

# Executive Summary

## SA Water Regulatory Business Proposal 2013



## Context

SA Water is part of the fabric of the South Australian community, operating extensive networks developed over more than 156 years to provide water and sewerage services to the majority of the population.

Wholly government owned, SA Water manages assets spanning the full water and sewerage supply chain – from catchments, dams, reservoirs and bores, to individual connections and meters at customer properties. It is one of three vertically integrated water utilities in Australia to cover an entire state or territory and, of these, only SA Water and Water Corporation in Western Australia have a significant geographic spread.

While most of its customers are Adelaide householders, SA Water – unlike many other Australian water utilities – caters for the needs of all sectors of the community across metropolitan, regional and rural areas. This includes more than 150,000 people in country South Australia who rely on the River Murray as their sole source of drinking water.

As the population served by SA Water has grown, its water and sewerage networks have expanded accordingly, to reach customers in new growth areas and to cater for urban infill development.

The vast spread of SA Water's networks – which include 26,500km of water mains – and the dispersed nature of its customer base are just two of many significant operational challenges for SA Water. Other challenges that impose costs on SA Water's operations that, in many cases, are materially greater than those faced by other water utilities include:

- The disparate quality of raw water – including water drawn from the highly variable River Murray, reservoirs in the Mount Lofty Ranges and elsewhere in the State, and aquifers that serve from as few as 50 customers, to as many as 25,000;

- Highly variable climate – from hot, dry summers that lead to high peaks in demand at times of low rainfall, to generally mild, damp winters;
- Significant variances in yield from rainfall-dependent water sources; and
- Low storage capacity – the metropolitan reservoirs hold approximately one year's supply compared to several years' supply in other states.

Despite these challenges, SA Water is recognised as a global leader in water management and supply. In April 2012, SA Water was named Public Water Agency of the Year at the Global Water Awards in Rome.<sup>1</sup>

For many years, SA Water enjoyed a high degree of water security as it could draw on two major sources – the River Murray and the Mount Lofty Ranges catchments – to supply the majority of its customers. However, the prolonged and serious nature of the recent drought in both of these catchments – unprecedented in a recorded history extending beyond 100 years – required a fundamental shift in water security planning for the State, and resulted in construction of the Adelaide Desalination Plant as a rainfall-independent water source for Adelaide, along with other water security infrastructure.

These investments have come at a cost, and it has been necessary to increase water prices to ensure SA Water can continue to deliver high quality, reliable services to the community and recover the cost of these works.

In the meantime, water restrictions, recent price increases, changes in housing stock, a concerted effort to support customers in modifying their water usage, and growing community awareness about the vulnerability of the River Murray have impacted water consumption across all of SA Water's customer segments, with sales declining from 222GL in 2006–07, to 184GL in

<sup>1</sup> Global Water Intelligence, <http://www.globalwaterintel.com/archive/13/5/general/new-conquest-rome.html>.

2011–12 (a 17% reduction)<sup>2</sup>. Declining water sales have affected revenue generation, and added to the overall pressure on prices for customers.

Along with the need to invest in water security infrastructure and support the growth and development of the State, more stringent water quality and environmental requirements have emerged in recent years, requiring SA Water to further enhance its water and wastewater treatment facilities and networks. SA Water's capital and operating expenditure proposals, in part, address these continuing challenges.

SA Water's Strategic Plan aims to ensure it remains a resilient and high performing business in a water industry that is undergoing significant legislative and regulatory change. The Plan – like this Proposal – balances the delivery of safe, reliable and efficient services to SA Water's customers in a highly diverse and demanding environment, while delivering an appropriate commercial return to the South Australian Government on behalf of the people of South Australia.

## Regulatory environment

In 2009, the South Australian Government released *Water for Good* and detailed its intent to introduce economic regulation of the water industry. Formalised through the *Water Industry Act 2012*, this reform and the appointment of ESCOSA as the independent economic regulator is welcomed by SA Water.

In 2013, ESCOSA will make its first revenue determination for SA Water, setting maximum allowed revenues for drinking water and sewerage retail services for the period 1 July 2013 to 30 June 2016.

As an essential service provider, SA Water sees clear alignment between its objectives and those of ESCOSA in terms of ensuring the efficient

delivery of services that are reliable, and of an appropriate quality.

This first Proposal to ESCOSA deals with expenditure and service standards relating to SA Water's direct control services – defined as retail services that include the supply, delivery and sale of water and supply of sewerage services. The information contained within this Proposal will assist ESCOSA in assessing the revenue required for SA Water to deliver water and sewerage services at an appropriate level of quality and reliability for customers and the South Australian community.

While this Proposal covers a three year regulatory period, it is expected that subsequent submissions will cover four-year periods. SA Water will participate in various reviews to be led by ESCOSA and finalised prior to commencement of the subsequent regulatory period, and will undertake rigorous engagement programs, research and benchmarking to ensure future Proposals continue to reflect customer and stakeholder expectations.

For this Proposal, SA Water has drawn on past research and feedback from the community and its customers, benchmarked itself against peers, and validated and enhanced the information contained within the Proposal through external independent advisers.

SA Water considers this Proposal:

- Appropriately takes into account the views of its customers, owner and other stakeholders, and aligns with their expectations; and
- Provides sufficient, transparent and robust information to assist ESCOSA in making its revenue determination.

## Service outcomes for customers

Through customer research and dialogue with its Customer Council, SA Water has clearly identified that the most important areas of service delivery to its customers are:

- Providing safe and healthy drinking water;
- Maintaining water and sewerage infrastructure; and
- Responding quickly if something goes wrong.

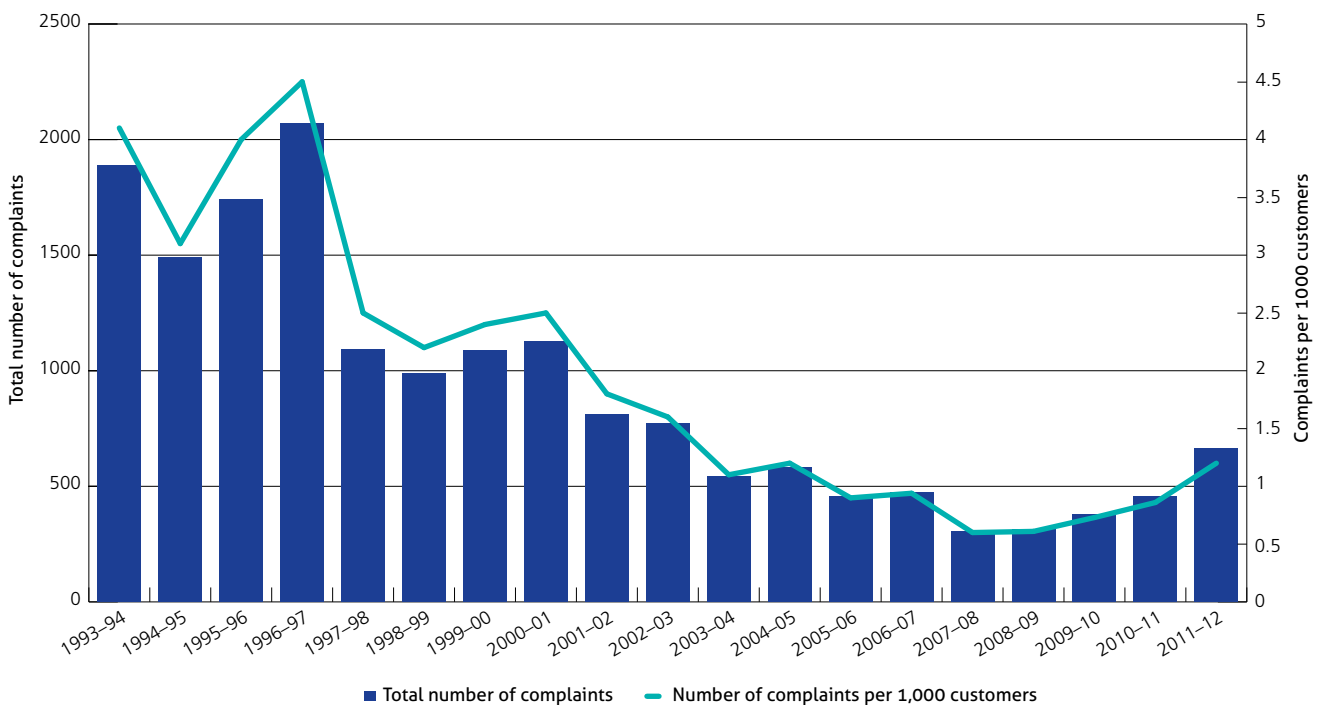
SA Water’s service commitments to its customers will be formalised in a new Customer Charter that will include a range of service standards and performance targets – agreed by ESCOSA – in relation to areas such as:

- Water infrastructure reliability – duration of unplanned interruptions and water loss from the system;
- Sewerage infrastructure reliability – average sewerage interruption;
- Response time for attending to water breaks, bursts and leaks, and sewer overflows;
- Time taken to restore water supply or sewerage services after such events; and
- Response times for customers calls and complaints (including drinking water quality complaints).

For many of these service areas SA Water has a strong track record of safety, reliability and responsiveness, despite numerous significant challenges inherent in its operating environment.

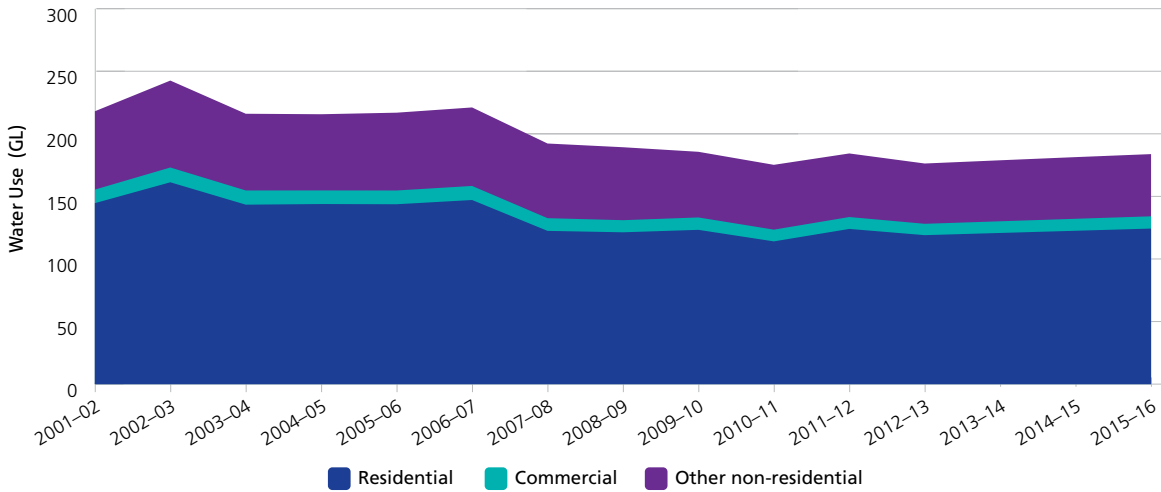
There is no better illustration of this than SA Water’s drinking water quality performance. Treatment plant upgrades along with improvements to processes for monitoring, testing and treating drinking water, have led to a dramatic decrease in complaints from customers since the mid-1990s, as shown in Figure A. Although challenges relating to the flushing of accumulated soil, salt and organics into river systems since 2009 (following the recent drought) have led to a marginal increase in water quality complaints, SA Water’s excellence in this area has been internationally recognised – with a dramatic step-change improvement achieved within just one generation.

**Figure A: Drinking water quality complaints per 1000 customers (metropolitan area)<sup>3</sup>**



3 SA Water operational data.

**Figure B: Actual and forecast water use (2001–02 to 2015–16)<sup>4</sup>**



Although SA Water has a strong record of achieving its performance targets relating to attendance at water main breaks and restoring supply following water outages, it is acutely aware of the community’s sensitivity to water loss from its systems. It is also alert to the fact that the age and condition of some infrastructure, combined with adverse local conditions such as reactive soils, can lead to performance outcomes for some customers that need to be improved. SA Water’s mains replacement program aims to prevent any increase in the annual failure rate, and to address localised issues as they arise.

In delivering appropriate levels of service to customers, SA Water is sensitive to the fact that customers are feeling the impact of a rise in the cost of many household living expenses – including water prices.

Supporting customers who face financial difficulties has become an emerging concern for SA Water. With the introduction in 2007 of its Customer Assist Program and Hardship Policy, SA Water provides residential customers experiencing hardship with a number of assistance options. Since its introduction, the number of customers participating in this program has increased, from 425 in 2007–08 to 1,691 in 2011–12.

SA Water will continue to balance service delivery performance and affordability, and to improve its delivery of services to customers in line with their expectations and the standards applied by ESCOSA and other regulators.

## Demand for water and sewerage services

### Direct control water services

Demand for water has fallen significantly in recent years across all customer sectors. For much of the past decade SA Water has played a significant role in encouraging its customers to use water wisely and, as expected, there has not been a full “bounce back” in water use with the easing of water restrictions.

In the forthcoming regulatory control period there will not be a return to the levels of consumption experienced prior to the recent drought.

Demand forecasting has become a more complex process in recent years. Previously, forecasts of water use were generally based on long-term climate trends and adjusted to account for growth in customer numbers. However, more sophisticated modelling has been required to take into account

<sup>4</sup> ACIL Tasman, SA Water’s demand forecasting, July 2012, Chapter 7.

possible demand fluctuations relating to the price of water, and SA Water has engaged independent specialists to support the development of forecasting models for this Proposal<sup>5</sup>.

These models show that the key drivers of water use for each customer segment are:

- **Residential:** population growth, price, temperature, restrictions on use;
- **Commercial:** economic activity, price, temperature, restrictions on use; and
- **Other non-residential:** economic activity, price, temperature, restrictions on use.

The demand forecast detailed within this Proposal indicates only moderate increases in water use across all customer sectors during the forthcoming regulatory period, (refer Figure B). The price elasticity of demand for water, combined with other factors, is expected to suppress growth in water use through to 2015–16 with increases of about 4.3% (7.5GL) forecast for total water use for the period.<sup>6</sup>

### Direct control sewerage services

Forecasting the demand for sewerage services takes into account, on a catchment-by-catchment basis:

- Historic flows into networks;
- Metered flows within networks;
- Connections to the system;
- Proposed residential and industrial developments in catchments areas; and
- Forecasts for water demand.

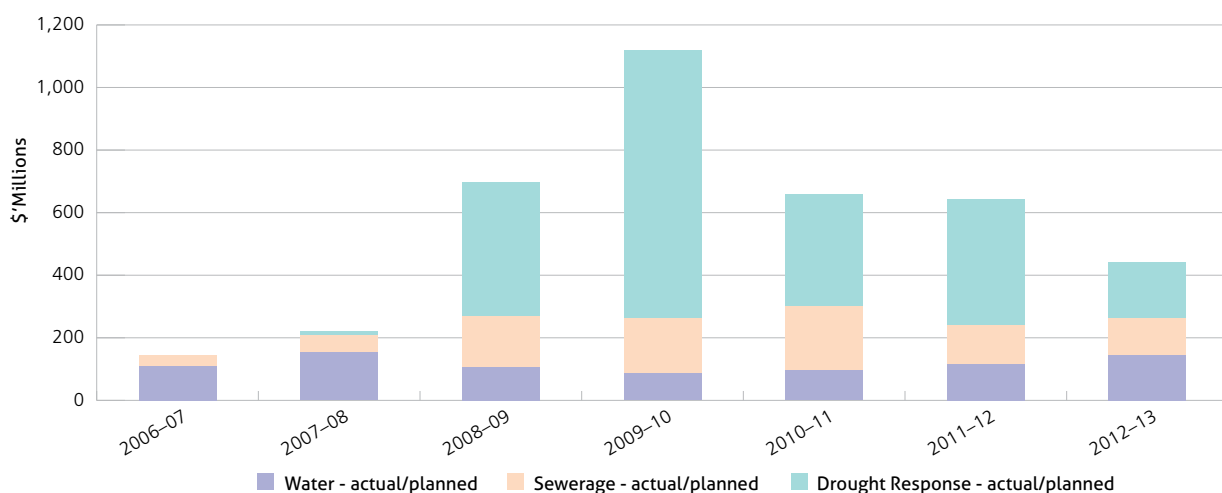
The forecast for each catchment considers both the volume of wastewater and its quality, and has been relied upon to inform the capital works program and operating expenditure forecast detailed within this Proposal.

At an aggregate State-wide level, SA Water's wastewater treatment plants are expected to receive only marginally increased volumes of sewage during the forthcoming regulatory period. Despite this, the generally disconnected nature of the networks means that a number of catchments will receive sewage volumes and quality that vary significantly compared to the State-wide aggregate.

## Proposed capital expenditure

SA Water's capital expenditure in recent years has been dominated by significant investment in projects to secure water supplies for the State's

**Figure C: SA Water's capital expenditure for direct control services leading into the regulatory period (nominal \$'M to 2011–12; real, March 2012 \$'M in 2012–13 excluding real cost escalation)**



<sup>5</sup> ACIL Tasman, SA Water's demand forecasting, July 2012.

<sup>6</sup> ACIL Tasman, SA Water's demand forecasting, July 2012, Chapter 7.

future. The scale of these drought response initiatives – which include construction of the Adelaide Desalination Project (approximately \$1.8 billion) and North South Interconnection System (approximately \$0.4 billion) – is unprecedented in SA Water’s history.

Figure C shows the significant increase in SA Water’s capital expenditure for the seven years leading into the forthcoming regulatory period, and highlights the extent to which this has been dominated by the investment in drought response initiatives.

Benchmarking of SA Water’s capital expenditure relative to its peers within the Australian water industry demonstrates prudence and efficiency. This benchmarking also highlights the fact that effective comparison of recent capital expenditure between Australian water utilities is difficult due to differences in the investments in desalination plants.

In determining the prudent and efficient level of capital expenditure for the forthcoming regulatory control period, SA Water has undertaken detailed risk assessment and review of every capital program, and the individual projects within those programs. The expenditure proposed represents the minimum

which SA Water considers necessary to remain within acceptable levels of risk. The proposed total capital expenditure is shown in Figure D.

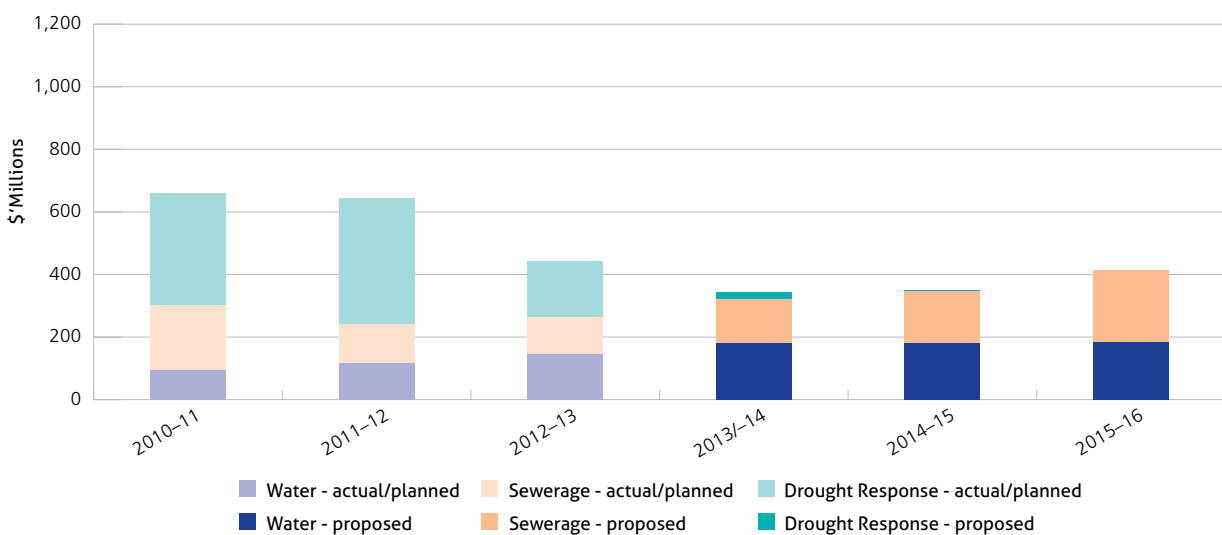
**Direct control water services**

In relation to direct control water services, SA Water proposes to:

- Finalise delivery of drought response initiatives (with approximately \$21 million proposed in 2013–14 and \$2 million in 2014–15 to complete this program of works);
- Allocate approximately \$291 million to address asset renewal requirements;
- Invest approximately \$150 million to comply with various external obligations (largely relating to safety and water quality management); and
- Allocate \$56 million to cater for system growth (with the bulk of this investment required to upgrade or extend pipe networks).

The capital expenditure proposed for the forthcoming regulatory control period includes significant projects that were deferred during the recent period of extraordinary investment in drought response initiatives, and which are essential to ensure the ongoing reliability of the

**Figure D: SA Water’s proposed capital expenditure for direct control services (nominal \$’M to 2011–12; real, March 2012 \$’M from 2012–13 excluding real cost escalation)**



services delivered to customers. This includes approximately \$119 million worth of investment in renewal of pipe networks, with the largest sum relating to renewal of the century-old water main beneath Marion Road (which has recorded 29 failures since 2007).

The investment to comply with external obligations includes approximately \$75 million for a major upgrade of the Kangaroo Creek dam to meet guidelines for flood capacity, and approximately \$10 million for refurbishment of the filters and process control improvements at metropolitan water treatment plants to meet performance targets agreed with SA Health for the management of *Cryptosporidium*.

The bulk of system growth in the water supply network is forecast to occur in areas such as Roseworthy, Murray Bridge, Mount Barker and Kangaroo Island – where infrastructure extensions and upgrades are required to accommodate new developments. The two key projects driven by system growth in the forthcoming regulatory control period relate to a water supply scheme for Mount Barker (approximately \$32 million), and an upgrade to the water supply at Kingscote on Kangaroo Island (approximately \$9 million).

### Direct control sewerage services

In relation to direct control sewerage services, SA Water proposes to:

- Allocate approximately \$224 million to address asset renewal requirements;
- Invest approximately \$207 million to cater for system growth (primarily addressing capacity issues at selected wastewater treatment plants); and
- Allocate approximately \$67 million for compliance with external obligations (largely relating to environmental and safety obligations).

Sewerage infrastructure is exposed to a highly aggressive environment due to build-up of corrosive gases, requiring intensive asset management and renewal. The expenditure proposed for renewal of these assets relates to the mechanical and electrical aspects of the network (approximately \$89 million), and structural works (approximately \$65 million). The proposed structural works include a major project to rehabilitate the primary treatment structure at the Bolivar wastewater treatment plant. Additionally, approximately \$31 million is proposed for renewal of wastewater pipe networks.

The capital expenditure proposed in relation to system growth primarily relates to selected wastewater treatment plants – specifically at Murray Bridge and Aldinga. The Murray Bridge plant was commissioned in 1970 and has been considerably overloaded in recent years. Additionally, this plant is located on a flood plain adjacent to the River Murray, and residential developments have encroached within very close proximity of the plant. SA Water proposes to invest approximately \$107 million in relation to this plant during the regulatory period, with further investment planned for the subsequent period.

SA Water's wastewater networks and treatment plants may lead to environmental harm if not managed and operated prudently. All of SA Water's wastewater treatment plants require licences issued by the Environment Protection Authority (EPA), and there are significant obligations and conditions arising from these. SA Water has allocated approximately \$40 million during the forthcoming regulatory control period to comply with such environmental obligations, including approximately \$14 million in relation to an overflow abatement program. This program is required by the Code of Practice for Wastewater Overflow Management published by the EPA.



## Proposed operating expenditure

SA Water’s operating expenditure in recent years has been significantly impacted by the most severe drought in recorded history. Specifically, SA Water incurred additional operating expenditure in relation to:

- Enforcement of water restrictions and related community information programs;
- Processing and payment of rebates;
- A range of works to address low flows in the River Murray and secure water for critical human needs; and
- Additional pumping from the River Murray to supplement metropolitan reservoirs.

Going forward, the extraordinary capital investment made in response to the drought will further impact SA Water’s operating expenditure. The ADP began producing water in 2011, and will undergo a significant proving regime commencing in 2013 – the cost of which will result in a step-change increase to SA Water’s operating expenditure. Significant operating expenditure associated with the ADP will also be required on an ongoing basis, beyond the ADP’s two year proving period.

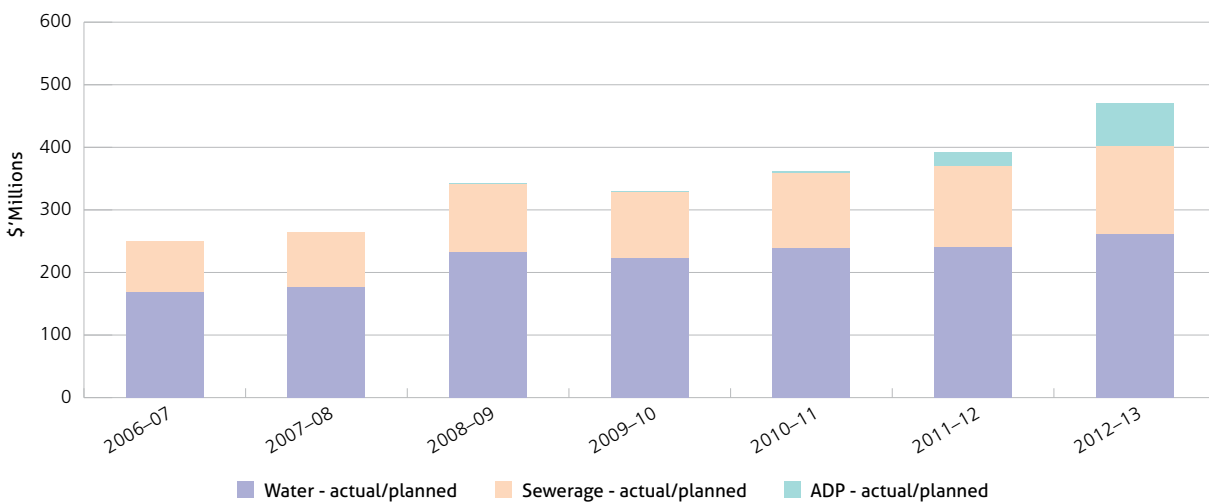
Figure E shows SA Water’s operating expenditure for the seven years leading into the forthcoming regulatory period and highlights the:

- Pronounced impact of the recent drought during 2008–09; and
- Step-change in operating expenditure associated with operation and maintenance of the ADP.

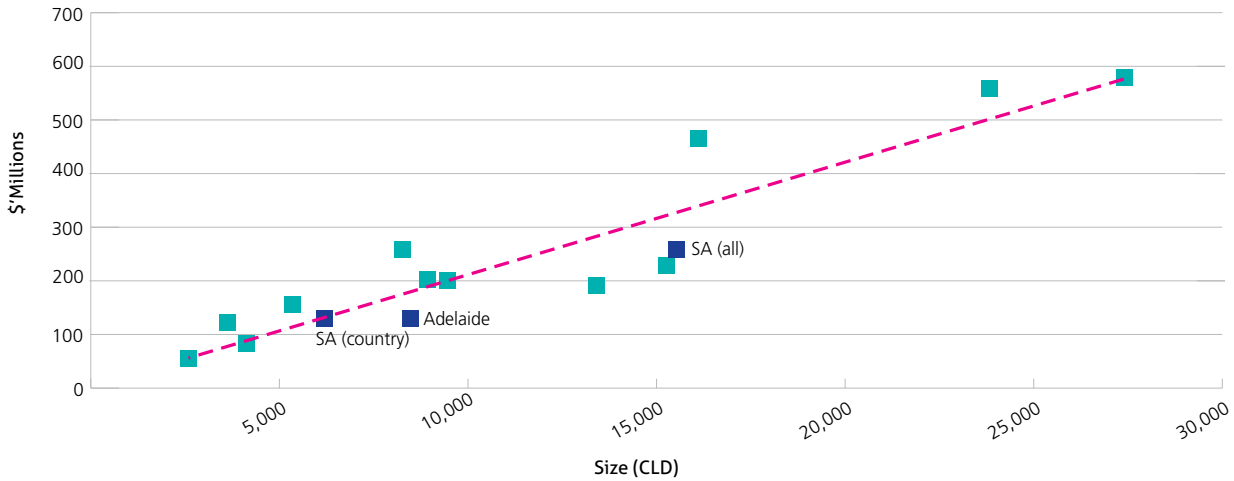
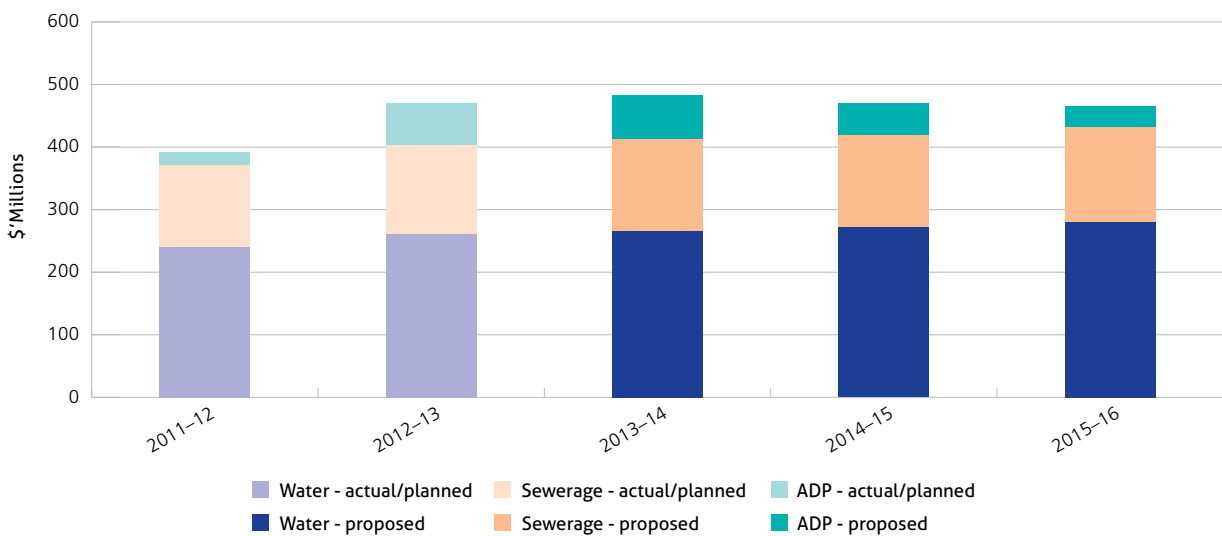
In benchmarking the efficiency of its operating expenditure, SA Water has considered three distinct benchmarking methods – each of which shows that SA Water compares favourably with its peers in the Australian water sector. These favourable outcomes have been achieved despite significant challenges inherent in SA Water’s operating environment that, in many cases, lead to materially higher operating costs than those incurred by other Australian water utilities.

Figure F graphically depicts the outcome of one of the three benchmarking methods, and shows that when SA Water’s operating expenditure is benchmarked relative to its size (based on a composite size variable<sup>7</sup>), SA Water’s operating expenditure for 2010–11 is more efficient than the average of Australian water utilities (indicated by the dotted line on the chart).

**Figure E: SA Water’s operating expenditure for direct control services leading into the regulatory period (nominal \$’M to 2011–12; real, March 2012 \$’M in 2012–13 excluding real cost escalation)**



7 The composite size variable is denoted as “CLD”, and comprises a measure of the number of customers, length of network, and demand from customers.

**Figure F: Comparative analysis of SA Water's operating expenditure and size****Figure G: SA Water's proposed operating expenditure for direct control services (nominal \$'M to 2011–12; real, March 2012 \$'M from 2012–13)**

In forecasting the expenditure that will be required during the forthcoming regulatory control period, SA Water and ESCOSA have agreed to apply a “base year” approach. SA Water has nominated 2011–12 as the base year as the expenditures are the most recent, and therefore best relate to the prudent and efficient operating expenditure expected to be incurred for the forthcoming regulatory period. The proposed total operating expenditure through to 2015–16 is shown in Figure G.

The key drivers of change to SA Water's operating expenditure during this period will be:

- The operation and maintenance of new assets, including the ADP;
- Externally imposed obligations, including operating expenditure associated with the carbon pricing mechanism and the new legislative and regulatory framework applicable to SA Water;
- Enhanced asset condition monitoring methods; and
- Rising energy prices.

Despite these significant cost pressures, SA Water is proposing:

- Operating expenditure associated with delivery of direct control water services that declines from a peak of approximately \$484 million in 2013–14, to approximately \$466 million in 2015–16; and
- A relatively flat profile of operating expenditure for delivery of direct control sewerage services through to 2015–16.

ESCOSA, through its Guidance Paper<sup>8</sup>, has specified that costs associated with the ADP be reported separately to other direct control water services.

SA Water has complied with this requirement, and commissioned expert consultants Sinclair Knight Mertz (SKM) to review:

- The plan developed by SA Water for proving of the ADP; and
- The prudence and efficiency of SA Water's forecast of the operating expenditure associated with the ADP.

Through its review, SKM concludes that SA Water's forecasts of the operating expenditure associated with the ADP are reasonable for an asset of this type, and that it is prudent for SA Water to:

- Perform the various tests it intends to perform during the proving period, as these will satisfy requirements within contractual documents; and
- Operate the ADP for at least 12 of the 24 months of the proving period to comply with monitoring requirements associated with the EPA licence for the ADP.

SKM also note that there would be risks associated with a move to achieve the requirements of the proving period in a shorter timeframe than the 24 months proposed.

## Uncertainty in a regulatory context

Like any regulated entity, SA Water faces the possibility that costs forecast at the time of submitting a regulatory proposal will need to change materially due to circumstances beyond its control, or because it was not possible to estimate these costs accurately in advance. Furthermore, events that were not foreseeable at the time of submission may arise that have material cost implications.

Such uncertainties in a regulatory context are typically dealt with via a "pass through mechanism", thereby removing the risk associated with estimating their timing and financial impact, and the need to include costs associated with such events within this Proposal. This has a beneficial impact to customers in terms of prices, and enables SA Water to be compensated for the efficient cost associated with such events at an appropriate time.

In nominating the pass through events which it considers appropriate for the forthcoming regulatory period, SA Water has been guided by the pass through events previously applied by ESCOSA in its regulation of other utilities. SA Water proposes pass through events to address changes in its costs associated with:

- Taxes;
- Service standards;
- Other regulatory changes;
- Extraordinary events;
- Delivery of unforeseeable or unquantifiable major projects;
- The operating mode of the ADP; and
- Management of its water licences.

In addition to uncertainties concerning the nominated pass through events, forecasting demand for water during the forthcoming regulatory period involves making a key assumption with respect to prevailing weather conditions. The forecast detailed within this Proposal assumes that weather conditions consistent with the long-term average will prevail through to 2015–16, with analysis indicating that actual demand may vary by as much as 7% from one year to the next due to the weather.

Accordingly, SA Water has proposed an adjustment mechanism within the form of revenue control applicable to its water service which allows for its maximum allowable revenue to be amended by the marginal change in efficient operating expenditure associated with changes in demand. In this way, customers only pay for the efficient cost to supply actual demand. Where actual demand for water is less than forecast, customers will retain the benefit of the lower expenditure incurred by SA Water via reductions in allowable revenue.

## Implementation of the regulatory determination

Prices for the provision of SA Water's direct control water and sewerage services can be set only once ESCOSA has determined the maximum allowable revenue in relation to these services. ESCOSA has nominated 17 May 2013 as the date for release of its final determination, with new prices based on this determination to be made effective from 1 July 2013.

ESCOSA's final determination is also dependent on the release of a second Pricing Order to be issued by the Treasurer, which will specify the initial Regulated Asset Base values to be applied by ESCOSA.

While recognising the compressed timeframe to develop prices following release of ESCOSA's final determination, SA Water will use its best endeavours to release prices for 2013–14 in June 2013.