

**Lower Murray Water Rural – expenditure
review for 2018 water price review**
Report for the Essential Services Commission
– FINAL REPORT

February 2018

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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.

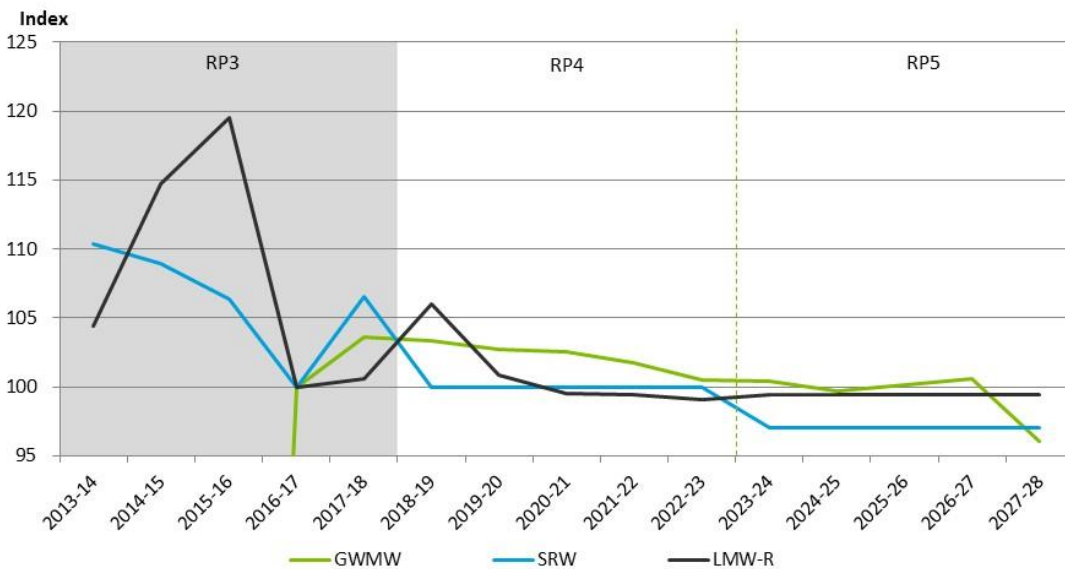
Operating expenditure (opex)

The key features of Lower Murray Water’s opex forecast include:

- A baseline controllable opex in 2016-17 of \$15.8m, which is more than the 2013 forecast for 2016-17 (\$15.36m)
- A 0% efficiency factor and 0% customer growth
- A forecast net increase of \$0.75m from the baseline in total over RP4.

A comparison of Lower Murray Water’s rural business against the two other rural water businesses (see figure below) shows that, after an initial increase in opex in 2018-19, Lower Murray Water is forecasting a decline in opex for the remainder of RP4.

Figure 0-1 Change in controllable opex per connection – index (rural businesses)



On the basis of the total opex package put forward by Lower Murray Water, and after reviewing key items of expenditure (i.e. labour and energy), we have not recommended any reductions to Lower Murray Water’s RP4 forecast controllable opex for its rural business.

The reasons for this recommendation are outlined in Chapter 3.

Capital expenditure (capex)

Lower Murray Water's forecast capex is \$34.3m which represents a 73.1% decrease on RP3 actual net expenditure of \$127.6m. The main component of the capex forecast is the major investment in renewals for rural assets.

We have assessed Lower Murray Water's proposed rural capital expenditure and find it to be sound. As such we have not recommended any adjustments to Lower Murray Water's RP4 forecast capex program.

The reasons for this recommendation are outlined in Chapter 4.

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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.

Lower Murray Water’s prices are regulated under two different regulatory frameworks.

1. Urban prices are regulated by the ESC under the Victorian Government’s Water Industry Regulatory Order 2014 (WIRO)
2. Rural prices are regulated under the Commonwealth Government’s Water Charge Infrastructure Rules (WCIR).

The WCIR is established under the Murray-Darling Basin Agreement, where the Commonwealth (through the Australian Competition and Consumer Commission (ACCC)) is ultimately responsible for the regulation of rural prices charged by water entities in the Murray-Darling Basin. Part 9 of the WCIR allows for accreditation arrangements whereby a state agency can be responsible for approving regulated charges under the WCIR rather than the ACCC. The ESC successfully applied for this accreditation in 2012 to regulate Lower Murray Water’s (rural) charges for ten years.

1.2 Water Charge (Infrastructure) Rules

The key framework for regulating Lower Murray Water’s rural infrastructure is the Water Charge (Infrastructure) Rules 2010 (WCIR) and Australian Competition and Consumer Commission’s (ACCC) pricing principles. The principles are that tariffs must be set to:

- Promote the economically efficient use of water infrastructure assets
- Ensure sufficient revenue for the efficient delivery of the required services
- Give effect to the principles of user pays for water storage and delivery in irrigation systems
- Achieve pricing transparency
- Facilitate efficient water use and trade in water entitlements.

The expectations of Lower Murray Water’s rural proposal is further detailed in the ESC’s guidance paper *2018 Lower Murray Water Rural Price Review Guidance Paper for rural infrastructure services February 2017* (‘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 as well as the rural businesses of GWMWater and Lower Murray Water. 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 making an assessment of the prudent and efficient **opex** for the next regulatory period for Lower Murray Water, Deloitte has had regard to the following ACCC principles relating to expenditure:

- The prudence and efficiency of opex in the previous regulatory period

- The reasons and evidence supporting changes to service standards in the next regulatory period
- The reasons and evidence supporting changes to opex in the next regulatory period
- Reasonable productivity improvements in providing services over the next regulatory period
- A comparison of opex to similar businesses
- Forecasts based on reasonable assumptions of the efficient costs likely to be incurred in the period.

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.

In making an assessment of the prudent and efficient **capex** for the next regulatory period for Lower Murray Water, Deloitte has had regard to the following ACCC principles relating to expenditure:

- The prudence and efficiency of capex in the previous regulatory period
- The reasons and evidence supporting the commencement of new capex in RP4, including whether such projects are consistent with long term expenditure on rural infrastructure services
- The reasons and evidence supporting levels of capex in RP4
- Whether the timeframe for delivering the proposed capex program is reasonable, having regard to the operator's delivery of major projects in the past
- Whether the asset management and planning framework of the operator reflects best practice
- Forecast expenditure are based on reasonable assumptions of the efficient costs likely to be incurred in the period.

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

1.4 Overview of 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 prudence 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 cannot be managed by the business.In assessing prudence and efficiency for each business, we have also benchmarked individual expenditure items 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.

1.4.2 Capital expenditure

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

1. Does proposed capex 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 capex 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 capex reasonable?
9. Are individual project cost forecasts reasonable and do not include undue contingencies or provisions, and reflect current efficient rates for undertaking capex 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 at recommendations for reductions for each individual business' capital program, we have had regard to the following:

- Comparison of overall historical capex 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 four 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 is not 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 which was subsequently provided to each water business prior to site visits
- A site visit of each water business with the key objective to discuss queries and gather information as required. Lower Murray Water’s site visit was undertaken on 12 December 2017
- Detailed review and analysis of supporting information provided
- A Draft Report prepared and provided to Lower Murray Water for comment.
- A Final Report (this report) provided to the ESC to inform the draft price determinations.

Through the process review, Lower Murray Water has been given some key opportunities to provide information to support its expenditure proposal. This included:

- Subsequent to its final pricing submission, and prior to our site visit, we wrote to Lower Murray Water identifying additional supporting information required
- During our site visit, Lower Murray Water had the opportunity to present and provide information
- Following our site visit, there was the opportunity to provide further information on expenditure
- Lower Murray Water was provided with a draft version of our report 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 Lower Murray Water’s rural price submission. It is structured as follows:

- Chapter 2 briefly summarises Lower Murray Water’s rural 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 Lower Murray Water’s opex forecast
- Chapter 4 provides our analysis, conclusions and recommendations on key issues with respect to Lower Murray 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 Lower Murray Water's forecast

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

2.1 Key drivers of expenditure

2.1.1 Community expectations and service standards

As a part of its customer consultation for its pricing submission, Lower Murray Water customers provided support for the following projects and additional service standards in line with four customer outcomes:

- Optimise irrigation network utilisation
- Business transformation to increase labour productivity
- Asset optimisation
- Service levels will be maintained largely at current levels, with Lower Murray Water accepting more risk with proposed tighter service performance targets
- Improving channel/pipe bursts and leaks to better than 60 per 100 km per year.

2.1.2 Demand for services

Lower Murray Water notes that demand changes do impact capital and operating costs for the rural business but not to the extent of the urban business. Further, factors in determining rural demand predominantly consist of weather and the amount of allocation provided. New capacity for irrigation and water share in these districts is predicted to be relatively constant, therefore demand is not a significant expenditure driver. As such, Lower Murray Water has forecast 0% annual customer growth.

2.1.3 New obligations

Lower Murray Water has stated that it will incur new costs in RP4 due to the following compliance requirements, mainly in response to the Minister for Water's 2016 Standing Directions and additional requirements:

- Victorian Protective Data Security Standards (VPDSS) – establish 18 high level mandatory requirements to protect public sector data and provide for governance across the four domains of information, personnel, ICT and physical security. This will be an additional cost of \$0.05m for RP4.
- Asset optimisation and AMAF attestation – The Asset Management Accountability Framework (AMAF) was issued in February 2016 under the Financial Management Act, Section 8 - Standing Direction 3.4.9 – 'Managing Assets' and closely aligns with the International Standard ISO55000 series for Asset Management. This is an additional cost of \$0.29m for RP4.

2.1.4 Other drivers

In addition to the above, Lower Murray Water has identified the following as drivers of increased opex:

- Increase in forecast electricity costs from increases in electricity prices
- Labour cost increases arising from an initial investment in resources to drive efficiency and improvements in business processes, energy efficiency and procurement, and asset management
- Investment in IT network security
- Generation of opportunities for diverse people to join the business including indigenous Australians (\$0.25m)
- The employment of an Energy Engineer to implement its carbon pledge (\$0.4m)

- Increase in air scouring work – 5 yearly cyclic water quality program for the Millewa pipeline network used in conjunction with new water treatment plant constructed in 2012 to provide enhanced water quality to Millewa urban and rural customers.

2.2 Operating expenditure

2.2.1 Overview

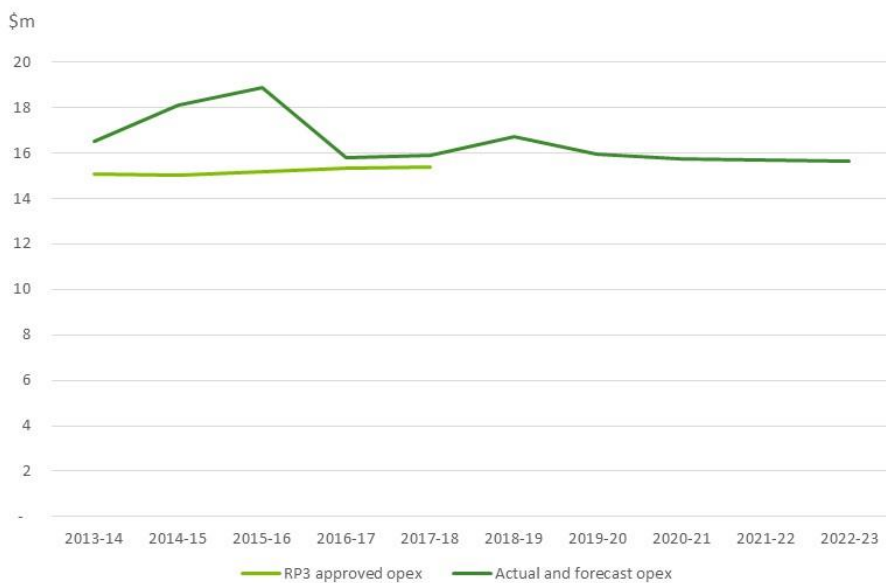
The key points or features of Lower Murray Water’s opex forecast include:

- Baseline controllable opex in 2016-17 of \$15.8m, which is more than the 2013 forecast for 2016-17 (\$15.36m)
- A 0% efficiency factor and 0% customer growth
- A forecast net increase of \$0.75m from the baseline in total over RP4.

2.2.2 Controllable opex forecast

The chart below shows Lower Murray Water’s total controllable opex across RP3 and RP4. Recorded opex during RP3 was higher than the approved levels with the exception of 2013-14. This overspend was principally due to preparation of business cases and administration associated with the Sunraysia Modernisation Project (SMP). Through RP4 forecast opex is at a relatively constant level with a small increase projected during 2018-19 due mainly to higher electricity costs.

Figure 2-1 Controllable opex – Lower Murray Water rural (\$2017-18)



2.3 Capital expenditure

2.3.1 Overview

Lower Murray Water’s proposed capex is decreasing by \$93.2m or 73.1% for the RP4 period over RP3 due to a significant reduction in irrigation expenditure with substantial completion of the Sunraysia Modernisation Project – Stage 1. Key aspects of the RP4 capex forecast include:

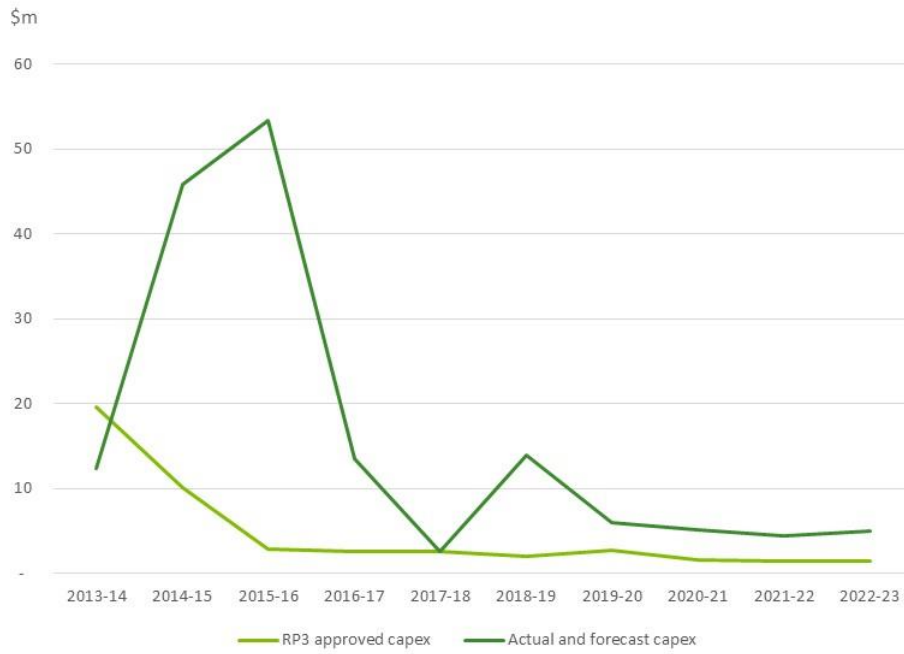
- 95.1% attributed to renewals and replacement investment. All of the top 10 major projects are listed as renewals projects
- 3.9% for investment in growth, predominantly for minor new capex
- 0.9% for other improvements and compliance.

2.3.2 Capex forecast

Lower Murray Water’s actual and forecast water and drainage capital expenditure is shown in Figure 2-2.

The key driver of capex for RP4 is renewals.

Figure 2-2 Capex forecast – Lower Murray Water rural



3 Assessment of opex

This chapter assesses Lower Murray Water’s forecast opex.

3.1 Overview of approach

With respect to opex forecasts, the ESC’s Guidance Paper outlines that a prudent and efficient opex 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 opex 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, opex 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 opex in line with customer growth are reasonable. This is a conservative assumption, and arguably generous to the water businesses, as many costs of operating water and drainage 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, the ESC expects water businesses 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 flows of expenditure from year to year, or new initiatives that customers seek and are willing to pay for.

Our task is primarily to review both the baseline expenditure and the cost increases, and then to consider these in the context of the net impact of all the above 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 that are not being 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 drainage 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 figure 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.

Figure 3-1 Example of adjustments to baseline expenditure in ESC template

	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	<u>101.0</u>	<u>98.0</u>
Growth-efficiency adjustment	-1.0	-0.5
Growth adjusted expenditure	<u>100.0</u>	<u>97.5</u>
Cost increases	4.0	0.3
Proposed expenditure	<u>104.0</u>	<u>97.8</u>
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 and energy)
- Reflecting government and regulator policies and requirements
- Considering information on current service levels, customer preferences and willingness to pay
- Reviewing individual 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 the submitted template

We note that Lower Murray Water resubmitted the original excel template to the ESC. This resulted in no material changes to proposed opex.

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.

Lower Murray Water's actual total controllable expenditure was \$19.14m in 2016-17. Lower Murray Water has made a net downward adjustment to this baseline of \$3.34m resulting in an adjusted baseline of \$15.80m. This downward adjustment is due principally to business case development (\$1.36m), administration (\$1.39m) and maintenance of outlet (\$0.46m) costs associated with the Sunraysia Modernisation Project (SMP). As construction of the SMP is complete, these costs will no longer be incurred into RP4.

In its 2013 price review, the ESC set a benchmark of \$15.36m for 2016-17 (\$2017-18). Lower Murray Water's adjusted baseline expenditure is slightly higher than this benchmark. A key reason for the increase was the organisational restructure in 2016-17 which aligned Lower Murray's labour resources with its corporate goals and objectives. Within the restructure, two new executive manager positions were created, Chief Information Officer and Executive People & Culture. There was no adjustment to the baseline as this was considered business-as-usual labour costs. The restructure is intended to enable Lower Murray Water to achieve the labour force and other efficiencies in RP4.

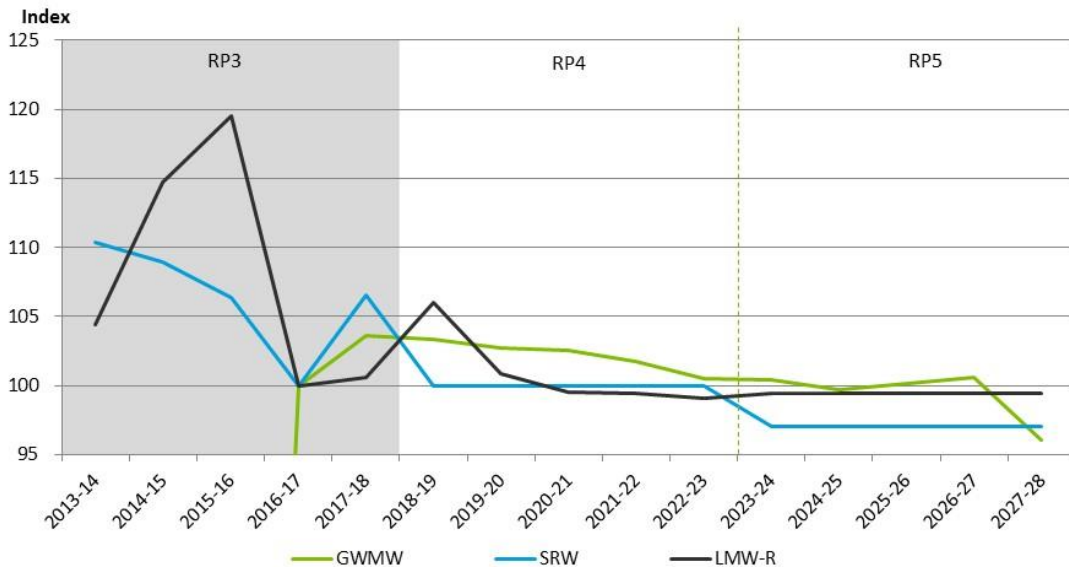
We have assessed Lower Murray Water's 2016-17 adjusted baseline and we believe that it reflects an efficient baseline and therefore consider no further adjustment is necessary.

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 3-2 below compares the three rural water businesses' change in controllable opex over RP4. This chart shows that, after an initial increase in expenditure in 2018-19, Lower Murray Water is forecasting a decline in opex for the remainder of RP4.

Figure 3-2 Change in controllable opex – index



3.5 Individual opex items

Lower Murray Water has identified a net \$0.75m increase to baseline expenditure in total for RP4. This increase is principally related to \$5.90m increased energy costs. Given all other items total a decrease of \$5.38m over the period, we have not reviewed each expenditure item in detail for Lower Murray Water. However, as per our approach for all businesses, we have assessed Lower Murray Water’s labour and energy costs. These items are set out below.

3.5.1 Labour

Lower Murray Water’s total labour costs are forecast to be \$0.35m lower in total for RP4 compared to the baseline year. Key elements of Lower Murray Water’s labour include:

- A 0.7% (real) annual increase in wages with the negotiation of an Enterprise Bargaining Agreement (EBA) from the start of RP4 (i.e. the new EBA begins 1 July 2018)
- A total reduction of 4.8 FTEs by the end of the RP4 (2022-23) for its rural business compared to 2016-17.

Lower Murray Water undertook an organisational restructure throughout 2016-17 which aligned its labour resources with its corporate goals and objectives. The restructure provided for two new executive manager positions complementing the business transformation project and which are intended to enable Lower Murray Water to achieve the labour force efficiencies for RP4.

A comparison of Lower Murray Water’s labour forecast to other urban water businesses shows that Lower Murray Water is forecasting the only net reduction in labour costs of all the water businesses for RP4. Lower Murray Water’s forecast variation represents 0.44% of its total controllable opex.

Table 3-1 Comparison of labour forecast for RP4 of the Victorian water businesses

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%

Water business	Forecast variations to baseline opex (total RP4 \$m)	Total controllable opex (total RP4 \$m)	Labour variations as a % of total controllable opex
North East	3.62	196.6	1.8%
GMMWater	2.85	161.1	1.8%
Barwon	7.90	453.3	1.7%
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%
Lower Murray – rural	-0.35	79.78	-0.4%

Given Lower Murray Water is forecasting a reduction in labour costs from the baseline, we do not recommend any adjustment to expenditure.

3.5.2 Electricity

Lower Murray Water has forecast expenditure for electricity to increase by \$5.90m in RP4 compared to the 2016-17 baseline. This is made up of price increases throughout the period, partially offset by reduced grid consumption as a result of renewable energy projects.

Overall, this increase amounts to 7.4% of total proposed controllable opex in RP4. We note that total electricity costs made up approximately 18% of controllable opex in 2016-17, the highest of all Victorian water businesses.

Some key aspects the electricity forecast are outlined below.

- Lower Murray Water’s current contract for the purchase of electricity for its regional and urban activities expires on June 30 2018 and it is in the process of finding procurement options for 2018-19 onwards
- As part of its research for the price submission, Lower Murray Water developed six electricity price scenarios. In addition to these scenarios it engaged EY to undertake retail price forecasting based on factors including its energy demand profile, forecast water demand, and contemporary electricity market conditions, the results of which was outlined in a report by EY.¹ This forecast covered both urban and rural electricity
- EY forecast wholesale electricity prices to decrease from \$76/MWh in 2018-19 to \$58 (real \$2017) by 2020-21, before steadily increasing from 2021-22 onwards, due in part to the assumed introduction of carbon pricing. Forecast retail prices for large and small sites broadly follow the same trend

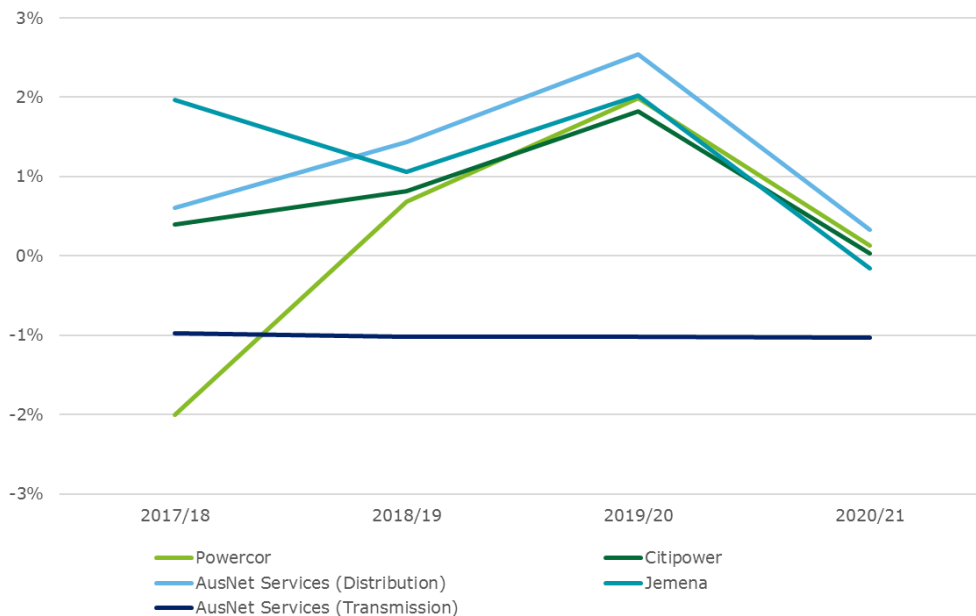
¹ EY, *Lower Murray Urban and Rural Water Authority Price Forecasts*, August 2017

- Lower Murray Water Rural has proposed to update the energy values in the price submission in March 2018 to reflect latest market conditions and knowledge
- A number of pilot solar PV installations have been planned to reduce electricity consumption and contribute towards reducing greenhouse gas emissions. This includes a total of \$1.57m of capital expenditure, all forecast to occur in 2018-19, and reduces electricity consumption by 810 MWh per annum.

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 period², 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 3-3 below.

Figure 3-3 Annual change in expected revenue (smoothed, real \$2017-18)



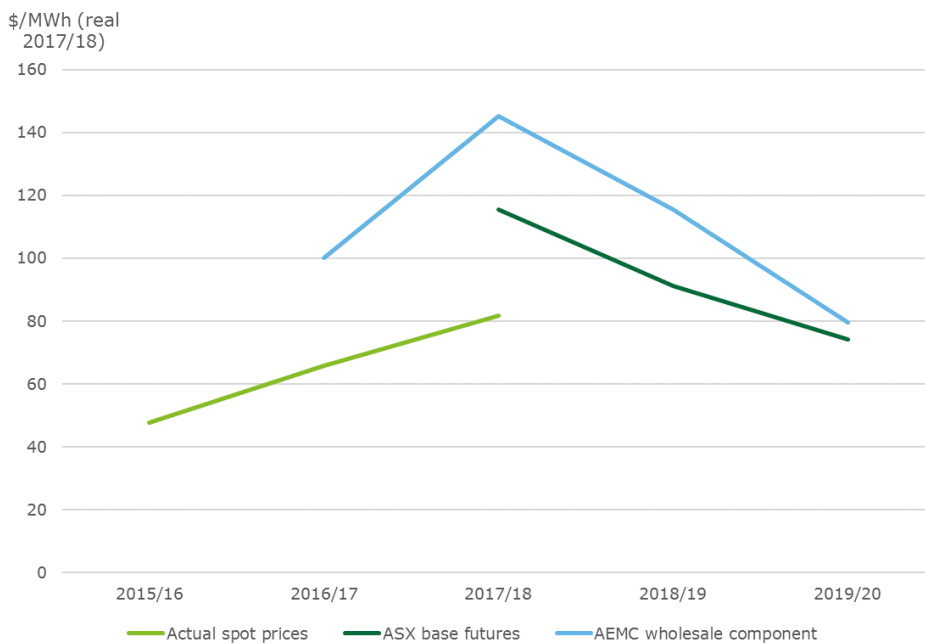
Source: Deloitte analysis of AER decisions

Overall, the revenue allowances for the network business is relatively flat, with small real increases for most of the DNSPs, and a small real decrease for AusNet Services Transmission. Lower Murray Water is in the Powercor network, which has small real revenue increases from 2018-19 onwards (less than 1% average). The change in price for particular 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.

² 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.

Wholesale prices are harder to forecast accurately, with a wide range of forecasts produced by different bodies over the past year. The Australian Energy Market Commission (AEMC) recently 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.³ It forecasts wholesale prices to peak in 2017-18, before decreasing, 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 for the remainder of 2017-18, decreasing to \$74.2 by 2019-20. These values are presented in Figure 3-4, along with actual average spot prices up to 31 December 2018.

Figure 3-4 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. A September 2017 report prepared for the Australian Energy Market Operator (AEMO) by Jacobs forecast wholesale market prices to continue to increase to a peak in 2019-20, with retail prices following a similar trajectory.⁴ 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. For 2018-19 and 2019-20, the AEMC outlook and ASX price forecast are broadly in line with price movements the EY report used by Lower Murray Water, noting that each captures wholesale prices in a different manner.

In considering Lower Murray Water’s proposal we have considered the evidence provided Lower Murray Water Rural, and recent forecasts of network and wholesale price movements. We consider that Lower Murray Water’s proposed electricity variations for 2018-19 and 2019-20 are reasonable, and our preliminary recommendation is that these be approved, subject to updated contract offers before the final decision as proposed by Lower Murray Water Rural.

In general, we do not consider there is strong evidence to support a continued electricity price increase beyond 2019-20. However, considering the efficiencies implied by Lower Murray Water Rural through its net negative variations from the baseline (excluding electricity), in our view this reflects an

³ AEMC, 18 December 2017, *Final Report 2017 Residential Electricity Price Trends*

⁴ Jacobs, 21 September 2017, *Retail electricity price history and projected trends*

efficient management of expenditure overall. Therefore, we do not recommend adjustments to Lower Murray Water’s proposal in these years. 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.

3.6 Recommended changes to forecast opex

In summary, we have not recommended any adjustments Lower Murray Water’s RP4 forecast controllable opex as per the table below.

Table 3-2 Lower Murray Water forecast controllable opex and recommended adjustments

Opex item	Actual	Price submission forecast					Total
	Baseline 2016-17	2018-19	2019-20	2020-21	2021-22	2022-23	RP4
Proposed controllable opex (\$m, original proposal)	15.80	16.75	15.94	15.73	15.71	15.65	79.78
Corrections to template	-0.06	-	-	-	-	-	-
Proposed controllable opex (\$m, revised template)	15.75	16.75	15.94	15.73	15.71	15.65	79.78
Recommended adjustments							
Labour		-	-	-	-	-	-
Electricity		-	-	-	-	-	-
Total recommended adjustments		-	-	-	-	-	-
Recommended opex		16.75	15.94	15.73	15.71	15.65	79.78

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

4 Assessment of capex

This chapter of the report sets out our assessment of Lower Murray Water’s capex proposal for RP4:

- Our approach to the assessment of capex
- An overall assessment of capital planning and asset management approach
- A summary of major projects with a significant impact on the capex 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 business’s forecast capital expenditure.

4.2 Overall assessment of capital planning and asset management

4.2.1 Previous Review of Expenditure 2012-13

Lower Murray Water’s key capital planning systems and processes were reviewed as part of the assessment of expenditure forecasts for regional urban businesses in 2012-13 for RP3. This assessment looked at high level, generic issues that might have impacted on the prudence, efficiency and deliverability of proposed expenditure. The 2012-13 review highlighted:

- The use of GIS as an asset register
- The upgrade of the Hansen Asset Management System in 2013
- Use of the Technology One Projects module for project management
- Progress in meeting the outcomes of the 2011 asset management regulatory audit including development of an asset management strategy, a comprehensive asset maintenance strategy, documented risk assessments for maintenance programs
- Need to develop a standard documented process for approval of capital works and develop a standard template document for business case type documents
- Need for better attention to project scoping and cost estimations in the planning stage to reduce cost over runs in delivered projects.

4.2.2 Improvements over 2012-13 to 2017-18

For the current review, we requested Lower Murray Water provide details on any improvements made to capital planning systems and processes since the 2012-13 review and these included:

- Application of capital planning and asset management systems developed for the Sunraysia Modernisation Project into the broader business to help deliver future capital programs
- Responding to Cardno recommendations from the review of RP3
- Work on reviewing / assessing the practice of renewals versus maintenance
- Responding to customer outcomes of minimising costs while service levels remain the same
- Development of implementation plan for compliance with Asset Management Accountability Framework (AMAF) and the principles of the ISO55000 asset management series.

4.2.3 Comments

Lower Murray Water has continued to make progress improving its capital planning systems and processes as evidenced in the incremental achievements made since the 2012-13 review process. Further work on assessing renewals versus maintenance will assist in optimising the asset maintenance and asset renewals functional areas.

4.3 Major projects

Table 4-1 provides an overview of the top ten projects (as identified by Lower Murray Water in its Price Review Template), showing the primary driver and forecast expenditure over RP4. The table also identifies the proposed capital allocations for large programs of work (defined as being over \$1m in total expenditure over the five-year regulatory period) and minor programs of work (being under \$1m in expenditure over the five-year period). The criteria for defining the major and minor programs of work were developed by Deloitte based on Lower Murray Water’s regulatory submission. The projects selected for more detailed review and commentary can be found in Section 4.4.

Table 4-1 Lower Murray Water forecast capex for Top 10 Projects

Capex item	Primary Driver	Water Plan forecast expenditure						
		2018-19	2019-20	2020-21	2021-22	2022-23	Total WP4	% of total
MER Mains Replacement (Irr) TOTAL Allocation	Renewals	0.47	0.40	0.48	0.65	0.63	2.62	16.3%
MDA Central PS Replace Manifold/Rising Main	Renewals	4.00	0.00	0.00	0.00	0.00	4.00	24.9%

Capex item	Primary Driver	Water Plan forecast expenditure						
		2018-19	2019-20	2020-21	2021-22	2022-23	Total WP4	% of total
MDA Minor IRR Pipeline Replacements	Renewals	1.35	1.35	1.30	1.10	1.00	6.10	37.9%
MILL - Millewa Replace River Pump Station	Renewals	1.25	0.00	0.00	0.00	0.00	1.25	7.8%
MILL - Millewa Upgrade to ClearSCADA	Renewals	0.00	0.30	0.30	0.00	0.00	0.60	3.7%
RC - Red Cliffs Main Pump Station Extend Suctions	Renewals	0.00	0.00	0.00	0.00	0.00	0.00	0.0%
RC - Red Cliffs Main Pump Station Upgrade to ClearSCADA	Renewals	0.20	0.00	0.00	0.00	0.00	0.20	1.2%
RC - Upgrade Tight Spurs	Renewals	0.10	0.10	0.10	0.08	0.08	0.45	2.8%
RC Mains Replacement (Irr) TOTAL Allocation	Renewals	0.05	0.11	0.13	0.08	0.22	0.59	3.6%
ROB - HPPS 100 kW Solar PV Pilot	Renewals	0.28	0.00	0.00	0.00	0.00	0.28	1.7%
Subtotal - Top 10 Projects		7.70	2.26	2.30	1.91	1.92	16.08	46.8%
Other large projects/programs		0.89	0.86	0.47	0.39	0.95	3.55	10.3%
Other minor projects/programs		5.33	2.84	2.39	2.08	2.08	14.71	42.8%
Total		13.92	5.95	5.15	4.37	4.94	34.34	
Top 10 proportion of annual expenditure		55.3%	38.0%	44.6%	43.5%	38.8%	46.8%	

4.4 Renewals expenditure

Renewals make up \$32.7m or over 95% of the capital expenditure program for the rural water service provided by Lower Murray Water. The renewals program is made up of the following major projects:

- Minor IRR Pipeline Replacements (\$6.1m) – our selected major project
- Central PS Replace Manifold / Rising Main (\$4.0m) – our selected major project
- Mains replacement (Irr) TOTAL Allocation (\$2.6m)
- Other minor renewals programs / projects for water, sewer and corporate (\$5.1m) asset categories (\$14.9m balance).

Pipeline related replacements and renewals are covered under a single business case (Pipeline Renewals) which is also common to urban pipeline renewals. The total rural asset allocation covered by the business case is over \$9.3m.

Lower Murray Water's focus on asset optimisation is looking to improve efficiency by targeting renewals programs to higher risk 'critical' assets and optimising preventative maintenance and condition based inspections.

The current irrigation network is aging and service performance is deteriorating as evidenced by increasing bursts and leaks. This level of service performance has led to Lower Murray Water's strategy to implement a major irrigation pipeline replacement or renewal program, an approach which

is fully supported by customers. A detailed analysis was undertaken to justify the substantial new investment on the basis of the asset’s criticality and/or service performance.

This investment in rural pipeline renewals is expected to generate savings in the current reactive maintenance program of around \$0.8m over the next regulatory period.

4.4.1 Analysis

The proposed investment in renewals for rural assets is a new program for Lower Murray Water however it has been investigated with costs and benefits assessed and it has also been submitted through the customer engagement process, with the outcome being a strong level of support for the program.

The selected major projects are covered by the overall business case.

The completion of major irrigation modernisation projects over recent regulatory periods has meant the focus of expenditure is on replacement and modernisation of rural assets. This proposed renewals program has shifted the focus to ongoing preventative maintenance with the intention to reduce reactive maintenance costs and optimise the spend on the system.

4.4.2 Recommendation

The proposed renewals program, while a new addition to the capital program, has been investigated and assessed and we have no recommendations for adjustments.

4.5 Summary of recommendations

We have reviewed Lower Murray Water’s proposed capital program for rural assets and assessed a number of projects in more detail. We have found no reason for adjustments to the proposed expenditure.

Table 4-2 Lower Murray Water forecast capex

Capex item		RP4 forecast					Total WP4
		2018-19	2019-20	2020-21	2021-22	2022-23	
Renewals (Water and Sewer Mains + Other)	Proposed	7.94	4.30	3.60	3.02	3.69	22.56
	Recommended	7.94	4.30	3.60	3.02	3.69	22.56
	Net change	0.00	0.00	0.00	0.00	0.00	0.00
MDA Central PS Replace Manifold/Rising Main	Proposed	4.00	0.00	0.00	0.00	0.00	4.00
	Recommended	4.00	0.00	0.00	0.00	0.00	4.00
	Net change	0.00	0.00	0.00	0.00	0.00	0.00
MDA Minor IRR Pipeline Replacements	Proposed	1.35	1.35	1.30	1.10	1.00	6.10
	Recommended	1.35	1.35	1.30	1.10	1.00	6.10
	Net change	0.00	0.00	0.00	0.00	0.00	0.00
Other capital expenditure	Proposed	0.63	0.30	0.25	0.25	0.25	1.67
	Recommended	0.63	0.30	0.25	0.25	0.25	1.67
	Net change	0.00	0.00	0.00	0.00	0.00	0.00

Capex item	RP4 forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	Total WP4
Total proposed	13.92	5.95	5.15	4.37	4.94	34.34
Recommended capital expenditure	13.92	5.95	5.15	4.37	4.94	34.34
Recommended adjustments from proposed	0.00	0.00	0.00	0.00	0.00	0.00

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