

# SYDNEY DESALINATION PLANT



## **CUSTOMER OVERVIEW** OF THE SDP REGULATORY PROPOSAL TO IPART

Review of prices for Sydney Desalination Plant Pty Ltd

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Customer Overview of the SDP regulatory proposal to IPART

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# INTRODUCTION

As an integral part of the Sydney water system, the Sydney Desalination Plant (SDP) helps to ensure that our city always has sufficient water to meet the needs of residential and commercial customers, even in times of drought and as our city continues to grow.

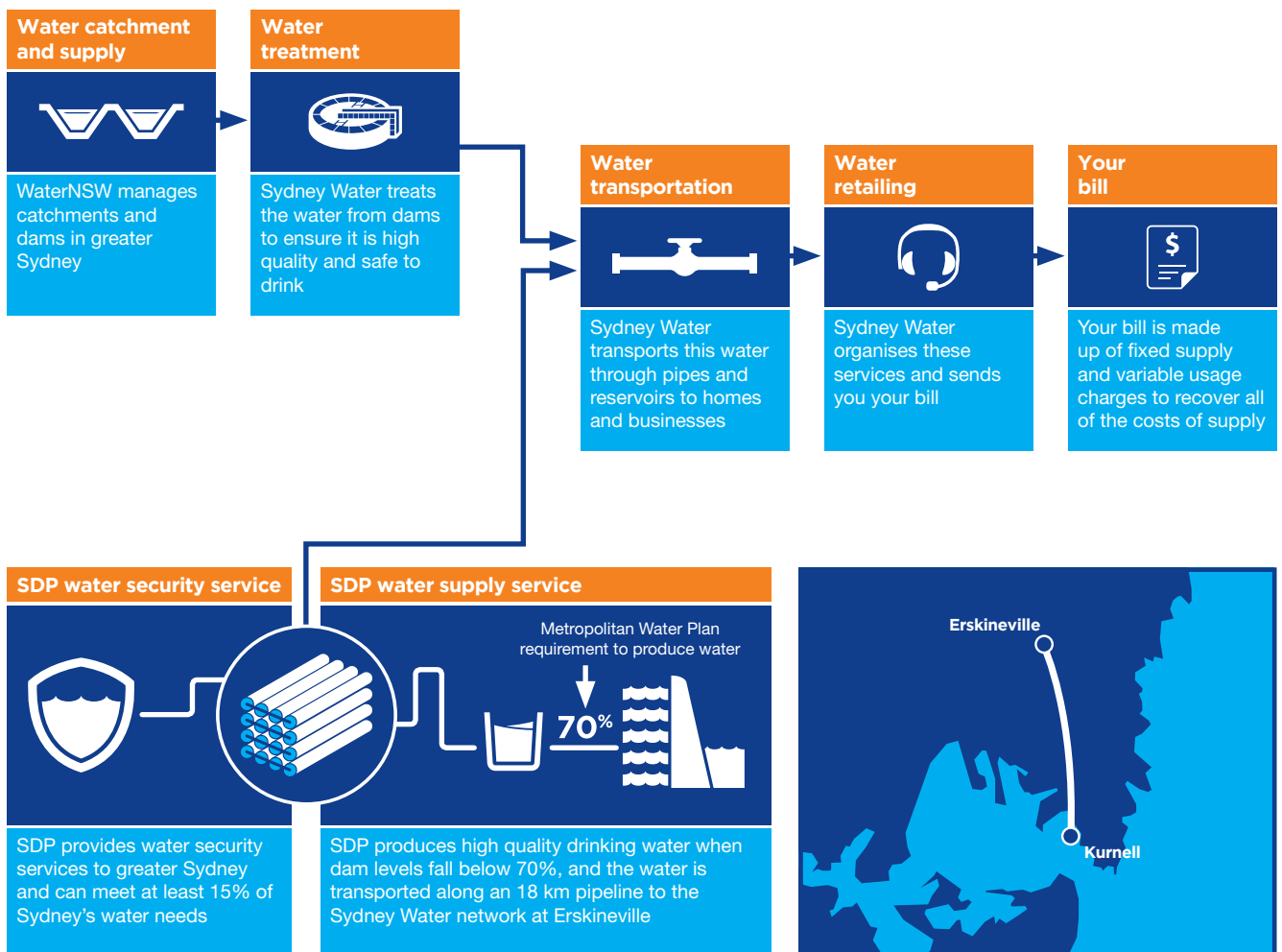
This proposal sets out our services, forecast costs and prices for the period 1 July 2017 to 30 June 2022 (2017-22 period).

Overall, we propose to lower the revenue required for us to remain in water security mode over the 2017-22 period by 20.9% per customer per year compared to the 2012-17 period (excluding inflation). This will deliver savings for households and businesses of around \$23 per year (excluding inflation).

Even without climate change, Sydney's weather has always varied from year to year, which means we need a range of diverse options – including water supply sources and water efficiency measures – to ensure Sydney always has sufficient water to meet its needs. Every mainland state in Australia has recognised the need to establish non-rainfall dependent water sources as an insurance policy against drought and to provide for future population growth.

We play a key role in securing Sydney's water supply to help ensure that you will have sufficient high quality drinking water during drought or other water scarcity conditions. We also assist in supporting Sydney's water needs as its population grows and in protecting Sydney river health [Figure 1].

**Figure 1: The SDP plays a key role in ensuring Sydney always has sufficient water to meet its needs**



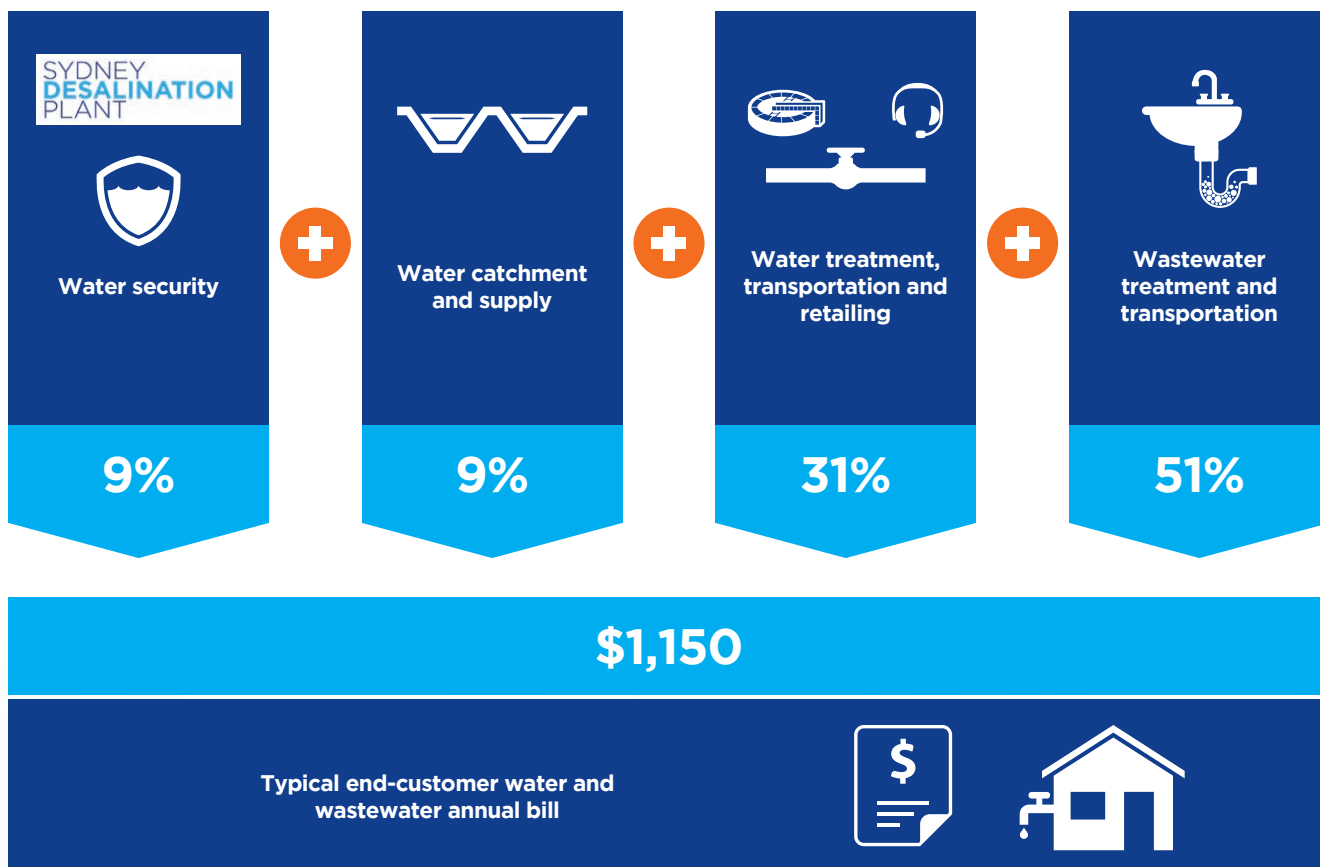
To do this, we must operate and maintain the SDP so it can cope with extreme fluctuations in operation – including operating at full production to produce drinking water if Sydney’s dam levels fall below 70% (or if there is a major Sydney Water supply outage), or moving into shutdown mode when Sydney’s dams hold sufficient water to meet Sydney’s needs.

Like all businesses, we need to recover the costs of providing our services from the customers who use them. We do this through charges, which we levy on Sydney Water. These charges form part of the costs that Sydney Water incurs in providing water to you, and ultimately they form part of your water bill. Currently, our charges typically make up 9% of your combined water and wastewater bill [Figure 2].

In developing this proposal, we engaged with Sydney Water and other stakeholders to better understand their priorities and preferences for this period and beyond – including the role they expect the SDP to play in meeting Sydney’s water needs. We also analysed the changes occurring in our policy, regulatory and commercial operating environments and their implications for us and our customers, including Sydney Water and end-use water customers.

This document provides an overview of our proposed services, forecast costs and prices over the 2017-22 period and what it means for you. It also explains why and how we developed this proposal. Our detailed proposal can be found on the IPART website: [www.ipart.nsw.gov.au](http://www.ipart.nsw.gov.au).

**Figure 2: Our water security charges make up 9% of a typical residential customers’ water and wastewater annual bill**



Note: Calculated by dividing the notional revenue requirement by forecast number of water end-customers; assumes a water and wastewater bill of a typical residential end-customer (consuming 232kL per year).



## ABOUT THE SDP

The NSW Government established the SDP at Kurnell in response to a severe drought across the Sydney basin, which saw Sydney's dam levels fall below 34% in 2007 [Figure 3].

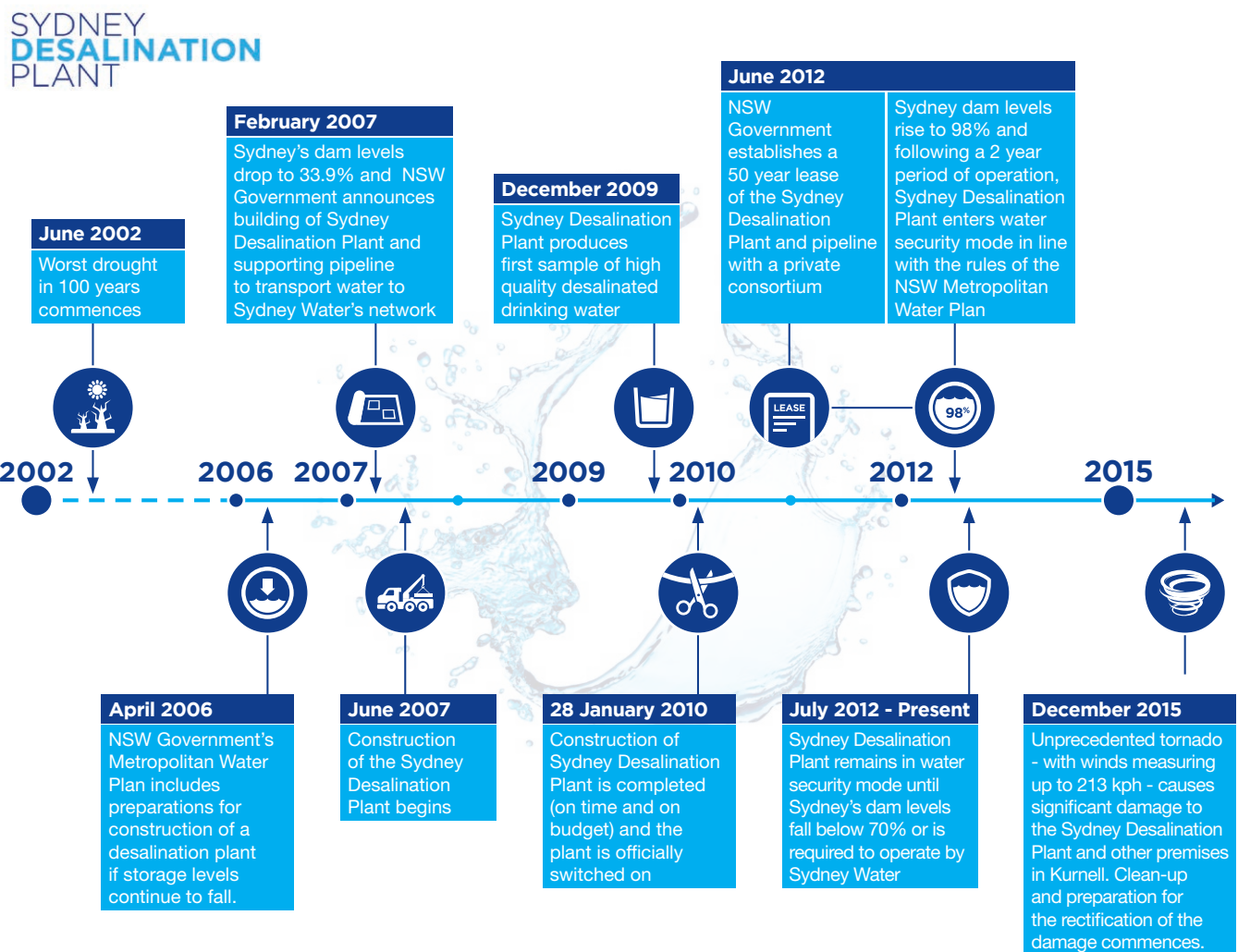
Construction of the SDP took three years from 2007-2010, with the first high quality drinking water delivered to Sydney in February 2010. The SDP then operated continuously for two years, providing high quality drinking water to homes and businesses from 2010 to 2012. This demonstrated that the SDP was capable of providing water supply and water security services as envisaged under the NSW Government's 2010 Metropolitan Water Plan.

In June 2012, the NSW Government leased the SDP for 50 years to a private group of organisations jointly owned by the Ontario Teachers' Pension Plan Board, the Infrastructure Fund (TIF) and Utilities Trust of Australia (UTA).

The SDP is currently operating in shutdown mode as Sydney's dams are relatively full. The SDP will move into full operation to produce drinking water when Sydney's dam levels fall below 70% (or there is a major Sydney Water supply outage).

SDP continues to provide a reliable and cost-effective means of delivering water security for Sydney. Our shareholders have significant experience in sourcing, financing and managing infrastructure assets around the world and this private ownership provides us with financial incentives to continually improve our service performance and cost efficiency, and share these improvements with our customers.

Figure 3: The SDP and its history

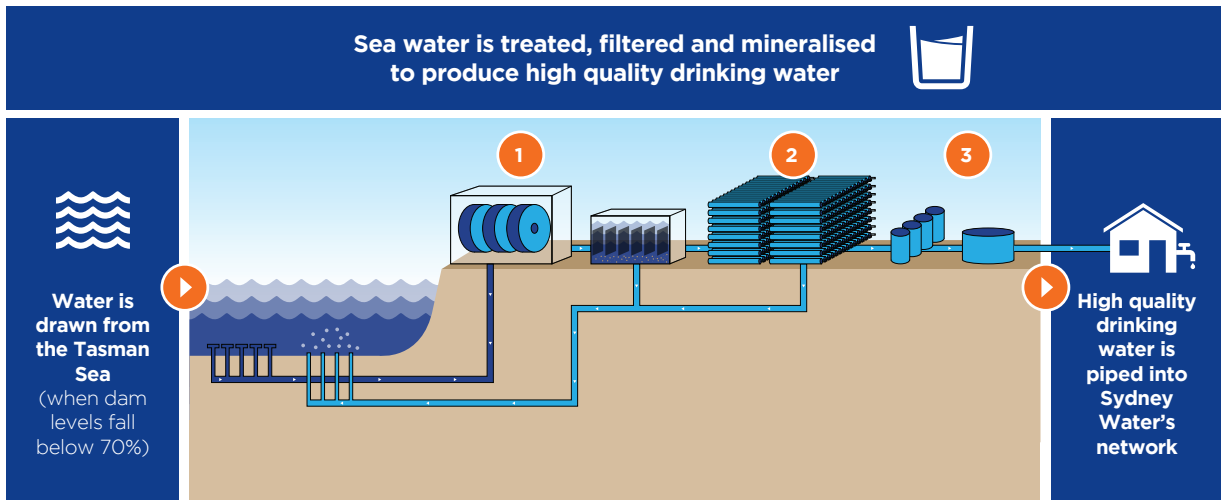


**Box 1: The SDP uses world-class technology and 100% renewable energy to produce high quality drinking water**

The SDP is required to produce and transport drinking water to Sydney Water’s network in Erskineville when dam levels are below 70% or when there is a major Sydney Water supply outage.

To do this, the SDP uses world-class reverse osmosis membrane technology to treat and filter seawater to produce high quality drinking water [Figure 4].

**Figure 4: The SDP produces high quality drinking water from seawater when dam levels are below 70% or if there is a major Sydney Water supply outage**



- 1** Sea water is pre-treated to remove small particles.
- 2** Sea water is pushed at high pressure through reverse osmosis membranes to remove salt and minerals.
- 3** Fluoride and minerals are added to the fresh water to meet Australian Drinking Water Guidelines and NSW Health's requirement and to make it taste like other Sydney Water drinking water.

Desalination can be an energy intensive process. However, by using technology that is powered by 100% renewable green energy, we minimise energy usage. By doing so, we ensure that the SDP does not contribute to Australia’s greenhouse emissions.



# OUR PROPOSED SERVICES AND PRICES FOR 2017-22

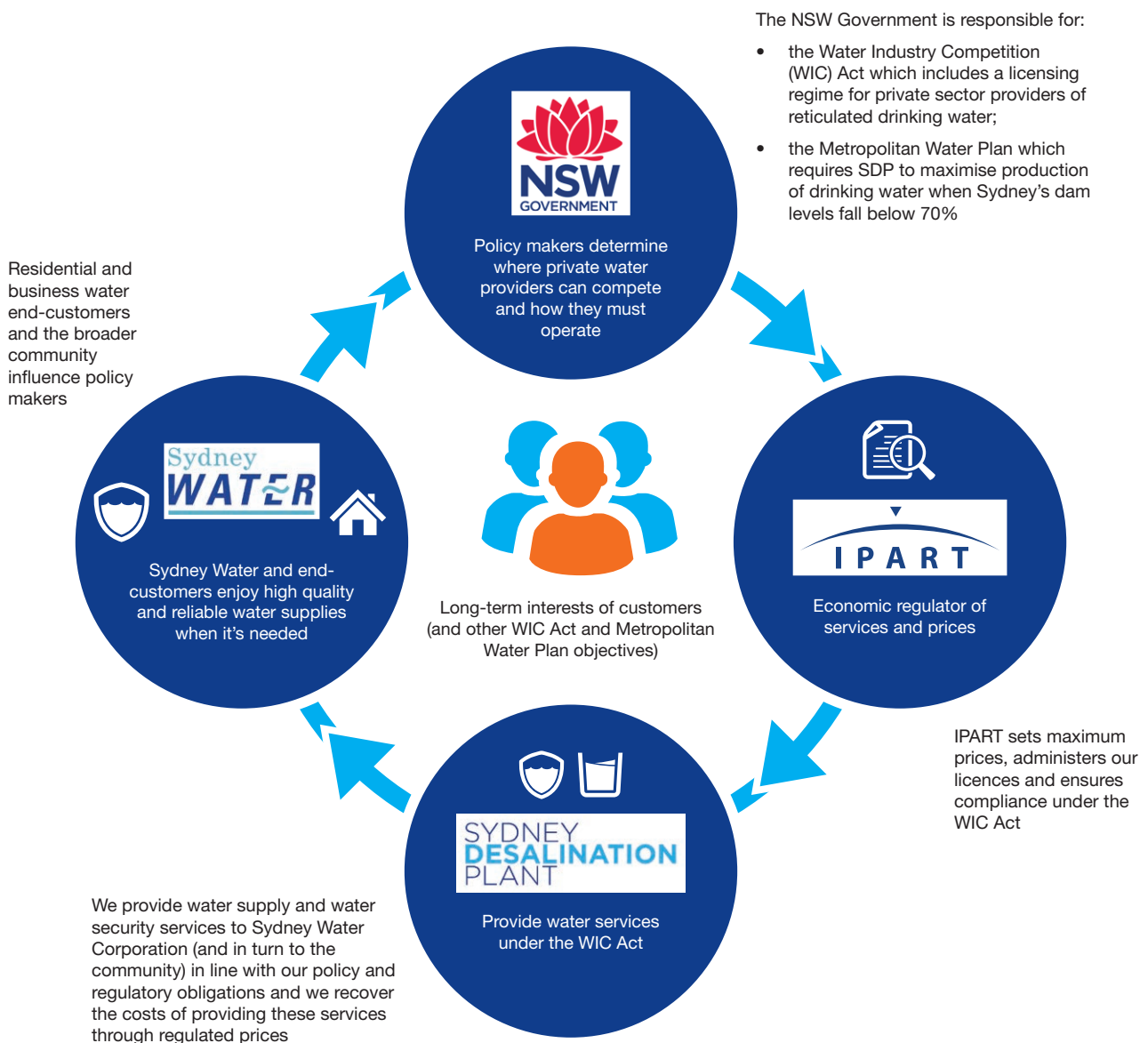
## What is our proposal?

Like many other water businesses in Australia, an independent body regulates the SDP's services and prices. In our case, it is the Independent Pricing and Regulatory Tribunal of NSW (IPART) [Figure 5].

We must provide a regulatory proposal to IPART setting out the services we will offer, the costs we expect to incur, and the prices we need to charge to recover our prudent and efficient costs. Our proposal also sets out how we intend to address the challenges over the 2017-22 regulatory period in a way that best promotes our customers' long-term interests, including Sydney Water and end-use water customers.

IPART will review our proposal to check that it complies with these requirements, including the NSW Government's Standing Terms of Reference. We must set our prices in line with IPART's decision, and IPART will monitor our performance over the period to ensure we comply with its decision and our other licence obligations.

**Figure 5: The framework of independent economic regulation of our services and prices**





## How we developed our proposal

To develop our proposal, we:

- Considered the service levels expected by our customers and our stakeholders over the 2017-22 period (and future periods) **[Box 2]**
- Analysed the material changes that have occurred in our policy, regulatory and commercial operating environments **[Box 3]**
- Forecast the efficient level of costs we will incur over this period to meet these service levels, and run our business in a way that promotes your long-term interests
- Calculated the prices we need to charge Sydney Water to recover these costs, and structured these prices so that Sydney Water is provided with appropriate price signals about the cost of our water security and water supply services
- Considered the incentive and risk management framework to support our customers' long-term interests

Figure 6: Development of our proposal and the review process



## Box 2: What do we mean by our service levels?

Our service levels have 5 key aspects:

	<b>1. Reliability</b>	Making sure the SDP supplies 91.3GL per year of high quality drinking water when it is required, to ensure Sydney always has sufficient water to meet its needs
	<b>2. Responsiveness</b>	Minimising the time we take to provide drinking water when it is required to ensure Sydney always has sufficient water to meet its needs
	<b>3. Quality</b>	Ensuring we provide high quality drinking water that meets the Australian Drinking Water Guidelines
	<b>4. Environment</b>	Minimising our impact on the environment including any impacts on seawater quality or aquatic ecology near the SDP and greenhouse emissions associated with the operation of the SDP <b>[Box 1]</b>
	<b>5. Public amenity</b>	Considering the impact of our operations on your local area including minimising noise impacts on the community and maintaining the pipeline for visual amenity and public safety

## Box 3: Policy, regulatory and operating challenges over the 2017-22 period

To guide us in developing this proposal we analysed the material changes that have occurred in the policy, and commercial operating environments and their implications for our customers and us over the 2017-22 period.

We identified several challenges in ensuring the SDP can effectively fulfil its role in providing water security services over the 2017-22 period. These challenges result from:







- Uncertainty regarding the future operation of the SDP under any revised Metropolitan Water Plan and the impact of this on our operations, asset planning and cost structures.
- The likelihood that the SDP will remain in shutdown mode during the 2017-22 period due to current dam levels. This limits the opportunity to test the operating condition of the SDP which increases the risk of the plant not restarting within the required timeframes and levels of reliability.
- The December 2015 Kurnell tornado that caused significant damage to key elements of the SDP.

## What are our proposed services and forecast costs?

Our proposal involves us responding to the regulatory and operating challenges in a way that best promotes our customers' long-term interests and ensures the SDP is capable of providing water supply and water security services as envisaged under the NSW Government's 2010 Metropolitan Water Plan [Figure 7].

Our proposal will see us investing smartly — for example to ensure the SDP can provide reliable and responsive services after an extended period of shutdown — and where possible sharing cost savings (such as our energy costs) with our customers. Our proposal also involves refinements to the regulatory framework to ensure we have continuous incentives to improve the value for money of our services for customers, and to ensure we can cost-effectively manage risks and uncertainties over the 2017-22 period.

**Figure 7: Responding to the challenges over the 2017-22 period**

	Challenge	Our proposed response
	<p>Uncertainty regarding the future operation of the SDP under any revised Metropolitan Water Plan, and ageing of our assets after an extended period of standby</p>	<p>We will continue our operating and maintenance program that ensures we can provide the services envisaged under any revised Metropolitan Water Plan.</p> <p>We propose to invest in periodic maintenance of the plant and related assets to ensure they are able to return to and operate at full production when required to do so.</p>
	<p>Risk of restarting the plant within the required timeframes and levels of reliability after an extended period of standby</p>	<p>We propose a one-off partial plant test in 2021 to address the restart risks associated with restarting the plant and moving into full production after an extended period of standby.</p>
	<p>Restoring and testing the SDP plant following the Kurnell tornado that caused significant damage to the plant in December 2015</p>	<p>We propose to make targeted investments to restore and test the plant to ensure the SDP is capable of providing water supply and water security services as envisaged under the Metropolitan Water Plan.</p>
	<p>Risk of increases or decreases in costs associated with further unforeseen and uncontrollable events</p>	<p>We propose to introduce a mechanism to pass through the efficient costs or savings associated with specific unforeseen and uncontrollable events such as regulatory, legal, tax or extraordinary events. This will lower business risk, and ensures we do not include any speculative and significant allowances for events that may not occur.</p>
	<p>Ensuring we have continuous incentives to improve the value for money of our services by sharing efficiency savings with our customers</p>	<p>We propose an efficiency adjustment mechanism that provides a continuous incentive for us to achieve efficiency savings over time by allowing mode-specific savings (overruns) to carryover for the next four years of the same mode, regardless of when that occurs. This will strengthen the incentive to improve the value for money of our services and share these savings with our customers.</p>
	<p>Uncertainty relating to the timing of the next restart of the plant, and the amount of membranes we will need to replace.</p>	<p>We propose a differential restart charge that provides for the number of replacement membranes to vary over time.</p> <p>This charge is only levied the next time we are required to operate which means that customers do not pay unless SDP is actually incurring the costs.</p>

Like most businesses, we incur two categories of costs in providing our services – operating and capital costs [Box 4]. These costs vary depending on the services we provide (or operating mode) [Box 5]. For example, there are higher operating costs – including the costs of purchasing energy to power the SDP – when the SDP is operating at full production to produce high quality drinking water.

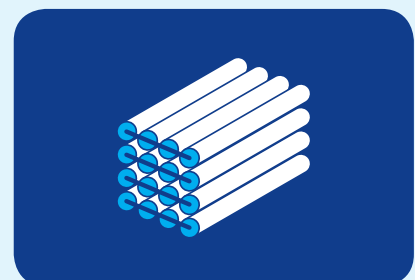
However, our prices do not aim to recover all these costs in the period we incur them. Rather, we calculate how much revenue we need to recover for each service (or operating mode) for each year of the period using the ‘building block’ approach by IPART. This involves estimating:

- Our funding costs over the 2017-22 period (interest and other costs related to our ‘borrowings’ for our debt and equity for past and forecast capital costs)
- Our forecast operating costs for each operating mode over the 2017-22 period (including any revenue adjustments to account for any rewards or penalties)
- The depreciation on our assets over the 2017-22 period (the amount we need to recover over this period so we will recover our capital costs over the expected life-time of each asset), and
- Our tax costs over the 2017-22 period

After considering our estimates, IPART determines our revenue requirement for each potential operating mode for each year of the period. These amounts are then converted to ‘mode based prices’ which we levy on Sydney Water to enable us to recover this revenue [Box 5]. Sydney Water subsequently passes on these costs to you in your water and wastewater bill.

#### Box 4: What costs are involved in providing our water security and water supply services

- Operating costs include the costs of operating and maintaining our physical assets—such as maintaining, inspecting and testing our assets, purchasing the energy, responding to emergencies and overseeing our businesses. Even when we are not producing water, we need to maintain our assets to ensure the plant is ready to supply water when required.
  - These costs are generally recurrent, much like the costs of running a household (buying groceries, paying bills, general home maintenance) and we recover these costs annually.
  - Over the 2017-22 period we expect our operating costs in water security mode to be \$123.5m. If the SDP was to be in full operation mode, we estimate that our operating costs would be \$482.4m.
  - Our forecast operating costs are higher than those allowed for over the 2012-17 period. The reasons for the increases in our operating costs include: the additional costs incurred in managing the risks to water security arising from the extended period of shutdown of the plant (including a one-off partial plant test in 2021); higher maintenance costs as the plant ages; and corporate costs that better reflect the efficient costs of a small stand-alone corporate entity (rather than a subsidiary of Sydney Water). These increases are partially offset by reductions in our energy costs.





- Capital costs include the investments we make to buy and build the physical assets required to meet our service levels now and in the future. Our investments range from small standard projects (such as investments in IT) to large multi-million-dollar projects (like installing a new drinking water pump).

- These investments are generally funded through borrowings from debt and equity markets and paid back over the long term to ensure both current and future customers who benefit from the assets contribute to their costs.
- Over the 2017-22 period we expect to invest \$2.5m, a minor increase compared to the 2012-17 period.
- The reasons for this increase in capital investments include a one-off investment of \$2.1m for an additional drinking water pump to ensure the pumping station facilitates the SDP providing a highly reliable service now and into the future.



### Box 5: The structure of our proposed ‘mode based’ prices

Forecasting Sydney’s dam levels and water needs is challenging, and the last five years has highlighted the difficulty in predicting the amount of drinking water required from the SDP to meet Sydney’s water needs.

Like most businesses, we need to recover the costs of providing our services from the customers who use them. However, we do not want to charge customers for costs that we may not incur. For example, if Sydney’s dam levels remain high and we are not required to produce drinking water over the 2017-22 period we would not charge customers for the higher operating costs — including the costs of replacing membranes and purchasing greater amounts of power needed to produce drinking water **[Figure 8]**.

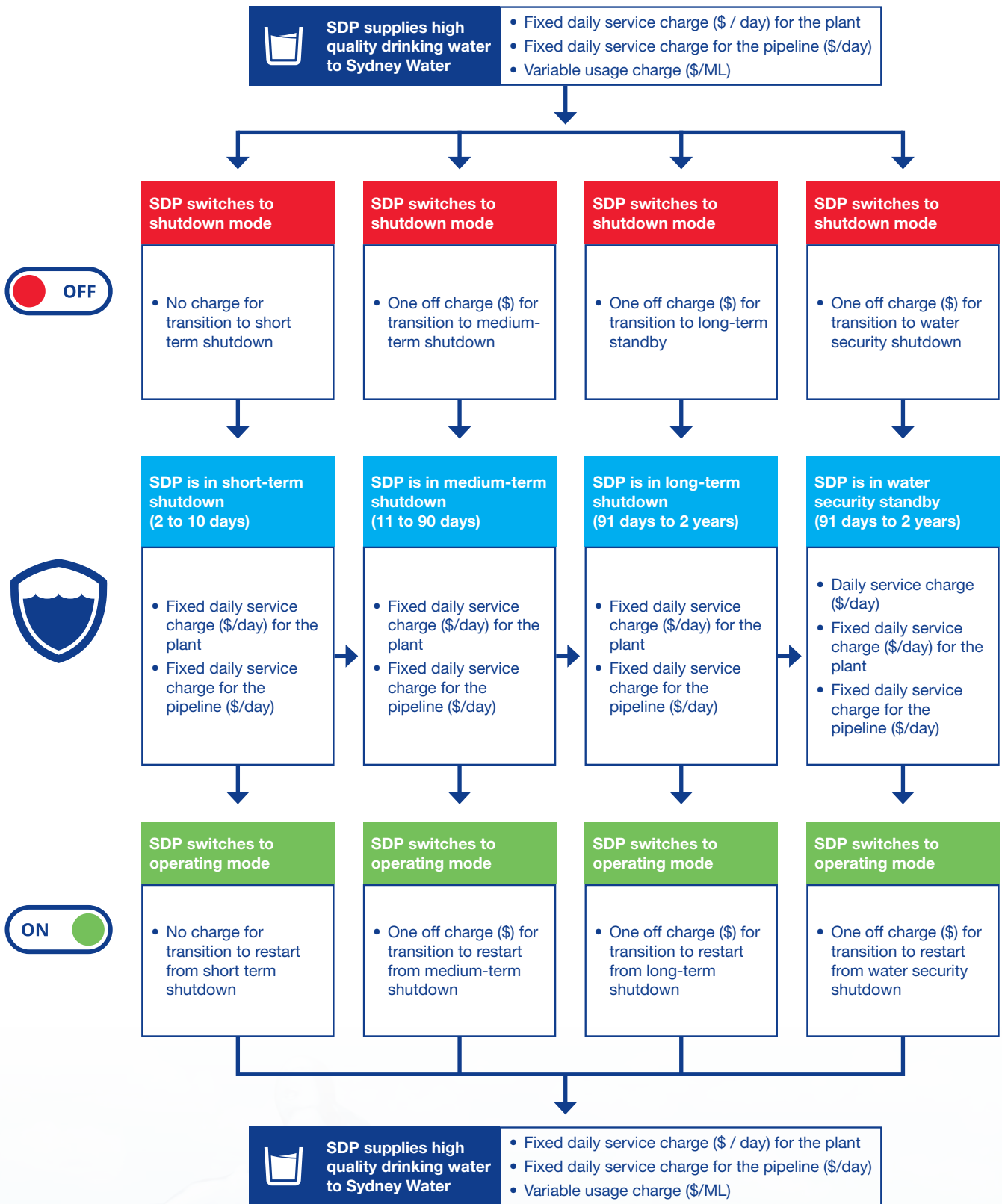
For this reason, we are proposing to maintain ‘mode based’ pricing that ensures Sydney Water (and ultimately end-use water customers) only pay for the services we provide, and we only recover the efficient costs required to provide those services **[Figure 9]**.

As we are currently in ‘water security’ mode, customers only pay for the efficient costs of that mode, which are primarily the funding costs related to our ‘borrowings’ for our debt and equity for past investments in the SDP, plus some operating and maintenance costs to maintain and test the plant. As outlined in Figure 7, the revenue required for us to remain in water security mode over the 2017-22 period is \$86 per end-water customer per year — or a decrease of 20.9% per customer per year compared to the 2012-17 period (excluding inflation). These costs are incorporated in the fixed component of your water and wastewater bill from Sydney Water.

If Sydney’s dam levels fall (or there is a major Sydney Water supply outage) and the SDP is required to switch on to produce drinking water and ensure Sydney has sufficient water to meet its needs, we propose levying a one-off charge on Sydney Water equivalent to \$21 per end-water customer. This charge reflects the efficient costs of moving the SDP into full operation — including the costs of recruiting operators, purchasing energy and replacing membranes to restart the SDP. However, if we are not required to produce drinking water over the 2017-22 period, customers will not need to pay for this one-off charge.

Once operating, we would then levy a fixed charge as well as a variable charge per unit of water produced on Sydney Water. The additional variable charges would be incorporated in the variable component of your water and wastewater bill from Sydney Water, to provide a signal of the additional cost of water being sourced from the SDP during times of relative water scarcity.

Figure 9: Structure of our proposed 'mode based' prices for the 2017-22 period



\*Daily service charge is adjusted to include pass through of fixed and some variable electricity network charges  
 \*\* Usage charge is adjusted to include pass through of variable electricity network charges

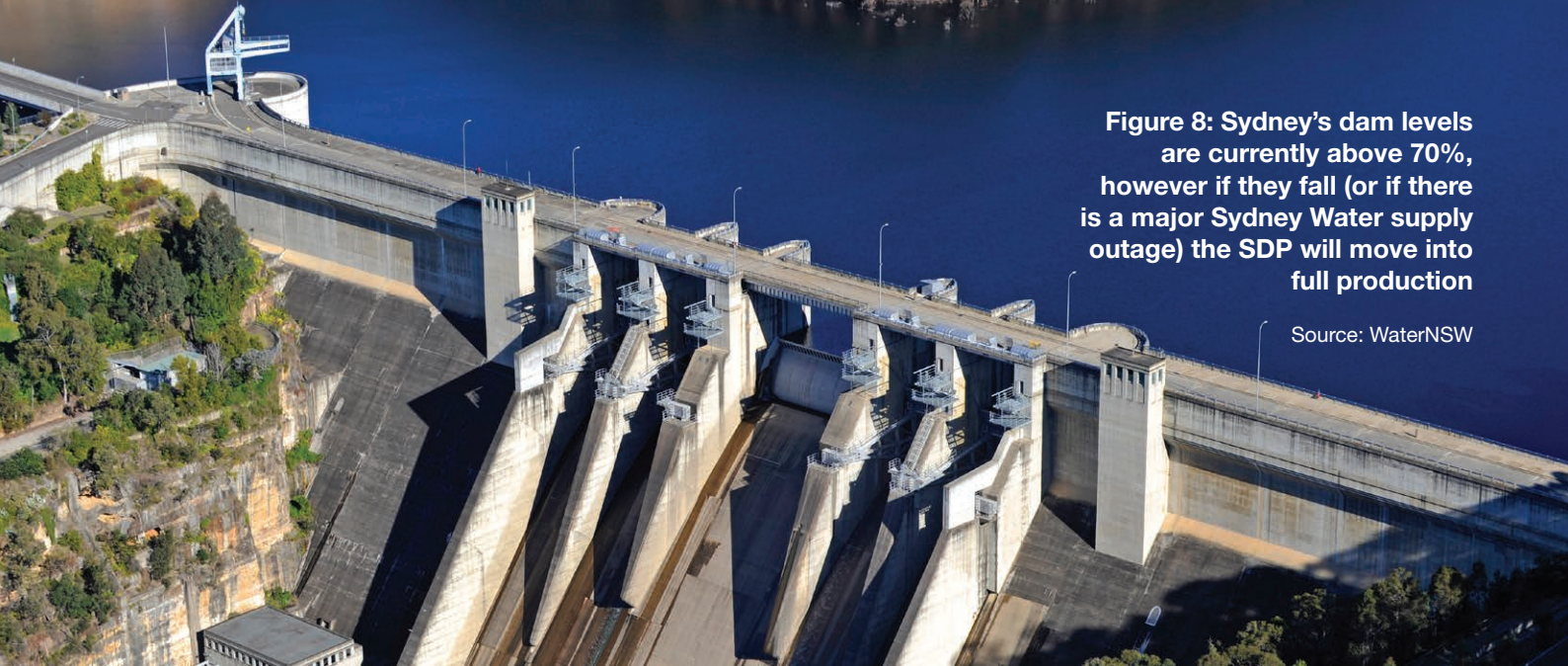


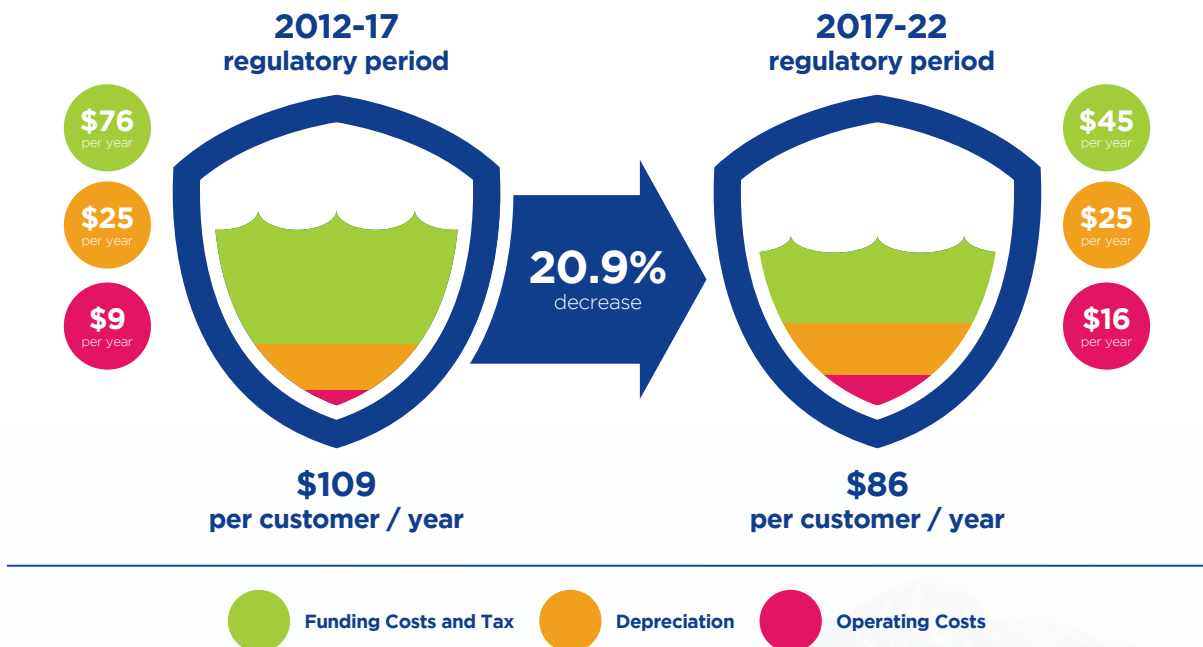
Figure 8: Sydney's dam levels are currently above 70%, however if they fall (or if there is a major Sydney Water supply outage) the SDP will move into full production

Source: WaterNSW

We calculate we need \$852.7m in revenue to provide water security services over the 2017-22 period. This represents revenue of \$86\* per customer per year —or a decrease of 20.9% per customer per year compared to the 2012-17 period (excluding the impact of inflation) [Figure 10].

We calculate we need \$1,212.1m in revenue to provide water supply services over the 2017-22 period. This represents revenue of \$123\* per customer per year —or a decrease of 16.7% per customer per year compared to the 2012-17 period (excluding the impact of inflation) [Figure 11].

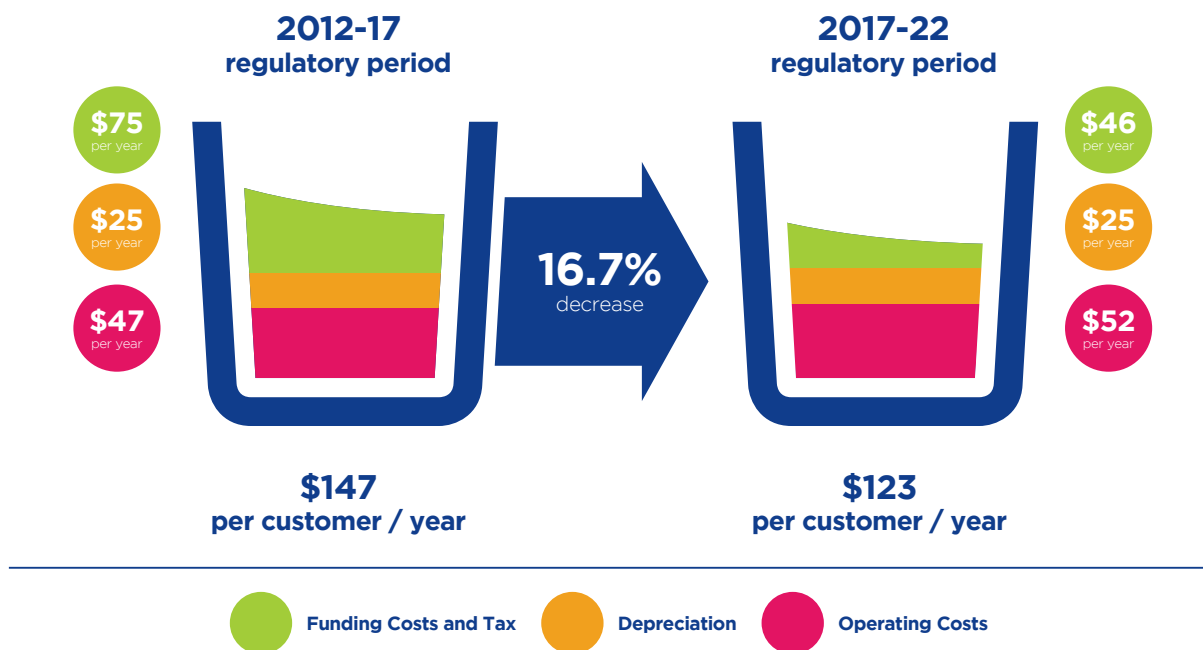
Figure 10: Our revenue requirement per customer in water security mode over the 2017-22 period is lower than the 2012-17 period (\$2016-17)\*



\*Note: Funding costs includes return on assets and working capital and tax costs; operating costs includes energy adjustment mechanism allowances.



**Figure 11: Our revenue requirement per customer in full operation mode over the 2017-22 period is lower than the current 2012-17 period (\$2016-17)\***



\*Note: Funding costs includes return on assets and working capital and tax costs; operating costs includes energy adjustment mechanism allowances.

There are several reasons for our required revenue per customer decreasing.

First, our funding costs for the next five years are likely to be much lower than for the 2012-17 period. Like home loan interest rates, the costs of funding our past and forecast capital costs vary with financial market conditions. When we submitted our proposal five years ago, our rates of ‘borrowing’ were high due to the market conditions at that time. Since then, conditions have improved and some of our funding costs have come down and we are passing on these savings to customers. This decline in our funding costs is partially offset by the forecast increases in our operating and capital costs to enable us to maintain our current service levels **[Box 4]**.

Second, the number of end-use water customers is continuing to grow. An increasing number of end-use water customers helps to lower the average revenue that is recovered from each end-use water customer to generate our overall revenue requirement.

These two effects result in a total decrease in the revenue required for us to remain in water security mode over the 2017-22 period by 20.9% per customer per year compared to the 2012-17 period (excluding inflation).



# WHAT OUR PROPOSAL MEANS FOR YOU

## Lower water bills

While we cannot influence all the costs that make up your water and wastewater bill, we are committed to keeping our component of this bill as low as possible. In fact, our proposal includes a 20.9% decrease in our costs in water security mode compared to the current 2012-17 regulatory period (excluding the impact of inflation), on a cost per customer basis. This will deliver savings of up to \$23 per customer per year by the end of the 2017-22 period or:

- 2.7% on a small residential end-customer water and wastewater bill (excluding the impact of inflation)
- 2.0% on a larger residential end-customer water and wastewater bill (excluding the impact of inflation)
- 1.6% on a small business end-customer water and wastewater bill (excluding the impact of inflation)

Figure 12 outlines the indicative impacts for a range of typical customers of our proposed charges in water security and full operating mode.

Figure 12: Indicative customer impacts of our proposal over the 2017-22 period (excluding inflation)



Source: SDP Analysis

Note: These have been calculated relative to the allowed revenues for the respective modes on a per customer basis; SDP operating mode excludes the costs of restarting the SDP.



## Have your say and stay informed

We welcome your views on our proposed services and prices over the 2017-22 period.

You can also stay informed about our services and IPART's review process and how it impacts you by contacting us.

[www.sydneydesal.com.au](http://www.sydneydesal.com.au)  
[feedback@sydneydesal.com.au](mailto:feedback@sydneydesal.com.au)





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