on the plant are above original design basis, and flows are projected to increase to above design basis flow by 2040. Increased future flow does not appear to be an immediate threat as the treatment process appears to be under capacity with regards to current loads for discharge parameters, nor does it appear to be hydraulically limited at the inlet works.

Coliban Water requested a peer review of the Master Plan to identify options for deferral of capital expenditure. The pH Water Consultants Peer Review document identifies recommendations outlined in the Master Plan which could be deferred (some indefinitely). The review also identified potential operating cost reductions based on changes in operational strategy.

4.7.3 Recommendation

Given there is an immediate need for rectification of works at the plant as it is currently underperforming, and noting Coliban Water has had compliance issues in the past with the EPA, we consider that the drivers of the project are clear.

Based on the information provided we consider that the forecast capex is consistent with the prudent and efficient capex criteria.

4.8 Digital Customer Metering Project

4.8.1 Description of project

The Digital Customer Metering project is proposed to be delivered over six years, starting in the 2017-18 financial year. It does not continue into the next regulatory period post 2022-23. The documentation

provided in support of this project includes a Business Case and two independent peer reviews conducted in accordance with the Department of Treasury and Finance (DTF) Gateway Review methodology.

Coliban Water identified two main improvements customers want to be prioritised first are SMS notification regarding performance outages and the ability to check and monitor water usage. Coliban Water stated in its submission that the digital customer metering project is an enabler for these opportunities to be developed.

The Business Case only has one strategic option (electronic capture and transmission of water meter data) other than the Do-Nothing option. Within the chosen option there were alternative technological solutions in the market that were identified through an EOI process. Coliban Water reviewed these EOIs and assessed each of these technologies to select the preferred solution to proceed with.

The detailed Business Case seeks formal approval of a $5.4m capital investment over 6 years commencing in 2018. This capital investment will also commit the business to a yearly opex of $0.46m to operate and maintain the data transmission network.

The scope of this project is to increase the frequency of customer meter reading from quarterly to hourly, and every five minutes for large customers.

The project involves the refurbishment of all existing customer meters with a digital reading device and transmitter. A secondary aspect of the project is the installation of a telemetry network and management of the data collected.

This Business Case does not provide costs for additional investments that we consider may be required to capture the full benefits of the digital meters. These investments are identified by Coliban Water as all being related to Information & Systems projects and include items such as:

- Develop a database for new data
- Link the new data to the billing system
- Update existing reporting of customer consumption
- Develop new reporting to capture benefits.

Coliban Water believes the detection and rectification of leaks in Trentham will indirectly provide increased capacity at the treatment plant, therefore avoiding a $6.4m capital upgrade in the next five years. The Business Case appears to be based on similar savings being achieved across the network. The Business Case notes that each of these investments will be assessed on their merits, depending on the amount of water saved. However, the Business Case does not appear to include any additional investment to fix the identified leaks and achieve the savings.

Note that Coliban Water elected not to commence a trial as it was deemed that the technology had previously been proven, in areas such as Central Highlands Water. The contractor engaged by Coliban Water is the same contractor that deployed the Central Highland Water meters. It is also worth noting that this contract is for the purchase of data. The contract is written to incentivise the contractor to provide a minimum amount of quality data, which in turn incentivises them to ensure the technology is fully functional.

Coliban Water has already initiated this project with anticipated timelines are as follows:

1.	Contract Award	June 2017
2.	Equipment delivery	September 2017
3.	Phase 1: Wimmera and Trentham	January 2018
4.	Phase 2: Goulburn & Loddon	July 2018
5.	Phase 3: Murray, Elmore and Goornong	March 2019
6.	Phase 4: Heathcote, Castlemaine and Kyneton	March 2020
7.	Phase 5: Bendigo & Completion	June 2023

4.8.2 Analysis

We are concerned that the overarching options analysis for the project lacked genuine consideration of feasible alternatives to the proposed project, with only two options given genuine consideration (i.e.

whether or not to conduct a full roll-out of digital metering). We consider that a more thorough options analysis would have considered alternative approaches to the roll-out, such as trials for particular towns or customer groups.

There are a number of risks to the implementation of this project, particularly due to the lack of trials with digital metering which may impact on the roll out of a full programme given the uncertainty with costs, savings and maintenance requirements etc. It is noted that the programme does allow for the more complex areas to be undertaken last acknowledging there is a learning curve at the start of the programme. Coliban Water has begun engagement with the community and stated that stage one would start in Trentham, Wedderburn, Korong Vale, Wychitella, Mysia and Borung in late February 2018, with the installation of approximately 1,400 digital meters.

The cost estimates provided in the submission for this project include an allowance for uncertainty (Table 7 of Business Case), although it is not clear how this has been calculated. Coliban Water has stated that the justification for no trial project prior to rolling out the full programme is based on proven deployment by other water utilities, namely Central Highlands Water, and in using the same contractors Coliban Water is hoping to benefit from any lessons learnt in that deployment.

There is also uncertainty in the integration of the digital metering data with systems and current operations as well as change management required with Coliban Water (no risk/economic valuation, however, a change management plan has been recognised as part of the project).

Annual financial benefits are estimated at $1.5m, largely based on avoidance of manual meter reading costs, special meter reads, reduction in pumping and water treatment costs at Lake Eppalock by minimising leaks (reduction of non-revenue water target to 5%), reduction in temporary monitoring (currently BAU), avoidance of credit notes to customer accounts for undetected leaks (between manual reads) and deferral of capital works in Trentham by 5 years ($4m total, $450k per annum).

We note that the rationale for deferral of capital works at Trentham appears to have been based solely on provision of digital metering. However, we note that the digital metering project is for provision of data and doesn't include integration of that data with business operations and systems. Furthermore, there does not appear to be any expenditure proposed for a leak detection and reduction program. Creation of Demand Management Areas (DMA) with flow meters, isolation valves and potentially pressure reducing valves are typically required to identify the location of high leakage areas. As such, we consider further evidence is required to demonstrate the achievability of the savings.

We also note that the business case doesn't include provision for additional investments that may be required to capture the benefits (e.g. the items under Information & Systems projects listed above). The benefits outlined for customers based on the engagement do not appear to be realised through this project but appear to require additional spending.

4.8.3 Recommendation

We consider that the information provided by Coliban Water on its Digital Customer Meter project is not sufficient to demonstrate that the forecast capex is consistent with the prudent and efficient capex criteria in the ESC's guidance paper.

In summary, our main concerns about the information provided on the proposed expenditure for the Digital Customer Meter include:

- There is insufficient evidence of an appropriate options analysis, with only one strategic option (full roll-out of digital meters) considered in addition to the do-nothing option
- There is limited risk analysis of the selected option, for example
  - the analysis appears to exclude consideration of a range of costs that may be required to fully realise the theoretical savings – for example, this might include investments in IT, billing and customer interface systems and data storage
  - The assumed savings, in particular the reductions in non-revenue water, are significant and appear to exclude consideration of costs and risks to the achievement of the savings.

Based on the above, trial to demonstrate the achievability of savings before committing to a full roll-out would appear prudent. We recommend that the proposed expenditure for the program be reduced to $1.1m, which is equivalent to the amount nominated by Coliban Water for the first three phases of the roll-out including Wimmera, Trentham, Goulburn, Loddon Murray, Elmore and Goornong. We consider that this expenditure allowance will provide Coliban Water with sufficient funding to proceed with a trial of its digital metering program, and utilise the data obtained from the initial phases on the realised costs, savings and risks to inform its decision(s) on implementation in other areas.

4.9 Summary of recommendations

Our recommendations for adjustments to Coliban Water's capital expenditure forecast over RP4 are set out below. We recommend a small reduction of $3.9m from Coliban's proposal and recommend that data collected from the first three phases of the digital metering program be used to inform the roll-out to other towns.

Table 4.3 Coliban Water forecast capital expenditure

Capital expenditure item		Price submission forecast					
		2018-19	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**Total RP4**
Digital Metering Strategy	Proposed	0.98	1.05	0.99	0.99	0.99	5.00
	Recommended	0.60	0.50	0	0	0	1.10
	Net change	-0.38	-0.55	-0.99	-0.99	-0.99	-3.90
Recommended adjustments from proposed		**-0.38**	**-0.55**	**-0.99**	**-0.99**	**-0.99**	**-3.90**

Limitation of our work

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