IPART Independent Pricing and Regulatory Tribunal | NSW

Sydney Desalination Plant Pty Ltd Review of prices to apply from 1 July 2023

Draft Report

April 2023

Water »

Tribunal Members

The Tribunal members for this review are:

Carmel Donnelly PSM, Chair
Deborah Cope
Sandra Gamble

Enquiries regarding this document should be directed to a staff member:

Matthew Mansell	(02) 9113 7770
Maricar Horbino	(02) 9290 8409
Greg McLennan	(02) 9113 7764

The team working on this review includes Rhea Rachel and Simba Kanyongo. Cover image supplied by John Holland.

Invitation for submissions

IPART invites comment on this document and encourages all interested parties to provide submissions addressing the matters discussed.

Submissions are due by Friday, 12 May 2023

We prefer to receive them electronically via our online submission form.
You can also send comments by mail to:
Review of prices for Sydney Desalination Plant Pty Ltd
Independent Pricing and Regulatory Tribunal
PO Box K35
Haymarket Post Shop, Sydney NSW 1240

If you require assistance to make a submission, please contact one of the staff members listed above.

Late submissions may not be accepted at the discretion of the Tribunal. Our normal practice is to make submissions publicly available on our website as soon as possible after the closing date for submissions. If you wish to view copies of submissions but do not have access to the website, you can make alternative arrangements by telephoning one of the staff members listed above.

We may decide not to publish a submission, for example, if we consider it contains offensive or potentially defamatory information. We generally do not publish sensitive information. If your submission contains information that you do not wish to be publicly disclosed, please let us know when you make the submission. However, it could be disclosed under the *Government Information (Public Access) Act 2009* (NSW) or the *Independent Pricing and Regulatory Tribunal Act 1992* (NSW), or where otherwise required by law.

If you would like further information on making a submission, IPART's submission policy is available on our website.

The Independent Pricing and Regulatory Tribunal

IPART's independence is underpinned by an Act of Parliament. Further information on IPART can be obtained from IPART's website.

Acknowledgment of Country

IPART acknowledges the Traditional Custodians of the lands where we work and live. We pay respect to Elders both past and present.

We recognise the unique cultural and spiritual relationship and celebrate the contributions of First Nations peoples.

Contents

Chapter 1

Executive summary

IPART sets the maximum prices that Sydney Desalination Plant Pty Ltd (SDP) can charge for the making available of the desalination plant to supply non-rainfall dependent drinking water and the supply of non-rainfall dependent drinking water.[a] SDP levies these charges on Sydney Water who pass these costs onto its customers across the Greater Sydney region.

This Draft Report outlines our draft decisions on SDP's maximum prices over the 4-year period from 1 July 2023 to 30 June 2027 (the 2023 determination period). We have also reviewed our Methodology Paper which details the Energy Adjustment Mechanism (EAM) and Efficiency Carryover Mechanism (ECM) that will apply over the 2023 determination period. All costs are presented in $2022-23 and all prices are presented in $2023-24, unless stated otherwise.

1.1 SDP's role is changing to flexible full-time operation

Under its new Network Operator's Licence, SDP will be required to operate on a flexible full-time basis from the commencement of its next pricing determination (i.e., currently 1 July 2023).

On 30 September 2022, SDP submitted its pricing proposal to IPART setting out how it proposed to meet the challenges of its new flexible full-time role. We consulted on SDP's proposal through our November 2022 Issues Paper and at the February 2023 Public Hearing. This Draft Report responds to SDP's proposal, addresses feedback provided through submissions to our Issues Paper and at the Public Hearing and sets out the analysis and reasons for our draft decisions.

1.2 Our draft decisions are in customers' long-run interests

We have considered SDP's pricing proposal, its new Network Operator's Licence and all relevant supporting information. We have developed a draft package of efficient costs, prices, risk allocation and incentive mechanisms that we consider supports SDP's new role, meets the Terms of Reference and other requirements of this review, and is in customers' long-run interests.

[a] We determine SDP's prices in accordance with a standing Ministerial reference under section 52 of the Water Industry Competition Act 2006 (WIC Act). The updated Terms of Refence for this review is at Appendix B.

1.2.1 Costs

The following graphic compares SDP's proposed and IPART's draft decisions on efficient costs for 2023-24 and shows how these feed through to impact the notional revenue requirement (NRR) and new prices to apply from 1 July 2023. The changes in costs shown in this graphic (expressed as changes in $m and %) are relative to the current levels of costs reflected in current prices.

We have reviewed SDP's proposed costs, identified opportunities for savings and set draft allowances that we consider will enable SDP to deliver the levels of service expected under its new flexible full-time role.

We have found that increases in input costs including energy, labour and insurance are putting upward cost pressure on SDP's prices. However, these upward cost pressures have been offset by a reduction in SDP's cost of capital (or WACC). We have estimated a WACC of 3.6% for SDP to apply over the 2023 determination period, which is 110 basis points lower than the 4.7% WACC used in 2017. As a result, our draft decision is to set SDP's NRR at around 5% lower in 2023-24 relative to the level reflected in current prices.

Once inflation of 6.9% (moving from $2022-23 to $2023-24) is applied, our draft decisions would result in a 1.5% increase in prices for SDP's services compared to current levels.

1.2.2 Prices

This Draft Report sets prices for all of SDP's services as summarised in the following table.

Table 1.1 Summary of draft pricing decisions ($2023-24)

Prices	SDP proposal	IPART draft decisions
1. Plant service charge	Fixed plant service charge of $434,988/day which is a 4.1% increase compared to current prices.	Fixed plant service charge of $421,092/day which is a 0.8% increase compared to current prices.
2. Pipeline service charge	Fixed pipeline service charge of $103,286/day which is a 4.1% decrease compared to current prices.	Fixed pipeline service charge of $97,295/day which is a 9.7% decrease compared to current prices.
3. Water usage charge	Volumetric usage charge of $830/ML which is a 24% increase compared to current prices	Volumetric usage charge of $768/ML which is a 14.7% increase compared to current prices.
4. Sydney Water requested zero production charge	SDP proposed that any deviations from flexible full-time operation be subject to negotiated agreements between SDP and Sydney Water Corporation.	Short term shutdown charge of $1,736/day. This charge would apply for each full day that SDP is in a Sydney Water requested short term shutdown and would not apply if SDP was suppling water to another purchaser.
5. Charges for other purchasers of desalinated water	SDP did not propose prices for other purchasers of desalinated water because SDP does not expect to supply water to other purchasers in the 2023 determination period.	Volumetric usage charge of $768/ML, a prorated share of the plant service charge and, if applicable, a prorated share of the pipeline service charge.

Consistent with SDP's pricing proposal, our draft prices are set such that SDP will be financially indifferent between different levels of production (i.e. the fixed service charges are set to recover SDP's fixed costs and the volumetric usage charge is set to recover SDP's variable costs).

We have made a draft decision to set a Sydney Water requested zero production charge that would apply, in addition to the fixed service charges, for any whole day that SDP is in a Sydney Water requested short-term shutdown and not producing water. This charge is based on advice from our expenditure consultant who found that SDP would require additional revenue to keep the plant in a state of readiness during a Sydney Water requested short-term shutdown.

Although there are currently no other purchasers of desalinated water, we have made a draft decision to set maximum prices that would apply if SDP agrees to supply water to one or more other purchasers. Our understanding is that any other purchaser would receive a non-firm incidental service (i.e. SDP would need to agree to provide a service to the other purchaser, the other purchaser would only be able to receive water from SDP in situations where Sydney Water was not making full use of SDP's capacity, and the other purchaser's service may be curtailed or ceased if Sydney Water decides to make use of that capacity in accordance with the water supply agreement between SDP and Sydney Water). Under our draft decision, any share of SDP's fixed service charges that are levied to other purchasers would reduce, by an equivalent amount, the fixed service charges paid by Sydney Water. The effect of this would be that SDP would receive no more or less than 100% of its fixed service charges regardless of whether there are zero, one or more other purchasers.

1.2.3 Risks

Our draft decisions achieve what we consider is a fair balance of risk between SDP, Sydney Water and end-use customers. We have decided to not accept most of SDP's proposed cost pass-through and true-up mechanisms as we consider SDP has not demonstrated that these mechanisms are in the long-run interests of customers.

1.2.4 Incentives

Our draft decisions aim to provide appropriate incentives that are aligned to SDP's new flexible full-time role and encourage SDP to operate efficiently and deliver efficiency savings over time.

We have made draft decisions to:

- remove the existing abatement mechanism because it is not consistent with SDP's new flexible full-time role.
- not accept SDP's proposed Service Level Incentive Scheme (SLIS) because it is unlikely to deliver incremental benefits beyond what SDP's new operating licence is expected to deliver.
- make improvements to the Efficiency Carryover Mechanism (ECM) and the Energy Adjustment Mechanism (EAM) reflecting SDP's new flexible role.
- highlight the new purpose of the EAM under SDP's new flexible full-time role to provide SDP an incentive to consider the opportunity cost of its energy contracts when making decisions about when to produce water.

1.2.5 Our draft decisions are consistent with SDP's financial sustainability

The following table shows that our draft decisions are consistent with SDP maintaining financial sustainability (consistent with the benchmark ratios meeting or exceeding the target levels) over the 2023 determination period.

Table 1.2 Financeability benchmark test results

	Target ratios	2023-24	2024-25	2025-26	2026-27
Real Interest Coverage Ratio (RICR)					
Benchmark test	>2.2x	4.0x	4.0x	4.0x	4.1x
Does it meet the target?		✓	✓	✓	✓
Real FFO over Debt					
Benchmark test	>7.0%	8.0%	8.2%	8.4%	8.7%
Does it meet the target?		✓	✓	✓	✓
Net Debt / RAB					
Benchmark test	<70%	60.0%	60.0%	60.0%	60.0%
Does it meet the target?		✓	✓	✓	✓

Source: IPART analysis

1.2.6 Ensuring value for money for customers

The Australian Water Association (AWA) reports the unit cost of large-scale municipal seawater desalination plants in Australia ranges from approximately $1/kL to $4/kL.[1] The current unit cost of SDP is $2.77/kL which is around 10% above the midpoint of large-scale desalination plants in Australia.[b] Compared to SDP's current unit cost, SDP's proposal is about 7.6% higher at a unit cost of $2.98/kL and IPART's draft decisions are about 2.5% higher at a unit cost of $2.84/kL.[c]

Figure 1.1 Unit cost of SDP at full production

Source: IPART analysis.

Costs relating to SDP's services make up a relatively small share of a typical Sydney Water customer bill (i.e. less than 10%). Therefore, our draft decision to increase SDP's prices by about 1.5% is expected to have a very small impact on a typical Sydney Water customer bill (i.e. about a 0.1% to 0.2% increase in a typical Sydney Water customer bill).

1.3 Looking ahead to SDP's next price review

The next SDP price review will be assessed under the new water regulatory (3Cs) framework, which focuses on end-use customers, costs and credibility. SDP will be asked to develop its pricing proposal using the 12 guiding principles that underpin the framework and self-assess its proposal as either 'Standard', 'Advanced' or 'Leading'. IPART will assess the pricing proposal to confirm if it promotes the long-term interest of customers. The framework includes a range of incentives to motivate and reward businesses which deliver and promote customer value.

[b] These unit costs are calculated as the total annual fixed and variable charges of SDP at full production divided by the total volume of water produced at full production. We note this analysis excludes energy network costs which are currently not reflected in SDP's prices and are instead subject to a cost pass-through mechanism.

[c] These estimates of changes in unit cost assume that SDP is producing at full capacity of 250ML per day (consistent with how we understand the AWA's unit cost range of $1/kL and $4/kL was calculated). The estimated price impacts presented elsewhere in this draft report (i.e. a 6.3% increase in prices under SDP's proposal and a 1.5% increase in prices under IPART's draft decisions) assume SDP is at an average level of production of 68.4% or 171ML per day.

We expect SDP to develop and base its pricing proposal around a strong understanding of its purchasers, especially Sydney Water, and their preferences and willingness to pay for services. In coordination with its purchasers, we expect SDP to expand its knowledge of what is in the best interests of end-use consumers.

1.4 Structure of this Draft Report

The following chapters and appendices of this draft report provide more information on SDP's pricing proposal and our draft decisions:

Chapter	
02	outlines SDP's new flexible full-time role
03	sets out our approach for this review of SDP's maximum prices
04	covers our draft decisions on the length of determination and assumed production levels
05-07	outlines our draft decisions on operating expenditure, capital expenditure and other cost allowances
08	summarises our draft decisions on SDP's revenue requirement
09-10	sets out our price structures, price levels and bill impacts of our draft decisions
11	covers our draft decisions on risk mechanisms and how best to allocate the risks between SDP, Sydney Water and end-use customers
12	sets out our draft decisions on incentive mechanisms

1.5 List of draft decisions

Our draft decisions are:

1.6 List of questions

Seek Comment

1.	Should prices reflect the costs of recovering from force majeure events through third-party business interruption insurance? Or alternatively, should these costs be avoided via Sydney Water's continued payment of a service charge during force majeure events?	51
2.	Is our approach to setting a Sydney Water requested zero production charge appropriate? Are there any unintended consequences that may occur that we should consider?	91
3.	Is our approach to sharing costs between Sydney Water and other purchasers appropriate?	100

1.7 How you can have your say

We are seeking submissions to our Draft Report, Methodology Paper and Determination from all interested stakeholders by 12 May 2023. Page ii of this document explains how to make a submission.

In June 2023, we will release the Final Report, Methodology Paper and Determination for SDP. In setting final prices, we will consider all feedback we receive in response to this Draft Report (including Draft Methodology Paper and Determination), including specific responses to the questions we raised in this Draft Report (see section 1.6).

Have your say

We will consider your feedback when making our final decisions.

You can get involved by making a submission or submitting a comment on our webpage for this review.

We are seeking feedback by 12 May 2023 on our draft decisions and the questions we have asked in the Draft Report.

Submit feedback »

Chapter 2

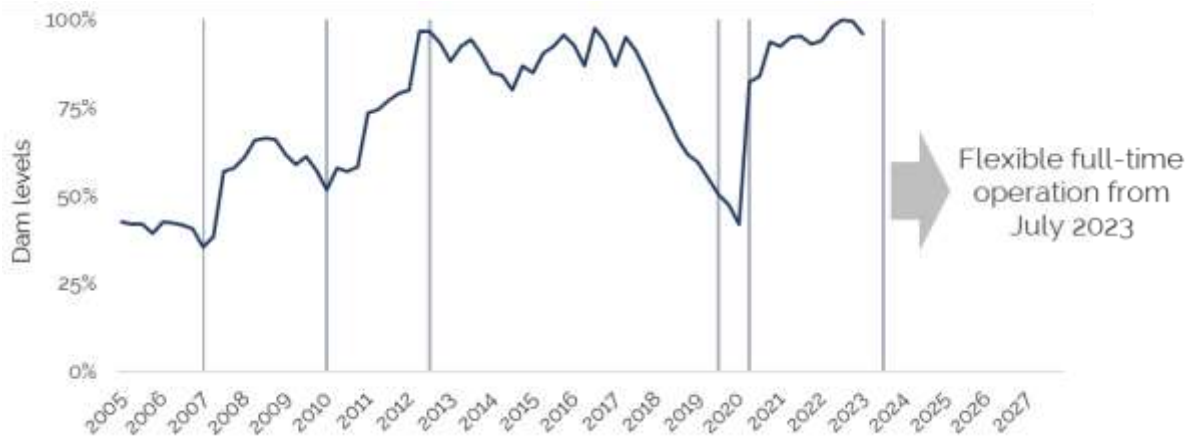
SDP's role is changing

A major consideration in this review is ensuring we set prices that enable SDP to effectively respond to the challenges of its new flexible full-time role, while also ensuring that customers continue to pay a fair price that reflects efficient costs of SDP's regulated services. This chapter provides background on how SDP's role has expanded over time and SDP's expected service levels from 1 July 2023. This chapter also provides a guide showing where we have responded to the key elements of SDP's pricing proposal in this Draft Report.

2.1 SDP's role has expanded over time

The decision to build the Sydney Desalination Plant was made in 2007 in response to drought conditions that had seen Sydney's dam levels fall to 34% capacity.[2] While SDP was initially conceived and utilised primarily as a drought response asset, its role has expanded to include emergency response and will soon expand further under its new licence to include flexible-full time operation. The following chart shows the history of SDP's development and operations in the context of Greater Sydney dam levels from 2005 to the 2023 determination period.

Figure 2.1 Timeline of SDP's development and operations



Source: WaterNSW WaterInsights. IPART analysis.

a. With dam levels below 50%, a feasibility study on the viability of a desalination plant in Sydney was undertaken in the first half of 2005. The then Minister for Planning approved the desalination plant on 16 November 2006 and the pipeline and drinking water pumping station on 22 October 2007.
b. Construction of the desalination plant was led by Sydney Water Corporation and took place between 2007 and 2010.
c. Once construction was completed, the plant was in operation delivering water to Greater Sydney between January 2010 and June 2012.
d. In June 2012, as dam levels approached full capacity, the plant came offline and entered water security mode. In December 2015, a storm event (Tornado) caused significant damage to the plant. The plant was reinstated and ready to restart by December 2018.
e. In 2019, in response to dam levels falling below 60%, the plant was restarted and entered operation producing at full capacity of around 250 megalitres per day or about 15% of Sydney's drinking water requirements.

f. In March 2020, as dam levels increased in response to heavy rainfall, Sydney Water requested to keep the plant operating in emergency response/availability mode. This was to ensure the quality of Sydney's water supply following ash and debris from the 2019-2020 bushfires impacting water catchments in Greater Sydney.

g. From 1 July 2023, SDP will commence a new flexible-full time operation role as set out in SDP's new Network Operator's Licence.

2.2 SDP's expected service levels from 1 July 2023

In 2017, we set SDP's efficient costs and prices in line with its purpose under the then Greater Sydney's water security plan (the Metropolitan Water Plan). Under the then Metropolitan Water Plan, SDP's role was to increase water security in the Greater Sydney region, particularly during drought periods.[3]

The previous NSW Government released the Greater Sydney Water Strategy (GSWS) in August 2022.[4] The strategy was developed to better use Greater Sydney's existing water supply assets, including SDP.

This means SDP will be required to operate flexibly so that it can be operated (as requested by Sydney Water) as part of Greater Sydney's total water system and maximise its contribution to water security for the region.[5] This change is described in Sydney Water's Decision Framework for SDP Operations (Decision Framework).[d]

This is a shift from SDP's previous role. Historically, SDP has primarily been utilised as a drought response measure and relied upon when Sydney's available water storage levels fall below a certain threshold.[e] In prior reviews, we assessed SDP's costs through the lens of its drought response role. We also set a framework for SDP to maximise its supply during drought by having a mechanism which imposes penalties on SDP if it produces less water than required during a drought response period (an abatement mechanism).

SDP holds a network operator and a retail supplier licence under the *Water Industry Competition Act 2006* (WIC Act). In 2022, IPART recommended a new Network Operator's Licence for SDP with rules and arrangements that align with the Decision Framework for requesting water from SDP.[6] The then Minister for Lands and Water approved this licence in September 2022.[7] The primary service obligation under the new Network Operator's Licence for SDP will be to comply with an annual production request (APR or production requests) issued by Sydney Water. SDP must use its best endeavours to comply with any other request, such as emergency response, made by Sydney Water under the Decision Framework. However, the provisions of the old licence which specified when SDP must operate will continue in effect until the 2017 Determination is replaced.

[d] The Decision Framework for SDP Operation was prepared by Sydney Water in June 2022 and endorsed by the then Minister for Lands and Water in July 2022.

[e] See the 2017 Metropolitan Water Plan.

2.3 SDP's pricing proposal

In September 2022, SDP submitted its pricing proposal to IPART. SDP's proposal sets out its plan to respond to the challenges associated with its new flexible role and maximise the value SDP provides to customers.[8]

The following table summarises SDP's pricing proposal by key element or decision and directs the reader to where we have responded to SDP's proposal in our Draft Report.

Table 2.1 The Draft Report responds to SDP's pricing proposal

Element	SDP pricing proposal	Location
Form of regulation		
Scope of regulated services	To set maximum prices for a single mode of flexible full-time operation Any deviation from flexible full-time operation would be addressed through negotiated agreements with Sydney Water	Chapter 9
Length of determination	To adopt a 4-year determination period from 1 July 2023 to 30 June 2027	Chapter 4
Mode based revenue requirements	To set costs and prices for one mode only – i.e. operational under a defined level of service	Chapters 4-7, 9.
Expenditure		
Operating and maintenance costs	To set efficient costs for operational mode only and at a higher cost level because of the need to operate flexibly	Chapter 5
Insurance costs	To set insurance costs that apply across all modes. To tailor some insurance policies for proposed changes to incentive schemes.	Chapter 5
Energy costs	To set energy cost allowances based on its actual energy contract costs because SDP argues that its contracts reflect legal requirements on SDP, are efficient and would deliver value to customers through lower prices.	Chapter 5
Capital costs	To include its proposed capital expenditure in future years that would support its new role	Chapter 6
Incentive mechanisms		
Abatement mechanism	To replace with the Service Level Incentive Scheme. Share a greater proportion of the risk or reward with customers and include a combined cap on financial rewards or penalties of 2.5%	Chapter 12
Efficiency carryover mechanism (ECM)	To remove the mode distinction and instead set efficiencies based on actual levels of supply in the relevant period To apply a combined cap of 2.5%	Chapter 12
Energy adjustment mechanism	To adjust the sharing of gains or losses between customers and SDP to 95:5 To set the core band to 2.5%	Chapter 12
Risk mechanisms		
Cost pass-through	To introduce cost pass-throughs and true-up mechanisms for uncontrollable costs To maintain the cost pass-through for network costs and adjust prices each year	Chapter 11
Re-openers	To allow for partial and full re-openers for events that would have material impact on SDP's costs	Chapter 11
Setting revenue allowance		
WACC	To use an indicative real post tax WACC of 3.6%	Chapter 7

Element	SDP pricing proposal	Location
Depreciation	To shorten the asset lives for pipeline (100 years), membrane (weighted average 4.5 years) and periodic maintenance assets (weighted average 7.6 years)	Chapter 7
Prices and bills		
Price structures	To simplify the price structure by setting prices for operational mode only To set service charges for SDP's plant and pipeline, and a usage charge	Chapter 9
Negotiated agreements	For other modes or services, to set prices by negotiating directly with Sydney Water	Chapter 9
Prices and bill impacts	To adjust prices each year to pass on changes in costs due to movements in electricity network charges, subordinate energy costs, and cost of debt To monitor movements in other costs and pass on net changes to future prices at the next review	Chapter 11

Chapter 3

Our approach to this review

Summary of our approach for this review

Our review is underpinned by a range of legislative and regulatory matters

We have a Terms of Reference that require us to consider a range of pricing principles when making our pricing decisions. In addition, we will consider matters specified in the IPART Act and the WIC Regulation in our review of prices for SDP.

We have a transparent review process

We have used a propose-respond model for this review. This model starts with SDP providing a pricing proposal to us. To apply our due diligence and ensure the right outcomes, we put significant effort into scrutinising SDP's proposal. We have engaged expert consultants to help us do this.

We have also been upfront about our review process. In our Issues Paper, we have outlined the key issues we identified from that proposal and our general approach in conducting this review. In this Draft Report, we have sought to provide clear guidance on how we have arrived at our draft decisions, and we welcome feedback on them. For the Final Report, we will aim to be transparent on our decisions and factors we have considered in reaching them.

We have engaged with stakeholders in line with our requirements

Since the review started in September 2022, we have sought stakeholder feedback on multiple occasions, and we have taken this into account in our draft decisions. For example, we released an Issues Paper in November 2022 and received 6 submissions. We held a Public Hearing on 21 February 2023 to provide stakeholders with another opportunity to have their say in SDP's pricing proposal and our Issues Paper.

We have sought to balance service levels, costs and risks

As part of our review, we have carefully considered whether SDP's proposal meets the expected service levels under its new licence. It is essential SDP has the appropriate incentives in place to efficiently manage its costs and risks.

Throughout this report, we have aimed to be clear on how we balanced these different factors and key factors that contributed to our draft decisions.

This chapter provides important background information to help readers understand the purpose and process of our review of SDP's prices, and the contextual issues that influenced our pricing decisions. These sections cover:

- IPART's Terms of Reference for this review
- The building block approach and incentive regulation

- The review process we have followed
- The holistic approach to balance service levels, costs and risks
- The other matters we considered.

3.1 Terms of Reference for this review

On 29 June 2010, SDP was granted a Network Operator's Licence in relation to the desalination plant. The then Minister for Finance and Services has, under section 51 of the *Water Industry Competition Act 2006* (WICA), declared that SDP is a monopoly suppler in relation to the water supply services under its Network Operator's Licence.

SDP is the only supplier of non-rainfall dependent drinking water in New South Wales. Currently, the primary purchaser of drinking water supplied by SDP is Sydney Water. Sydney Water purchases bulk water from two main sources: WaterNSW and SDP.

On 16 June 2022, the then Minister for Lands and Water provided specific terms of reference for the 2023 Determination for SDP. These state that the prices we set should therefore reflect the following water supply services:

a. The supply of non-rainfall dependant drinking water to purchasers, and
b. The making available of the desalination plant to supply non-rainfall dependant drinking water.

In addition, the Terms of Reference provide guidance on the pricing principles we need to consider in making our decisions, including:

1. The maximum prices should be set so that expected revenue will recover the efficient costs of providing the services described at a) and b) above over the life of the assets. These costs include operating costs, a return on assets and depreciation.
2. In calculating the return on assets, an appropriate opening asset value should be determined, and then a rate of return (or weighted average cost of capital or WACC) that reflects the commercial risks faced by the asset owner in providing services.
3. The depreciation should reflect the economic lives of the assets.
4. The structure of prices should encourage SDP to be financially indifferent as to whether or not the plant supplies water. This implies that the structure of prices should comprise separate prices for the different water supply services described at a) and b) above.
5. The amount of any adjustments under the mechanisms in principle 9 should each be separately quantified and published by IPART.
6. The prices for water supply services described at b) above should be a periodic payment and should reflect fixed costs, including the fixed component of operating costs, depreciation and a return on assets. SDP is entitled to charge for providing the water supply services in b) above irrespective of the levels of water in dam storages servicing Sydney or the availability of water from other sources.
7. The prices for water supply services in a) above should reflect all efficient costs that vary with output, including variable labour, energy and maintenance costs.

8. The price determination should consider SDP's ability to recover all costs it incurs in complying with the greenhouse gas reduction plan (GRRP) and the GRRP contracts other than costs related to surplus energy in relation to which the energy adjustment mechanism described in 8(iii) applies.
9. For each price determination other than the first price determination:
    i SDP should be allowed to carryover demonstrated efficiency savings, net of efficiency losses, in operating expenditure in providing the water supply services specified at a) or b) above for a period of 4 years following the year in which the efficiency saving was achieved.
    ii In calculating the notional revenue requirement, IPART should determine the demonstrated efficiency savings and treatment of energy gains or losses in accordance with the Methodology Paper, and
    iii A mechanism(s) is required to allocate the costs and benefits to SDP customers of actual gains or losses beyond a core band that result from the difference between SDP's cost of electricity and RECs under its contracts with Infigen (now Iberdola Australia) and revenues from the sale of surplus electricity and RECs. The mechanism would only operate at times when SDP complied with its requirements to maintain and operate the desalination plant under clause A2 of its Network Operator's Licence.
10. Any other matters that we may consider relevant.

These principles provide very specific guidance on the structure of the prices we are to set and the type of costs to be recovered through the various price components. However, the Terms of Reference also allow us to consider any other matters we consider relevant.

Appendix B provides a copy of these terms of reference, and information about how we considered these in our decision-making.

3.2 Ensuring we have met our legislative requirements

In addition to the pricing principles set out in the Terms of Reference, we will consider matters specified in the *Independent Pricing and Regulatory Tribunal Act 1992* (IPART Act) and the *Water Industry Competition (General) Regulation 2021* (WIC Regulation) in our review of prices for SDP.

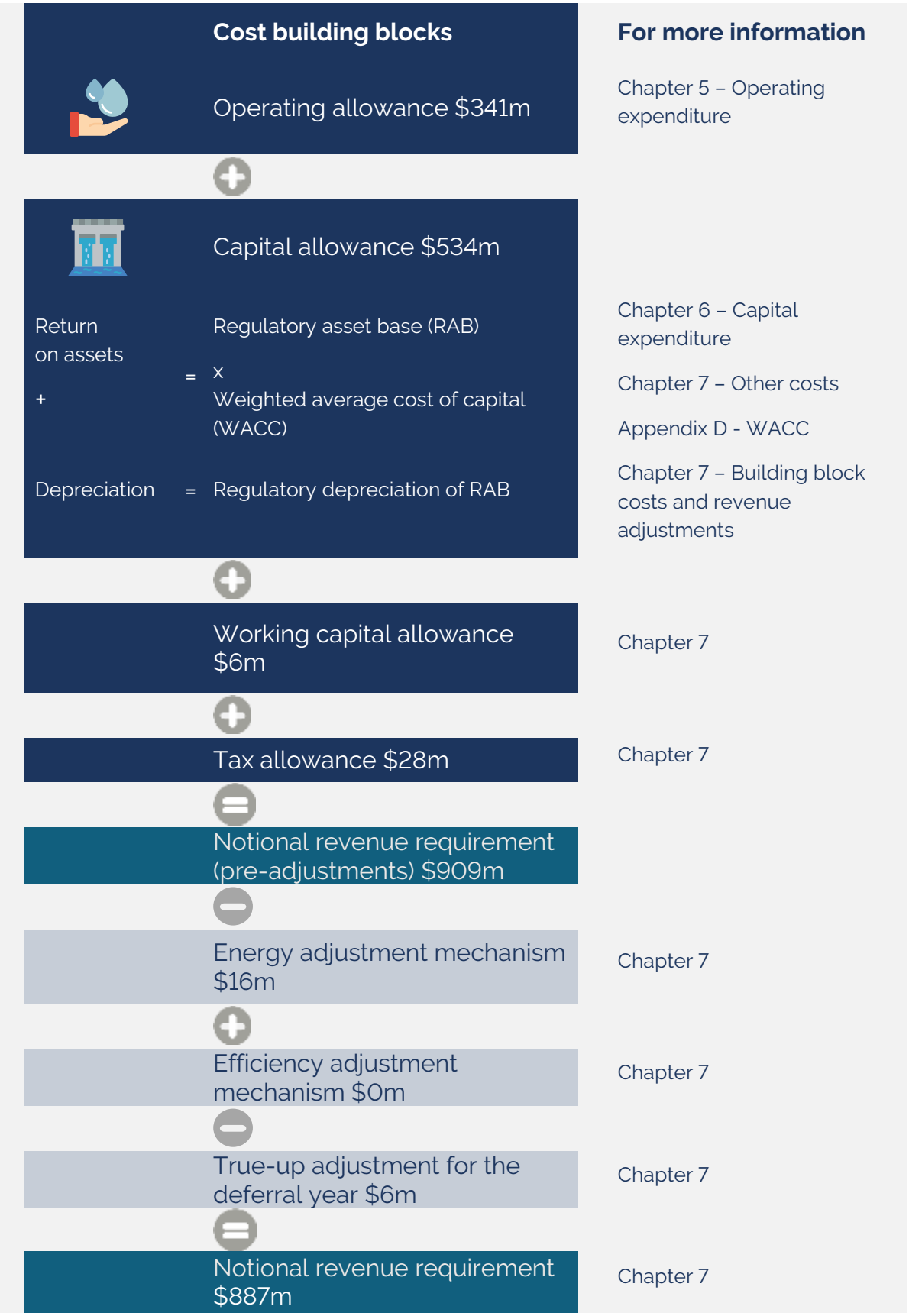
We discuss how we considered these in our decision-making in Appendix C.

3.3 Our building block approach

We have calculated SDP's required revenue using the building block approach with additional adjustments. The annual sum of these components is the total notional revenue requirement and represents our assessment of the total efficient costs that should be reflected in prices over the next 4 years. Figure 3.1 provides an overview of this approach, how we used it to set prices and where to find further information on our draft decisions for each component.[f] Appendix A provides more information about the building block approach.

[f] This figure does not sum due to rounding.

Figure 3.1 The building block



3.4 Reviewing SDP's pricing proposal

For this review, we use a propose-respond model. This model starts with SDP providing a pricing proposal to us. Figure 3.2 provides an overview of the review approach we have undertaken so far.

To apply our due diligence and ensure the right outcomes, we put significant effort into scrutinising SDP's proposal.

The expenditure requirement is the main component of revenue needed, and therefore the key basis of prices. We engaged expert consultants – Atkins and Marsden Jacobs Associates to assess the efficiency of SDP's proposed expenditure and advice on benchmark energy costs. This included to form a view and recommendation on:

- an efficient level of operational expenditure over the next 4 years
- the efficiency of capital expenditure over the last 6 years
- the efficiency of forward capital expenditure for the next 4 years.

So far, the review has taken into account:

- expected service levels under the Network Operator's Licence
- operational costs
- a sample of capital projects
- feedback our consultants received from SDP on the initial draft expenditure review report.

In order to do this, our consultants met with and interviewed SDP staff, and requested and reviewed a significant amount of information from SDP to inform their recommendations. They prepared a draft expenditure review report which informed our draft decisions. As part of this stage, we will provide SDP and all other stakeholders the opportunity to respond to this draft expenditure review report before finalisation.

The consultants' draft expenditure review report is available on our website.

Figure 3.2 Process for our review

Source: IPART's analysis.

3.5 Seeking input and feedback from stakeholders

We have undertaken a stakeholder engagement process in line with our regulatory obligations (see Appendix C).

Since the review started in September 2022, we have sought stakeholder feedback on multiple occasions, and we have taken this into account in our draft decisions. Sometimes we have had to balance conflicting views from stakeholders as well as our requirement to ensure that SDP receives sufficient funds to provide the level of service expected by the community.

Table 3.1 provides an overview of the timing and level of input to the stakeholder engagement we have undertaken so far. The table also includes the final round of stakeholder consultation we will do before we make our final decisions.

Table 3.1 Overview of our stakeholder engagement

Engagement item	Timing	Level of engagement	More information
Issues Paper, sought feedback	November 2022	6 submissions	The Issues Paper and submissions are publicly available
Public Hearing - SDP's proposal and our Issues Paper	February 2023	28 participants (excluding IPART and SDP staff)	Information and recordings
Draft Report, will be seeking submissions	April 2023	Seeking formal submissions and feedback on our review website	This Draft Report and other materials are publicly available

Through submissions to our Issues Paper and public hearing, stakeholders have indicated their views on SDP's proposal to balance its service levels, costs and risks over the 2023 determination period. In the next section, we explain this view and how they have influenced our draft decisions.

3.6 Balancing service levels, costs, risks and incentives

SDP's role is expanding. This has necessitated some changes in both the level of investment required and the ongoing operating costs of SDP. The change would also have implications for how SDP is incentivised to deliver good outcomes to customers in the Greater Sydney region.

As part of our review, we have carefully considered whether SDP's proposal meets the expected service levels under the new licence. It is essential SDP has the appropriate incentives in place to efficiently manage its costs and risks.

It is important that the prices we set are not too low or too high and provide the right incentives to manage the business interests of customers over the long term. If prices are set too low, SDP may not be able to spend what is required to provide the services expected over the 2023 determination period. If prices are set too high, the customers would pay more than is required and SDP would have little incentive to improve the way it manages its business. Chapters 5 and 6 discuss our findings and draft decisions on operating and capital costs of SDP over the next 4 years.

It is also in the long-term interests of customers that SDP be allowed to earn a reasonable return on its investment. Implicit in the return SDP receives on its investment is compensation for the risk it manages. It is important for SDP to have an incentive to manage this risk. Managing these risks is not new for SDP. In this review, we have carefully considered the allocation of risk between SDP and its customers. Chapters 11 and 12 discuss our findings and draft decisions on risk and incentive mechanisms.

Chapter 4

Preliminary decisions

Summary of our draft preliminary decisions

We have set prices for a 4-year determination period

Our draft decision is to set SDP's prices for a 4-year period, which is in line SDP's proposal. We consider 4 years balances the need for SDP to have funding certainty while learning how the business responds to meet its expected service levels over the 2023 determination period.

We have assumed an average production level of 68.4% for SDP

In this price review, we considered what an appropriate 'expected' or 'average' production level should be for the purpose of setting SDP's expenditure allowance. Our draft decision is to set this at 68.4% (of SDP's full production). This average production level is derived using current and historical data on SDP's production, dam storage levels and Annual Production Request (APR) indicators from Sydney Water's Decision Framework.

We have decided not to set any 'fixed' minimum level of production

Our draft decision is to allow SDP and Sydney Water to flexibly negotiate a minimum production level on an annual basis. Our view is that the implementation of a flexible minimum production level can facilitate operational and efficiency improvements for SDP, including for implementing improvements to reduce the minimum level of production over the medium to long term.

In this chapter, we discuss regulatory draft decisions we had to make that underpin other draft decisions. For example, our decision on the length of determination period would affect the period in which we set efficient costs and prices (see Chapters 5, 6, 8 and 9). In addition, the decision on level of water production would influence energy and membrane costs (see Chapters 5 and 6).

4.1 Length of determination

Our draft decision is:

1. To adopt a 4-year determination period from 1 July 2023 to 30 June 2027.

For each water pricing review, we need to decide how long to set prices for (the length of the determination period), which is generally between 1 and 5 years.

In our last review, we set SDP's prices for 5 years. For this review, SDP has proposed that we set prices for a slightly shorter period, i.e. 4 years from 1 July 2023 to 30 June 2027.[9]

Under normal circumstances, SDP considers a 5-year determination period would provide certainty and flexibility for its business. However, SDP had to consider the impact of the one-year deferral in setting new prices. In 2021, the then Minister for Water, Property and Housing requested IPART defer the review of SDP's prices by one-year so that the upcoming review would consider the impact of the SDP's new licence.[10] This deferral meant that SDP had to make debt refinancing decisions ahead of the 2023 price review. At SDP's request in 2021, IPART confirmed that the transition period to the trailing average cost of debt would occur over 5 years commencing 1 July 2022 and ending 30 June 2027. This led to SDP undertaking refinancing activities that considered this debt arrangement.

In addition, SDP considered a 4-year period would help reduce the risk of forecasting error for key cost items. Its service levels are changing in accordance with its new Network Operator's Licence. Because of this, SDP indicated it would use the next 4 years to better understand its operationsb and performance under its new role. SDP also considered a 4-year period would provide the shortest period for IPART to transition its pricing regulation into IPART's new regulatory framework.[11]

Our draft decision is to adopt a 4-year determination period. We agree with SDP that setting a 4-year period would balance the need to have funding certainty while learning how the business responds to its new flexible role.

4.2 Average production

Our draft decision is:

2. To apply a representative average production level, equivalent to 68.4%, for SDP's capital expenditure and depreciation profiles.

Some of IPART's building block components are dependent upon SDP's capital profile over the 2023 determination period, and by extension, SDP's expected level of production.

For example, if SDP produces water at full production continuously over the 4-year determination period, its membranes could deteriorate at a faster rate than if it had only produced water at, for example, 50% production. This could warrant a more frequent membrane replacement program, leading to a higher overall capital expenditure allowance, and a lower average membrane life for asset depreciation purposes.

However, it is clear that under the new Network Operator's Licence, there is limited ex-ante information available regarding forecast production levels over the upcoming 4-year determination period. The new licence foresees a greater likelihood that SDP will operate under varying levels of production going forward. This is also supported by Sydney Water's proposed new operating rules for SDP, as outlined in the Decision Framework and in Figure 4.1 below. As such, there remains a significant range of potential production levels that SDP could operate under over the 2023 determination period.

In this price review, we considered what an appropriate 'expected' or 'average' production level should be. This is because the production level itself is a key input to calculating SDP's membrane capital costs, regulatory depreciation of membranes, and SDP's electricity network costs. In lieu of detailed probabilistic modelling (or long-term forecast information), we asked our consultant, Atkins, to derive a high-level estimate of a 'representative average production',

Using historical production data and dam storage levels, Atkins estimated the average percentage of time (or 'probability') that SDP could spend in each operating phase of Sydney Water's Decision Framework for SDP Operation, Using this, Atkins derived a representative average production level of 68.4% (or 171 ML per day).[12]

Table 4.1 below summarises the probability assumptions applied in Atkins' derivation of the representative average production. Sydney Water's corresponding operating rules, as outlined in the Decision Framework for SDP Operation, are shown in Figure 4.1.

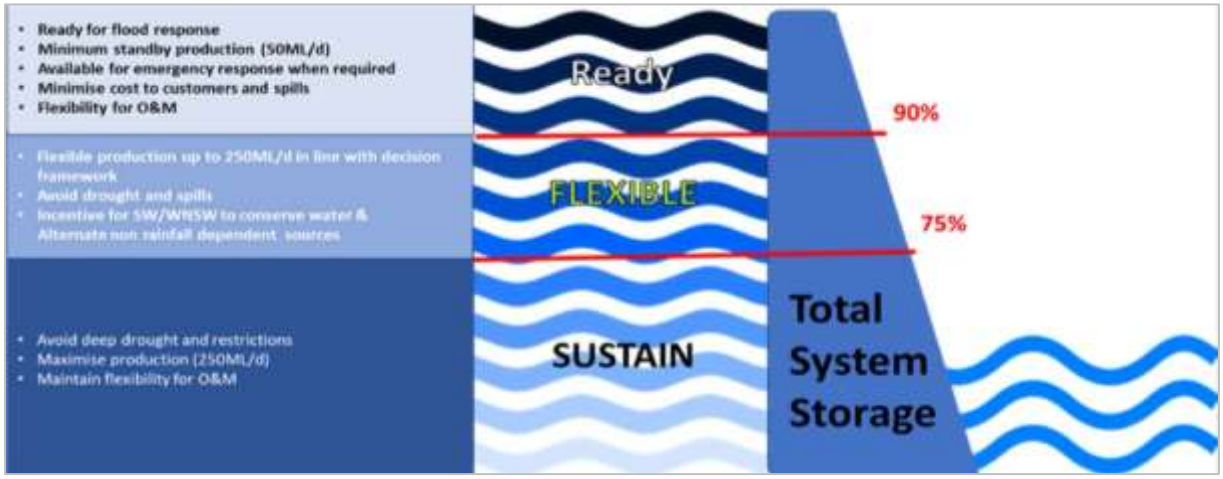
We note there may certainly be limitations to the accuracy of the representative average production calculated by Atkins. However, at this stage, our view is that it provides the closest available estimate of SDP's expected level of production, in lieu of any other forecast or benchmark production figure. Therefore, our draft decision is to apply a representative average production level, equivalent to 68.4%, for calculating SDP's capital expenditure and regulatory depreciation profiles over the 2023 determination period.

Table 4.1 Estimated representative average production level

	Scenario	Assumed probability	Production (ML/d)
1	"Ready to respond" phase	30%	50
2	"Flexibility phase"	20%, of which:	see below
	Risk neutral	60%	125
	Drought risk	30%	250
	Spill risk	10%	50
3	"Sustaining dam storage" phase or indication of drought in "Flexibility phase"	45%	250
4	Supply emergency	5%	250
	Representative average production level		**171 (68.4%)**

Source: IPART and Atkins analysis. Table and information adapted from Atkins & Marsden Jacob Associates, *Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report*, March 2023, p. 26

Figure 4.1 Operation of SDP under new operating rules



Source: Sydney Water, Decision Framework for SDP Operation, June 2022, p. 5, Figure 1.

4.2.1 Application of the average production level

As noted above, there is limited ex-ante information available regarding SDP's forecast production levels over the upcoming 4-year determination period. However, the production level itself is a key input to calculating SDP's membrane capital costs (including the regulatory depreciation of membranes), and SDP's electricity network costs. We have therefore adopted a 68.4% 'representative average production' level for the purpose of setting SDP's membrane capital costs and electricity network costs.

We note that this average production level has been adopted for the purpose of setting prices only – and any variances between this assumption and SDP's actual production over the 2023 determination period will be fully accounted for. Specifically, any differences between the membrane capital cost allowance and SDP's actual membrane capital costs will be subject to an ex-post review at SDP's next price review. Subject to these cost differences meeting IPART's test of prudence and efficiency, these will be included within SDP's RAB roll-forward for the next determination period.

For electricity network costs, any differences between our 2023 determination allowances and actuals will be accounted for via the electricity network cost pass-through (discussed further in Section 11.2.1 of this report).

4.3 Minimum production

Our draft decision is:

3. To not set any 'fixed' minimum level of production, and allow SDP and Sydney Water to flexibly negotiate a minimum production level on an annual basis.

In its Pricing Submission to IPART, SDP proposed a 23GL/year 'baseload' or 'minimum' level of production. SDP stated that this minimum level of production is intended to represent the minimum volume of water necessary for SDP to respond to Sydney Water's Annual Production Requests (APR).[13]

In our Issues Paper, we sought stakeholder feedback on the appropriateness of applying 23GL/year as a minimum level of production for SDP over the 2023 determination period. In response, DPE's submission suggested that SDP's proposal of 23 GL/year may be an appropriate 'starting point' for IPART to consider.[14] Sydney Water's submission supported the rationale for setting a minimum level of production, but disagreed that this figure should be set at 23GL/year. Sydney Water also noted its preference for IPART's Determination to maintain 'flexibility' around the minimum production level.[15]

We have considered all stakeholder views, including SDP's, in reaching our draft decision. Based on the submissions to our Issues Paper and the outcomes of our Public Hearing, our view is that that there is insufficient information pointing towards the appropriateness or relevance of setting 23Gl/year as SDP's minimum level of production. We agree with Sydney Water that there may be significant operational benefits in adopting a flexible approach towards minimum production, including opportunities for efficiency savings over the medium to long term.

Our draft decision is therefore to not set any 'fixed' minimum level of production, and to instead apply a flexible approach towards SDP's minimum production over the 2023 determination period. Under this approach, it is envisaged that SDP and Sydney Water can negotiate an appropriate minimum level of production on an annual basis. Our view is that the implementation of a flexible minimum production level can facilitate operational and efficiency improvements for SDP, including for implementing improvements to reduce the minimum level of production over the medium to long term.

4.3.1 Learnings from SA Water's Adelaide Desalination Plant

As a point of comparison, SA Water's Adelaide Desalination Plant (ADP) produces up to 600ML/month when in in 'standby' (or 'low flow') mode.[16] SDP's proposed minimum level of production of 23GL/y (or 1,900 ML/month) is roughly 3 times what ADP produces in low flow mode. ADP has a similar total capacity to SDP (i.e. approx. 274 ML/d compared to SDP's 250 ML/d), features a pipeline of similar length[17,18], and was constructed within a few years of SDP.

We acknowledge that SDP's operating regime is certainly different to that of ADP's, and the design of both plants may vary considerably due to their distinct environmental and operational circumstances. Therefore, we are not suggesting that SDP could necessarily achieve ADP's level of minimum production. However, we note that the relative efficiency of ADP's minimum production level serves as a useful pointer towards the degree of flexibility that a plant of SDP's size could potentially achieve over time, when provided with the right flexibility and incentives,

Our draft decision therefore aims to set the right regulatory conditions to support SDP and Sydney Water to continue to seek efficiencies in SDP's minimum level of production, in line with the long-term interests of customers.

Chapter 5

Operating expenditure

Summary of our draft decisions for operating expenditure

SDP's operating cost allowance will support its new service levels

Our draft decisions on SDP's operating expenditure reflect the efficient costs of operating flexibly under SDP's new Network Operator's Licence.

For example, SDP's corporate cost allowance allows for the hiring of additional staff to oversee efficiency and sustainability initiatives. Similarly, its insurance cost allowances facilities the purchase of prudent insurance policies for SDP to efficiently manage its risks under its new operating rules.

We have also set continuing and catch-up efficiency targets to incentivise efficient operating costs over the long run.

At average production, our draft decision on SDP's total operating costs is $85.3 million per year.[9]

We have applied a market-based benchmark to ensure SDP's energy expenditure reflects the efficient cost of procuring energy

Energy costs account for a major component of SDP's overall operating expenditure. In setting SDP's energy cost allowance, we considered the importance of ensuring that prices reflect the efficiency cost of procuring energy in line with SDP's requirements under its Greenhouse Gas Reduction Plan.

Our draft decision is to set SDP's energy cost allowance based on an efficient market-based benchmark.

This chapter sets out our draft decisions on SDP's efficient operating expenditure over the 2023 determination period.

To inform our draft decisions, we engaged expert consultants to review the efficiency of SDP's proposed operating expenditure over the 2023 determination period. Our consultant, Atkins, conducted a thorough review of the efficiency of SDP's proposed operating costs. Importantly, we asked Atkins to assess whether the proposed operating expenditure appropriately reflected the efficient costs SDP would incur under its new Network Operator's Licence. The requirements and expectations on SDP have therefore been central to Atkins' recommendations.

We also engaged Marsden Jacob Associates (MJA) to calculate a market-based benchmark for the efficient price for procuring energy in line with SDP's Greenhouse Gas Reduction Plan (GGRP) requirements. Similar to Atkins' approach, the benchmark calculated by MJA is reflective of the added operational flexibility warranted by the new Network Operator's Licence.

[9] In $2022-23 terms, using the average of SDP's 4-year determination allowance.

We have considered the outcomes of Atkins' operating expenditure review and outlined our draft operating expenditure decisions in this chapter.

Our draft decisions are:

4. To set SDP's benchmark energy consumption as outlined in Table 5.1
5. To continue to set SDP's energy cost allowances based on a market-based benchmark of efficient energy costs, as outlined in Table 5.2
6. To set the efficient level of SDP's fixed operating expenditure as outlined in Table 5.4.
7. To set the efficient level of SDP's variable operating expenditure during production as outlined in Table 5.5.
8. To set the efficient level of SDP's variable operating expenditure during a Sydney Water requested zero production as outlined in Section 5.3.2

5.1 Energy costs

Desalination is a highly energy intensive process, and energy costs therefore account for a significant portion of SDP's total operating expenditure.[19] Assessing SDP's efficient energy costs requires a consideration of:

- The efficient volume of energy consumed (MWh)
- The efficient unit cost for procuring the energy itself ($/MWh)

These two cost elements are discussed separately in the sections that follow.

5.1.1 Energy volumes

Approach to assessing efficient volumes of energy consumption

In our assessment of SDP's efficient energy consumption, we considered the impact of SDP's ageing membranes on its energy usage, and the need to drive efficiency improvements across SDP's operations. We also considered the independent analysis by our consultant, Atkins, on SDP's historical fixed and variable energy consumption.

Atkins' analysis considered SDP's actual energy consumption between January 2020 and October 2022[20]. The data from this period was considered representative of SDP's recent operational performance, since replacement of its membranes in 2019. Additionally, the selected period featured data points across varying levels of production, ranging from 0 ML/d to maximum production. The best-fit curve for this data indicated:

- A fixed energy consumption of 28.8 MWh per day[21]
- A variable energy consumption of 3.366 MWh per ML of water produced[22]

Considering the above data, as well as the overall condition of the desalination plant and SDP's requirements over the 2023 determination period, Atkins recommended:

- For fixed energy consumption: to set SDP's benchmark energy volume based on the best-fit curve, resulting in total fixed energy benchmark of 28.8 MWh/d[23]
- For variable energy consumption: to set SDP's allowance based on the best-fit curve, but with an additional 0.1 MWh/ML allowance for the impacts of membrane ageing on energy efficiency. This results in a total variable energy benchmark of 3.466 MWh/ML.[24]
- Additionally, Atkins did not recommend applying any catch-up or continuing efficiency challenges for SDP's energy costs.[25]

We agree with Atkins' analysis of SDP's efficient fixed and variable energy volumes. However, our view is that SDP's energy consumption allowances should be subject to a continuing efficiency challenge of 0.7% p.a. (compounding annually), in line with our proposed approach for other non-energy components of SDP's operating expenditure.

We recognise that there may certainly be a degree of technical or engineering limitations to the reduction in energy consumption feasible under the desalination process. However, we note that the continuing efficiency factor is, by definition, a firm's 'average' improvement to efficiency that is made in line with economy-wide productivity improvements. Therefore, any limitations to the reduction in SDP's energy consumption could be offset by greater efficiency improvements in other areas of the business. In so doing, SDP could achieve an average 0.7% pa continuing efficiency improvement across its operations, while balancing any technical limitations to its energy consumption profile. Given this, our draft decision is to apply a 0.7% pa continuing efficiency challenge to SDP's energy consumption allowance, in line with our recommendations for other non-energy components of SDP's operating and capital expenditure.

Draft decision on benchmark energy volumes

Our draft decision is to accept Atkins' recommendations of fixed and variable energy consumption, with the addition of a 0.7% p.a. (compounding) continuing efficiency factor from FY24 onwards.

Table 5.1 outlines our draft decisions in relation to SDP's energy volumes.

Table 5.1 Benchmark energy volumes

	Average 2017	2023-24	2024-25	2025-26	2026-27
SDP Proposal					
Fixed (MWh/d)	n/a	34.56	34.65	34.84	34.84
Variable (MWh/ML)	n/a	3.67	3.68	3.73	3.73
IPART draft decision					
Fixed (MWh/d)	21.00	28.80	28.60	28.40	28.20
Variable (MWh/ML)	3.52	3.47	3.44	3.42	3.39

Source: IPART analysis.

5.1.2 Unit energy costs

Energy costs account for a significant portion of SDP's total operating expenditure. Therefore, a key focus for this price review is to ensure SDP's energy costs are efficient, and to set the right regulatory environment to support SDP's efficient procurement of energy.

This section discusses our approach, key considerations, and draft decision on SDP's unit energy cost allowance.

SDP's costs in complying with the GGRP and GGRP Contracts

In reaching our draft decision on SDP's energy cost allowance, we considered (among other factors) pricing principle 7A of the Terms of Reference to IPART, which states:

> "The price determination should consider SDP's ability to recover all costs it incurs in complying with the GGRP and the GGRP Contracts […]"[26]

Separately in the Terms of Reference, the then Minister for Lands and Water also asked IPART to consider the following in making its price determination:

> "[That] SDP did not know that it would be asked to operate the plant in accordance with the new operating regime when entering into these agreements with Infigen"[27]

In our consideration of the pricing principle 7A, we assessed the potential for SDP to recover its costs in complying with the GGRP, and with the GGRP contracts, under the following two scenarios:

1. If we set SDP's energy cost allowance based on its actual GGRP contract costs, and
2. If we set SDP's energy cost allowance based on a market-based benchmark.

In relation to the first scenario, our assessment concluded that setting SDP's energy cost allowance based on its actual contract costs would, by definition, enable it to recover the costs it incurs in complying with the GGRP and GGRP contracts

In relation to the second scenario, our analysis of forecast and historical benchmark costs found that the benchmark approach would, to the extent reasonably foreseeable, also allow SDP to recover its costs in relation to the GGRP and the GGRP Contracts. This analysis was supported by the forecast benchmark calculated for the 2023 determination period, which considers all foreseeable costs that SDP may incur in complying with the GGRP, and in procuring its energy from 100% renewable sources.[28]

Setting energy costs based on a market-based benchmark

Our draft decision is to continue setting SDP's energy cost allowance based on a market-based benchmark of efficient energy costs, as done in prior 2012[29] and 2017[30] price determinations for SDP.

We note that SDP's proposal, as well as its submission to IPART's Issues Paper, argues in favour of setting energy costs based on its existing contracts with Iberdrola Australia.[31] SDP's reasons for this proposal are outlined below in Box 5.1.

In reaching our draft decision, we assessed both the benchmark and contract cost options equally on their merits. On balance, our view is that setting energy costs based on a market-based estimate is best regulatory practice, because:

- It represents the best available estimate of the efficient cost of procuring energy in a competitive open market
- It provides the incentive for SDP to procure its energy efficiently within the next determination period, when SDP's existing contracts with Iberdrola Australia are set to expire[32], and SDP is likely to commence procuring or renegotiating its subsequent energy contracts
- It ensures customer's bills reflect the efficient cost of energy
- It accounts for the costs that SDP is expected to incur in complying with the GGRP and GGRP Contracts – therefore fulfilling pricing principle 7A of the Terms of Reference.

In its submission to IPART's Issues Paper, Sydney Water expressed support for setting SDP's energy costs based on its actual GGRP contract costs.[33] We have considered both SDP and Sydney Water's views within the context of the long-term interests of customers. However, we note that setting prices based on SDP's actual energy contract costs could present the following pricing issues:

- Since SDP is required to procure only 50%[h] of its RECs via its contract with Iberdrola Australia[34], passing through SDP's actual electricity and REC contract costs would not necessarily be a cost-reflective outcome at all levels of production
- Using SDP's actual contract costs for price setting purposes may negate the incentive for SDP to efficiently procure or negotiate its energy contracts in the next determination period, when SDP's existing contracts with Iberdrola are set to expire. [35] Such a decision would therefore be against best practice regulatory principles.

[h] SDP is required to purchase 180,000 renewable energy certificates through its GGRP Contracts (equivalent to 180,000 MWh). Given that SDP uses up to 360,000 MWh of electricity in a year, this amounts to roughly 50% of its annual REC requirements, when operating at full production.

Box 5.1 SDP's proposal to pass through its actual energy contract costs

In its proposal, SDP argued that its energy cost allowance should be set on the basis of its existing long-term energy contracts with Iberdrola Australia.

The following arguments were made in support of its proposal:

- SDP noted that its contracts are prudent, given the circumstances and information available at the time
- SDP expressed its view that its existing energy contracts are efficient, as they were procured via a competitive tendering process.
- The report by ACIL Allen (commissioned by SDP) noted that SDP's existing contracts are efficient when compared against other power purchase agreements executed at the same time (i.e. 2007-2008)

Separately, SDP also made note of:

- Its legal obligation to purchase electricity and LGCs through its GGRP contracts
- Its commercial imperative to purchase renewable energy though its long-term contracts

The Terms of Reference to IPART, which requires IPART's price determination to consider "*SDP's ability to recover all costs it incurs in complying with the GGRP and the GGRP Contracts […]*"[36]

Source: Sydney Desalination Plant[37]

Setting energy costs based on a benchmark is common regulatory practice

In principle, our view is that customer's prices should reflect the efficient costs of providing a service. Therefore, where there is sufficient benchmark data from competitive markets (such as energy and financial markets), we consider it to be regulatory best practice to apply these benchmarks for pricing purposes.

This approach is consistent with longstanding IPART practice and has been applied to energy pricing for other regulated utilities[i] [38], as well as for SDP in its prior 2012 and 2017 price reviews. Additionally, this benchmark approach has also been applied by other Australian regulators for pricing energy costs for desalination plants. For example, the Victorian Essential Services Commission (ESC) applies benchmark energy costs in setting prices for Melbourne Water's desalination water order management costs[39].

[i] For example, IPART adopted a benchmark approach for energy cost allowances in the 2022 Review of WaterNSW's prices for the Murray River to Broken Hill Pipeline

Calculation of the market-based benchmark

Our consultant, MJA, was engaged to calculate an efficient market-based benchmark that could be applied to SDP's energy cost allowance.

In building its benchmark, MJA considered that a prudent energy retailer would forward contract SDP's maximum daily energy requirement.[40] This would provide the optionality for SDP to operate across a wide range of production levels, in accordance with Sydney Water's Decision Framework. The benchmark energy cost therefore comprises of:

- A variable component – which reflects SDP's actual volume of energy consumed (settled at the NEM spot price), and
- A fixed component – which reflects the fixed energy volumes consumed within a day, plus the hedging costs incurred by a prudent, efficient retailer in providing the optionality for SDP to procure energy for varying levels of production

MJA's methodology to derive the benchmark energy cost accounts for SDP's unique requirement to procure 100% renewable energy, as well as the operational requirements from SDP's new flexible operating environment. The benchmark therefore includes the cost of procuring electricity, renewable energy, and all other foreseeable components associated with SDP's energy procurement. However, in some instances, there may be additional costs that SDP could incur outside of what is allowed for within the benchmark, including:

- Reliability and Emergency Reserve Trader (RERT) charges
- Retailer Reliability Obligation (RRO) charges
- NSW Peak Demand Reduction Scheme (PDRS) costs
- Network costs[41]

In relation to the RERT, RRO and PDRS, these costs are considered to be relatively minor in nature, with considerable uncertainty regarding whether SDP may or may not be subject to them over the upcoming determination period. For example, RRO costs were introduced in July 2019 to manage the risks of declining reliability of supply in energy networks, however, to date it has never been triggered in NSW.[42] Similarly, RERT charges are levied on market customers and retailers in proportion to consumption during RERT events[j] (which are often forecast days or weeks in advance). Therefore, SDP may have flexibility to reduce its RERT charges by reducing its consumption over these periods. Given the information currently available, the relatively minor scale of these charges and the uncertainty regarding their application itself, our view is that the benchmark price should not include allowances for potential RERT, RRO and PDRS charges at this stage.

[j] National Electricity Rules, rule 3.15.9(a).

For network costs, our draft decision is to continue applying a pass-through mechanism for SDP's network charges, as done in prior 2012 and 2017 determinations. Our draft decision to apply this pass-through is based partially on the limitations of data currently available on SDP's demand profile under the new Network Operator's Licence. However, at our next price review for SDP, we envisage there will be sufficient data to assess SDP's demand profile and forecast network costs under its flexible mode of operation. As such, we intend to revisit this matter at SDP's next price review, where we will consider the merits of including SDP's network changes within its operating cost allowances rather than as a pass-through mechanism. Section 11.2.1 of this report discusses our draft decision on this matter.

A detailed outline of MJA's methodology for calculating the benchmark is provided in Chapter 4.2 of Atkins & MJA's Draft Expenditure Review Report.

Draft decision on benchmark energy prices

Our draft decision is to adopt the benchmark energy prices calculated by MJA, with an adjustment for the fixed energy volume embedded in the benchmark price. Our adjustment reflects our draft decision on SDP's energy volumes outlined in Section 5.1.1 above – i.e. to use a post-continuing efficiency energy volume for SDP's energy cost allowance. We note for clarity that our proposed efficiency adjustment has been applied only to the fixed energy volume embedded within the benchmark, as opposed to the entirety of the benchmark price itself.

Table 5.2 outlines the benchmark energy prices we propose to apply for the 2023 determination period.

Table 5.2 Benchmark energy costs ($2022-23)

	2023-24	2024-25	2025-26	2026-27
IPART draft decision				
Fixed ($/d)	15,788	15,452	16,085	15,503
Variable ($/MWh)	162	151	176	156

Note: Benchmark energy costs have been adopted from MJA's analysis, with adjustments to the fixed component to reflect our draft decision on fixed energy consumption. See Table 5.1 for the fixed energy volumes embedded within the fixed benchmark energy costs.
Source: IPART and MJA analysis,

5.1.3 Energy operating cost allowance

Based on our draft decisions on energy consumption and energy prices (as outlined in Section 5.1.1 and 5.1.2 respectively), our proposed total energy cost allowance for SDP is provided below.

Table 5.3 Total energy operating cost allowance ($millions, $2022-23)

	2023-24	2024-25	2025-26	2026-27
IPART draft decision				
Total (at representative average production)	40.9	38.0	43.4	38.6
Total (at full production)	57.2	53.0	60.8	53.8

Source: IPART analysis.

5.2 Fixed operating costs (excl. energy)

This section discusses our draft decisions on SDP's fixed operating cost allowance, excluding energy (which is outlined separately in Section 5.1). Our approach to assessing the efficient level of fixed operating costs included a consideration of historical operating costs, market-driven cost increases, and the changing nature of SDP's operation where relevant. In reaching our draft decisions, we also considered the independent recommendations from our consultant, Atkins.

The key drivers for the increase in fixed costs between our draft decision and the 2017 determination period are:

- Increasing corporate costs to support SDP's new flexible full-time operation, including through the hiring of additional corporate staff to support greater efficiency and sustainability outcomes. Some increases to SDP's corporate costs are also attributed to movements in the cost of council rates and land tax.
- Increasing insurance costs, due to industry-wide rising premiums, and for new insurance policies that SDP has prudently entered into for new or emerging business risks.
- Additional routine asset maintenance (to both the plant and pipeline) to keep SDP's assets in good condition under its new flexible role. This also includes costs for routine maintenance activities that were deferred in FY21 and FY22 while SDP was operating under emergency response.

In its review, Atkins recommended scope adjustments, catch-up efficiencies and continuing efficiencies for a range of fixed operating cost categories. Overall, Atkins' recommendation for fixed costs was 5% higher than FY22 levels[43], and 19%[k] lower than SDP's proposal. Atkins' recommended reductions relative to SDP's proposed fixed operating expenditure comprise largely of:

- Scope reductions to SDP's Operations & Maintenance (O&M) costs, for which Atkins found there was insufficient reason to justify the efficiency of additional FTE costs for SDP's plant operator, Veolia.
- Scope reductions to SDP's proposed routine asset maintenance costs, for which Atkins found that the proposed increases were not sufficiently justified given the reducing trend in SDP's actual routine asset maintenance costs from FY20 to FY22. To this point, Atkins also noted that the increase in SDP's periodic maintenance capital expenditure allowance should lessen the impacts of asset deterioration, and place downward pressure on the level of routine asset maintenance warranted by the plant.
- A catch-up efficiency challenge of 0.5% pa (cumulatively) from FY24 onwards, noting that the operational experience gained by SDP and Veolia during its emergency response is expected to facilitate greater scope efficiency savings in 2023 determination period.
- A continuing efficiency factor of 0.7% pa (cumulatively) from FY24 onwards, in alignment with IPART's usual approach to continuing efficiency for other regulated businesses. The 0.7% continuing efficiency factor is based on the Australian Productivity Commission's multi-factor productivity analysis.

[k] IPART analysis, using total of SDP's proposed and Atkins' recommended non-energy fixed operating costs between 2023-24 and 2027-28. Comparisons are in $2022-23 terms

5.2.1 Accounting for SDP's flexible full-time operation

In Atkins review of SDP's fixed operating expenditure, it considered (among numerous factors) the impact of SDP's flexible full-time operation on its forecast cost profile. We agree with most of Atkins recommendations for fixed costs, however, there are a few instances in which we have adopted a different position.

For SDP's plant routine asset maintenance, our draft decision is to increase SDP's allowance relative to Atkins recommendation. Our view is that a sustainable operating regime under the new operating licence is not the same as the emergency response role under which SDP has been operating since March 2020. By extension, the level of routine asset maintenance undertaken by SDP during emergency response may not translate to a sustainable level of maintenance going forward. As such, our view is that the use of FY22 as a base year for cost setting purposes may not provide an accurate reflection of the actual level of routine asset maintenance required by plant going forward. Accordingly, we have adopted the average of SDP's FY20 and FY21 costs as the base year for SDP's plant routine asset maintenance allowance. These costs are included within the total fixed operating cost allowance in Table 5.4.

With reference to SDP's new insurance policies, Atkins recommended maintaining SDP's proposed FY24 coverage across all years of the determination period, rather than adopting the proposed step changes between FY24 and FY27.[44] However, our view is that SDP's proposal to increase coverage for some policies is in itself a prudent decision, and it reflects the efficient costs of insuring against uncontrollable risks. Therefore, our draft decision is to accept SDP's total proposed insurance costs in full, with the addition of catch-up and continuing efficiencies. However, as discussed later in Section 5.2.3 below, we note that SDP may be required to obtain re-quotations for some policies in light of our draft decisions on SDP's incentive schemes.

5.2.2 Fixed operating cost allowance (excl. energy)

The Table below outlines our draft decisions on SDP's total fixed operating cost allowance (excluding energy costs) for the 2023 determination period.

Table 5.4 Fixed operating expenditure allowance (excl. energy) ($millions, $2022-23)

	2023-24	2024-25	2025-26	2026-27	Total
SDP Proposal					
Total fixed costs	38.1	38.6	42.6	40.0	159.2
Corporate (incl. insurance)	16.4	16.3	19.0	18.8	70.4
Pipeline	0.5	0.5	0.5	0.5	2.0
Plant	21.2	21.8	23.1	20.7	86.8
IPART draft decision					
Scope adjustments	(2.8)	(2.4)	(5.8)	(3.2)	(14.2)
Corporate (incl. insurance)	(0.8)	0.1	(2.0)	(1.8)	(4.6)
Pipeline	(0.3)	(0.3)	(0.3)	(0.3)	(1.2)
Plant	(1.7)	(2.2)	(3.5)	(1.1)	(8.5)
Catch-up efficiency adjustments	(0.2)	(0.4)	(0.5)	(0.7)	(1.8)

	2023-24	2024-25	2025-26	2026-27	Total
Continuing efficiency adjustments	(0.2)	(0.5)	(0.8)	(1.0)	(2.5)
Total post-efficiency allowance	34.9	35.3	35.5	35.1	140.7

Source: IPART analysis.

We note that the insurance cost allowances outlined in the table above are preliminary only at this stage. Further information on our approach towards insurance costs for this Draft Report are discussed below in Section 5.2.3.

5.2.3 Approach towards insurance costs

Our approach in the 2017 determination period

Industrial Special Risks (ISR) insurance is the largest contributor to SDP's total insurance cost allowance. Under ISR insurance, SDP receives coverage for Material Damages (i.e. damage to its assets or property) as well as Business Interruption (i.e. consequent revenue losses).[45]

In the 2017 Determination, we decided that SDP should in principle be permitted to pass on the efficient costs of ISR insurance to customers[46], because it reflected the efficient cost of SDP recovering from a force majeure event. However, this decision was specific to the circumstances of the time, namely:

- The application of abatement meant that SDP could, under a worst-case scenario, lose up to 100% of its service charge during an insurable force majeure event
- SDP had no revenue protection for any portion of its service charge not subject to abatement (including, for example, a guarantee that Sydney Water would continue to pay the service charge, including in instances when no service is being provided due to a force majeure event)
- The presence of a third-party insurer (to protect against the losses outlined in the first two points) would in itself drive SDP to efficiently recover from the force majeure event, in line with the long-term interests of customers.

SDP's proposal for the 2023 determination period

SDP's Pricing Submission to IPART presented two packages for ISR insurances, contingent upon our decision on incentive schemes for the 2023 determination period:

- **Package 1 - Current abatement mechanism:** This package assumes the current abatement mechanism remains in place over the 2023 determination period. Accordingly, the total Business Interruption insurance limits are selected based on the potential financial penalties that SDP could be liable for from the application of abatement during insurable force majeure events.[47]
- **Package 2 – SDP's proposed SLIS:** This package assumes that SDP's proposed SLIS, including its associated 2.5% cap on financial penalties and rewards[l], applies over the 2023 determination period. Accordingly, the total Business Interruption insurance limits are selected based on the potential financial losses that SDP would be subject to under the SLIS scenario (equivalent to approximately 2.5% of its fixed plant service charge)[48]
  - A key assumption in this scenario is that under a force majeure event, Sydney Water would continue to pay SDP a service charge, including in instances where no service is being provided. This charge is equivalent to 97.5% if SDP's fixed plant service charge (i.e. the portion of SDP's service charge not subject to financial penalties under the SLIS or ECM)
  - For the Material Damage component of ISR insurance, SDP's proposed level of coverage is consistent across both packages, and is equivalent to the replacement value of SDP's plant and pipeline assets.

Our approach for the 2023 determination period

Our draft decision for the 2023 determination period is to remove the existing abatement mechanism and to rely solely upon the incentives inherent in SDP's new Network Operator's Licence.[m] The implication of this draft decision is that SDP's proposed ISR insurance packages (as summarised above) apply to the incentive structure envisaged for the 2023 determination period. This is because in the absence of an explicit incentive mechanism, SDP does not bear the same level of financial risk during force majeure events as it would if abatement or SLIS applied. Consequently, the level of Business Interruption coverage proposed by SDP under the abatement and SLIS packages are likely significantly in excess of what SDP would reasonably require in the absence of such incentive schemes.

However, while neither of SDP's proposed insurance packages strictly align to our proposed incentive structure, Package 2 (i.e. the SLIS package) is likely to be more directionally consistent with SDP's required insurance coverage in the 2023 determination period.

l SDP proposed a combined cap on financial penalties and rewards for the SLIS and Efficiency Carryover Mechanism (ECM). The proposed cap is equivalent to 2.5% of SDP's fixed plant charges. Refer to Chapter 11 of this report for further detail on SDP's proposal, and our draft decisions on SDP's risk package,

m Refer to Chapter 12 of this report for further detail on our draft decisions on SDP's incentives.

Therefore, for the purpose of this draft report (and in lieu of an insurance quote tailored to our draft decision on SDP's incentives), our proposed approach is to include 'Package 2' to SDP's total insurance cost allowance. In so doing, we note the following qualifications:

- It is expected that between the release of this Draft Report and our Final Report (expected in June 2023), SDP is to obtain from its insurance broker a quote for ISR insurance that is tailored to our draft decisions on incentives (discussed in detail within Section 12.1 of this report)
- It is assumed that SDP and Sydney Water will together assess the efficient costs of SDP recovering from a force majeure event. If both parties are agreeable to Sydney Water paying a service charge during force majeure events, then it is expected that SDP's ISR quote will exclude coverage for Business Interruption events. It is also expected that SDP will demonstrate if and how this outcome aligns with the long-term interests of customers.
- For clarity, our usage of SDP's Package 2 (SLIS) quote in this Draft Report is intended to serve as a 'preliminary' cost only. If SDP and Sydney Water determine that third-party Business Interruption insurance reflects the most efficient cost of SDP recovering from a force majeure event, then it is expected that SDP's ISR quote will include coverage for Business Interruption events. It is also expected that SDP will demonstrate if and how this outcome aligns with the long-term interests of customers.
- Lastly, our proposed approach towards ISR insurance costs discussed above are specific to force majeure events only. Therefore, it is expected that SDP's revised insurance quote will reflect the efficient cost of insuring against loses caused by force majeure events only, in line with its September 2022 pricing submission.

Both SDP and Sydney Water are encouraged to propose a preferred approach for SDP's insurance coverage, alongside supporting insurance quotes where relevant. Further, we invite Sydney Water and other stakeholders to share their views on this matter.

Seek Comment

1. Should prices reflect the costs of recovering from force majeure events through third-party business interruption insurance? Or alternatively, should these costs be avoided via Sydney Water's continued payment of a service charge during force majeure events?

5.3 Variable operating costs (excl. energy)

This section discusses our draft decisions on SDP's variable operating cost allowance, excluding energy (which is outlined separately in Section 5.1). Our approach to assessing the efficient level of variable operating costs is similar to that for fixed costs – i.e. we have considered historical operating costs, market-driven cost increases, and the changing nature of SDP's operation where relevant. In reaching our draft decisions, we also considered the independent recommendations from our consultant, Atkins.

The key drivers for the increase in variable costs between our draft decision and the 2017 determination period are:

- An additional allowance for the impact of membrane ageing on the overall efficiency of SDP's variable costs, equivalent to an additional $10/ML from FY24 to FY27.
- Additional costs for the disposal of lime sludge, cartridge filter usage, and other smaller miscellaneous variable cost items

Atkins reviewed the efficiency of SDP's proposed variable operating costs and recommended scope adjustments, catch-up efficiencies, and continuing efficiencies. In full production, Atkins' recommendation for variable costs is in total 2% higher than the equivalent 2017 allowance[49], and 28%[n] lower than SDP's proposal. These recommended reductions comprise largely of:

- Reductions to the forecast escalation in chemical prices over the 2023 determination period, for which Atkins noted there was insufficient information to support a likelihood of continued above-CPI chemical price increases. For this reason, Atkins has recommended adopting pre-efficiency FY22 costs, rather than using SDP's forecasts.[50]
- A continuing efficiency factor of 0.7% pa (cumulatively) from FY24 onwards, in alignment with IPART's usual approach to continuing efficiency for other regulated businesses. The 0.7% continuing efficiency factor is based on the Australian Productivity Commission's multi-factor productivity analysis.[51]

5.3.1 Variable operating cost allowance

We agree with Atkins' recommendations for efficient variable operating costs. In our view, the recommended allowances reflect the efficient costs of producing water in line with the requirements of SDP's new licence, and account for any impacts on efficiency that SDP may face as a result of membrane ageing.

Table 5.5 below outlines our draft decisions on SDP's total variable operating cost allowance (excluding energy) for the 2023 determination period.

Table 5.5 Variable operating expenditure allowance (excl. energy) ($ per ML, $2022-23)

	2023-24	2024-25	2025-26	2026-27	Total
SDP Proposal					
Total variable costs	220	219	218	218	n/a
IPART draft decision					
Scope adjustments	(62)	(59)	(56)	(53)	n/a
Catch-up efficiency	-	-	-	-	-
Continuing efficiency	(1)	(2)	(3)	(5)	n/a
Total post-efficiency allowance	**156**	**158**	**159**	**160**	**n/a**

Note: The figures may not add up due to rounding.
Source: IPART analysis.

[n] IPART analysis, using total of SDP's proposed and Atkins' recommended non-energy variable operating costs between 2023-24 and 2027-28. Comparisons are in $2022-23 terms.

It should be noted that the variable costs noted above apply uniformly across all levels of production. However, in instances where SDP is required to pause production for a short period of time (while remaining available to ramp up production at short notice) there may be additional costs SDP may incur. These costs are treated separately to SDP's total variable cost allowance and are discussed in Section 5.3.2 below.

5.3.2 Variable costs at non-production

Atkins' analysis found that additional variable costs are required for periods of when no desalinated water is being produced, but SDP is required to remain available to produce water within 1-2 day notice. These costs equate to $709k per year[o 52], and comprise of costs relating to keeping certain pre-treatment processes active, and for producing permeate for regular membrane flushing.

We have considered numerous options for integrating these costs within a 2-part price structure and overall expenditure allowances. Our draft decision is to include these costs within a separate Sydney Water requested zero production charge, rather than within the general fixed and variable operating cost categories discussed in this chapter. As such, these costs have been excluded from the total cost allowances presented within this chapter.

Chapter 9 of this report addresses the integration of the Sydney Water requested zero production charge into SDP's overall price structure.

5.4 Total operating expenditure allowance

Our draft decision on SDP's total operating expenditure allowance for the 2023 determination period are presented in Table 5.6 below.

Table 5.6 Total operating expenditure allowance ($millions, $2022-23)

	2023-24	2024-25	2025-26	2026-27	Total
IPART draft decision					
Costs at representative average production					
Energy	40.9	38.0	43.4	38.6	161.0
Fixed	34.9	35.3	35.5	35.1	140.7
Variable	9.8	9.8	9.9	10.0	39.5
Total	**85.6**	**83.1**	**88.8**	**83.7**	**341.2**
Costs at maximum production					
Energy	57.2	53.0	60.8	53.8	224.8
Fixed	34.9	35.3	35.5	35.1	140.7
Variable	14.3	14.4	14.5	14.6	57.8
Total	**106.4**	**102.6**	**110.7**	**103.5**	**423.3**

Note: The figures may not add up due to rounding.
Source: IPART analysis.

[o] In $2022-23 terms.

Chapter 6

Capital expenditure

Summary of our draft decisions for capital expenditure

SDP's historical capital costs were prudent and efficient

We reviewed SDP's capital costs from FY17 and the 2017 determination period to determine whether they met the prudence and efficiency criteria to include them within SDP's RAB roll-forward.

Our view is that all of SDP's capital costs between FY17 and FY22 were prudent and efficient. Our draft decision is therefore to include SDP's actual capital costs over FY17 and the 2017 determination period to SDP's RAB roll-forward.

SDP's forward capital expenditure allowance will fund plant upgrades and reliability improvements for customers

Our draft decision is to set SDP's total capital expenditure allowance for the 2023 determination period at $46.4m.[p] This allowance will fund numerous periodic maintenance activities to keep SDP's assets in good condition, as well as several infrastructure upgrades to improve the redundancy and reliability of SDP's services.

This chapter sets out our draft decisions on SDP's efficient capital expenditure over the 2017 and 2023 determination periods.

To inform our draft decisions, we engaged Atkins to review SDP's proposed capital expenditure. In particular, we asked Atkins to:

- Conduct an ex-post review of the prudence and efficiency of SDP's actual capital expenditure over the 2017 determination period, and in 2016-17 (i.e. the final year of the 2012 determination period)
- Conduct an ex-ante review of the efficiency of SDP's proposed capital expenditure over the forecast 2023 determination period

We have considered the outcomes of Atkins' review in our assessment. Our draft decisions on SDP's prudent and efficient capital expenditure allowances are outlined in this chapter.

[p] In $2022-23 terms, as a total for the 4-year determination period.

6.1 Historical capital expenditure

Our draft decision is:

> 9. To include the efficient 2016-17 and 2017 determination period capital costs to SDP's RAB roll-forward, as outlined in Table 6.1.

Our draft decisions on capital expenditure reflect our assessment of the efficient and prudent expenditure on capital works that should be included in the RAB, and be recovered through prices. To decide how much capital expenditure is added to the RAB, we assessed the prudence and efficiency of SDP's actual capital expenditure over the 2017 determination period, as well as during 2016-17 (i.e. the final year of the 2012 determination period).

To inform these decisions, we engaged Atkins to conduct an ex-post review of SDP's actual capital expenditure between 2016-17 and 2021-22.

6.1.1 SDP spent slightly more than its capital expenditure allowance in 2016-17

In FY17, SDP spent approximately $0.02 million [q] on capital costs.[53] These costs were attributed to corporate capital expenditure, and exceeded the 2012 determination allowance by approximately 9%.

Atkins reviewed the 2016-17 capital costs and recommended that the $0.02 million of capital expenditure be added to SDP's RAB roll-forward without adjustments, noting the exceedance against the 2017 determination allowance was minor in scale.[54]

Given the materiality of these costs, we agree with Atkins recommendations. Our draft decision is therefore to include the minor overspend of 2016-17 capital expenditure to SDP's RAB roll-forward.

6.1.2 SDP spent less than its capital expenditure allowance over the 2017 determination period

In the 2017 determination, we set SDP's total capital expenditure allowance as $46.48 million [r]. This allowance reflected our view on the overall level of capital expenditure (to be recovered through prices) that we considered reasonable to maintain or improve SDP's services over the determination period.

Overall, SDP spent significantly less on capital costs than initially allowed for under the 2017 determination period. Specifically, SDP spent approximately $38.19m[s] on capital projects between FY18 and FY22. This equates to approximately 18% less than the total 2017 determination allowance[t].

[q] In $nominal terms.
[r] In $nominal terms.
[s] In $nominal terms.
[t] IPART calculations, in $nominal terms.

SDP stated that its costs over the 2017 determination period were prudent and efficient, and proposed that these be added to its RAB roll-forward.[55] In its review, Atkins agreed with SDP's proposal and recommended that SDP's actual capital expenditure from the 2017 determination be treated as prudent and efficient expenses to include within the RAB, without any adjustment[56]. In particular, Atkins noted that:

a) SDP's decisions to defer some capital projects (including periodic maintenance projects and pumping station upgrades) were efficient[57]

b) SDP achieved savings to some capital projects (including membrane replacement) due to prudent improvements to procurement practices.[58]

We agree with both SDP and Atkins that the capital expenditure over the 2017 determination period was prudent and efficient. Our draft decision is therefore to include the SDP's actual capital expenditure during the 2017 determination period to SDP's RAB roll-forward.

6.1.3 Historical capital costs to be included in SDP's RAB roll-forward

As discussed in Sections 6.1.1 and 6.1.2 above, our draft decision is to include SDP's actual capital costs over 2016-17 and the 2017 determination period to SDP's RAB roll-forward. Table 6.1 summarises our draft decisions on SDP's ex-post capital expenditure review.

Table 6.1 Historical capital costs to be added to SDP's RAB roll-forward ($millions, $2022-23)

Expenditure item	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total[a]
Determination allowance	0.01	1.56	33.76	2.96	4.01	4.17	46.48
Actual capital expenditure	0.02	0.27	32.00	0.30	0.71	4.92	38.21
IPART draft decision	0.02	0.27	32.00	0.30	0.71	4.92	38.21

a. Determination allowance totals include the combined allowances from the 2012 and 2017 determinations

Source: IPART analysis.

6.2 Forecast capital expenditure

Our draft decision is:

10. To set SDP's capital cost allowance for the 2023 determination period as per Table 6.2.

For the 2023 determination period, SDP proposed $81m[u] in capital expenditure across the 4-year period.[59] This amounts to an average capital spend of approximately $20 million per year, which is roughly 90% higher[v] than the average annual capital cost allowance under our 2017 Determination.

SDP's proposal includes several capital projects to replace ageing assets and improve plant redundancy and reliability. The three major capital projects proposed are:

- Membrane Replacement Program ($35.7 million), for ongoing replacements of ageing RO membranes[60]
- Periodic maintenance ($23.2 million), for numerous replacements to ageing mechanism and electrical equipment that are approaching the end of their design lives.[61]
- Plant specific/major projects ($20.1 million), comprising of numerous projects relating to the replacement or upgrades to existing plant and pumping station assets, including a significant upgrade to the plant's SCADA system.[62]

6.2.1 Adjustments to SDP's proposed capital expenditure

In reaching our draft decision on SDP's forecast capital expenditure, we considered whether SDP's proposed costs aligned with IPART's approach towards setting efficient capital allowances. To inform this draft decision, we also sought independent advice from our consultant, Atkins, through its review of SDP's proposal.

Atkins reviewed SDP's proposed capital projects for the 2023 determination period, and recommended scope adjustments to specific projects, as well as catch-up and continuing efficiency adjustments across the board. Overall, Atkins recommended approximately a 43%[w] reduction to SDP's total proposed capital expenditure.

We considered both Atkins recommendations and SDP's proposal in light of the efficiency of the capital costs, as well as the added value that customers would receive from SDP's capital projects. Our view is that the recommendations made by Atkins are consistent with our approach towards setting efficient capital costs, and would create added value to end-use customers through improvements in plant availability and reliability. Our draft decision is therefore to adopt Atkins' recommendations for forward capital expenditure, as outlined in the sections that follow.

[u] In $2022-23 terms
[v] IPART calculation, using the yearly average of SDP's proposed costs between 2023-27 and the yearly average of IPART's allowance between 2017-22. Costs are compared in $2022-23 terms.
[w] IPART calculation, using the total of SDP's proposed capital costs and the total of Atkins' recommended capital costs between 2023-27. Costs are compared in $2022-23 terms.

Membrane replacement program

For the membrane replacement program, Atkins assessed the production and calendar ages of the first pass and second pass membranes, and found that the proposed replacement program was overly conservative – i.e. the proposed membrane replacements would occur significantly earlier than needed.

Overall, Atkins recommended a re-profile of SDP's membrane replacement program for first and second pass membranes, whereby the 2023 determination period would require no replacements for second pass membranes, and a one-off replacement for first pass membranes in FY24.[63]

Atkins' recommended scope adjustments to the membrane replacement program amounts to approximately $26 million over the 2023 determination period.[64]

We consider Atkins recommendations for membrane replacement capital costs to be efficient and reasonable. Additionally, we note that Atkins' initial recommendation was for the one-off first pass membrane placement to take place in FY27. However, upon further consideration of SDP's new flexible full-time operation, and the existing age of SDP's membranes, Atkins revised its recommendation to commence the replacement of first-pass membranes from FY24, allowing greater flexibility to SDP for its membrane replacement timeframes.

Our draft decision is to adopt Atkins recommendations for membrane replacement scope adjustments.

Plant and pipeline periodic maintenance

Atkins assessed SDP's ability to carry out the proposed increases in overhaul and replacement works included within its periodic maintenance capital expenditure. Given the flexible full-time operational regime over the 2023 determination period, Atkins concluded that SDP would likely face operational limitations in meeting the proposed periodic maintenance program.[65] Atkins therefore recommended numerous reductions to SDP's proposed periodic maintenance capital expenditure, equivalent to a reduction of approximately $4.7 million over the 4-year determination period[x] [66].

We agree with Atkins recommendations for periodic maintenance scope adjustments. Our draft decision is therefore to adopt Atkins recommendations for the overall 2023 determination period capital expenditure allowance.

Other plant specific/major projects

Atkins reviewed the build-up of projects included within the total 'Other plant specific/major projects' capital expenditure proposed by SDP. In so doing, Atkins identified some instances where scope efficiencies could be implemented. For example, Atkins noted that the cost for SDP's RO vessel sampling panel project should only have one upfront installation cost, and SDP should be well placed to negotiate a discount with its suppliers for economies of scale.

[x] In $2022-23 terms

We consider than Atkins recommendations are reasonable and reflect the foreseeable efficient costs of SDP's proposed plant specific capital projects. Accordingly, our draft decision is to adopt Atkins recommended scope adjustments in full.

Catch-up and continuing efficiencies

As with fixed operating costs, Atkins recommended the following catch-up and continuing efficiency factors to apply to all capital projects envisaged for the 2023 determination period[67]:

- A catch-up efficiency challenge of 0.5% pa (cumulatively) from FY24 onwards
- A continuing efficiency factor of 0.7% pa (cumulatively) from FY24 onwards, in line with the Australian Productivity Commission multi-factor productivity analysis and efficiencies applied to other water utilities in New South Wales

Our view is that Atkins recommended efficiency improvements are in line with good regulatory practice, and consistent with IPART's approach with other regulated water utilities. Our draft decision is therefore to accept Atkins catch-up and continuing efficiencies for capital expenditure over the 2023 determination period.

6.2.2 Capital expenditure allowance for the 2023 determination period

Our draft decision is to set SDP's total capital expenditure allowance for the 2023 determination period at $46.4 million. Table 6.2 below summarises the adjustments and total allowances included in our draft decision.

Table 6.2 Capital expenditure allowance for the 2023 determination period ($millions, $2022-23)

	2023-24	2024-25	2025-26	2026-27	Total
SDP Proposal					
Total capital expenditure	**24.02**	**22.39**	**18.31**	**16.28**	**81.00**
Plant	5.81	3.24	2.89	3.20	15.14
Membranes	8.44	10.29	9.26	7.71	35.70
Periodic Maintenance	6.91	5.52	5.80	5.02	23.24
Pumping Station	2.51	2.48	-	-	4.99
Pipeline	0.33	0.80	0.33	0.33	1.80
Corporate	0.02	0.07	0.03	0.02	0.13
IPART draft decision					

	2023-24	2024-25	2025-26	2026-27	Total
Scope adjustments	0.20	(11.24)	(11.49)	(9.71)	(32.23)
Plant	(0.11)	(0.05)	(0.05)	(0.04)	(0.25)
Membranes	1.19	(10.29)	(9.26)	(7.71)	(26.07)
Periodic Maintenance	(0.67)	(0.52)	(1.85)	(1.63)	(4.68)
Pumping Station	0.01	0.01	-	-	0.02
Pipeline	(0.22)	(0.39)	(0.32)	(0.32)	(1.26)
Corporate	-	-	-	-	-
Catch-up efficiency	(0.36)	(0.45)	(0.41)	(0.46)	(1.68)
Continuing efficiency	(0.17)	(0.16)	(0.14)	(0.18)	(0.65)
Total post-efficiency allowance	**23.69**	**10.55**	**6.27**	**5.93**	**46.44**

Source: IPART analysis.

6.2.3 Other capital costs not included within our draft decision

2022-23 capital costs

In July 2021, the then Minister for Water, Property and Housing requested IPART to defer the review of SDP's prices by one year so that the upcoming review would consider the impact of SDP's new Network Operator's Licence. The deferral meant that SDP's 2021-22 prices would be held constant in nominal terms over 2022-23.

Additionally, since the 2017 determination assessed capital costs for a 5-year determination period, there was no ex-ante capital cost allowance decided for 2022-23, As such, this chapter has not reported any year-to-date capital costs against corresponding determination allowances.

In our next price review, we will assess the prudence and efficiency of SDP's 2022-23 capital costs as part of our overall ex-post review. Based on this, our next determination will decide on the level of 2022-23 capital costs to be included within SDP's RAB roll-forward,

Second drinking water tank

SDP's Pricing Submission to IPART made note of a potential capital project for the addition of a second 40ML drinking water storage tank, intended to increase total site storage capacity, and facilitate greater overall plant availability and reliability. However, SDP noted that the costs for the second drinking water tank project were excluded from its total capital expenditure proposal, since it was unable to clearly demonstrate the prudence of the proposed capital project without further information.[68]

SDP also invited IPART and other stakeholders to provide their views on the validity of including this project within the capital program for the 2023 determination period. In its submission to IPART's Issues Paper, Sydney Water expressed support for the second drinking water tank project, noting its potential benefits in providing additional site storage capacity and assisting the plant's ability to reliably respond to emergency requests.[69]

We have considered SDP's proposal and Sydney Water's submission on this matter. However, in lieu of sufficient supporting evidence (including a robust business case or cost-benefit analysis) we are unable to assess the efficiency of the second drinking water tank capital costs. This also aligns with Atkins' findings, which noted it was unable to make recommendations on this project due to the limited availability of supporting information.

As with our standard approach to capital projects, SDP retains the option to proceed with this project and propose that it be reviewed as part of IPART's overall ex-post review in the next determination period.

Chapter 7

Building block costs and revenue adjustments

Summary of our draft decisions for building block costs and revenue adjustments

SDP's return on assets is $275.5 million

The opening RAB for the 2023 determination period is $2,014.3 million as at 1 July 2023 and we added $46.4 million of forecast capital expenditure for the period.

We have used a real post-tax WACC estimate of 3.6% as the efficient rate of return.

SDP's depreciation is $258.1 million

We have calculated this allowance using a straight-line method and by determining the appropriate asset lives for the assets in SDP's.

SDP's return on working capital allowance is $6.4 million

We have set the allowance by calculating the net amount of working capital SDP requires and multiplying it by the nominal post-tax WACC.

SDP's tax allowance is $27.6 million

We have calculated the tax allowance using a tax rate of 30% and our standard methodology.

SDP's notional revenue requirement (NRR) has been adjusted due to the application of the Energy Adjustment Mechanism, 2022-23 deferral true-up and 2017 RAB roll forward error

We have allocated customers' share of gains on the sale of surplus energy over the application period (2016-17 to 2021-22), leading to a $16.0 million reduction in SDP's total notional revenue requirement.

We have adjusted SDP's notional revenue requirement to account for an over-recovery of $5.9 million accrued over the deferral year.

We have included an adjustment of $0.1 million per year to account for an error in the RAB roll forward in the 2017 review.

As in previous reviews, we used a 'building block' method to calculate SDP's NRR. Chapter 5 discussed operating expenditure, which is one of the key components of this approach to calculating the NRR. This chapter presents the other remaining building blocks, which are:

- A return on assets (section 7.1)
- A depreciation allowance (section 7.2)
- A tax allowance (section 7.3)

- A working capital allowance (section 7.4).

The sum of the above allowances forms a large proportion of the NRR, which we discuss in detail in Chapter 8. More specific details about our building block method, including descriptions of each component are presented in Appendix A.

In addition to the building block costs, there are other revenue adjustments we considered to arrive at SDP's total NRR for the 2023 determination period. These are:

- Application of the 2017 efficiency carryover mechanism (section 7.5.1)
- Application of the 2017 energy adjustment mechanism (section 7.5.2)
- Adjustment for 2022-23 deferral (section 7.6)
- Adjustment due to 2017 review RAB roll forward error (section 7.7)

7.1 Return on assets

Our draft decision is:

11. To set an allowance for return on assets of $275.5 million over the 2023 determination period (shown in Table 7.4). This is calculated by using:
    - The regulatory asset base values shown in Table 7.2
    - a real post-tax weighted average cost of capital of 3.6%.
    - a sampling date of January 2023 as outlined in Appendix D.

12. To apply an end-of-period true-up to account for movements in the cost of debt.

We include an allowance for return on assets in the revenue requirement to account for the opportunity cost of capital invested to provide regulated services. This ensures businesses can continue to make efficient capital investments in the future. We calculated the return on assets by multiplying the value of the regulatory asset base (RAB) over the determination period by an efficient rate of return. As in previous reviews, we determined the rate of return using a weighted average cost of capital.

7.1.1 We determined the regulatory asset base using our usual methodology

The RAB represents the value of SDP's assets on which it should earn a return on capital and an allowance for depreciation. We calculated the opening RAB for the 2023 determination period by rolling the RAB forward from the previous determination period.

To roll the RAB forward from 1 July 2017 to 1 July 2023, we started with an opening RAB of $1,963.9 million and made the following adjustments:

- adding $48.7 million (nominal) of prudent and efficient historical capital expenditure (Chapter 6)

- deducting $341.8 million (nominal) for regulatory depreciation (section 7.2)
- adding $343.5 million of annual indexation of the RAB.

We also rolled the RAB forward from 1 July 2016 to 1 July 2017 because, at the time of the 2017 determination, we had only forecast capital expenditure and inflation for 2016-2017. Replacing forecast with actual capital expenditure and inflation means the opening RAB on 1 July 2017 is 0.2% lower than the closing RAB on 30 June 2016 as set out in the 2017 price review.[70]

Our historical RAB roll forward calculation is set out in Table 7.1.

Table 7.1 Historical RAB roll forward calculation ($millions, $nominal)

Historical RAB	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23[b]
Plant[a]							
Opening RAB	1,282.2	1,264.2	1,246.2	1,248.4	1,195.7	1,190.4	1,213.0
Plus Capex	0.0	0.2	31.3	0.2	0.4	4.3	10.4
Less Depreciation	42.3	44.8	49.3	49.2	51.2	54.4	54.4
Plus Indexation	24.4	26.6	20.2	-3.7	45.4	72.7	53.6
Closing RAB	1,264.2	1,246.2	1,248.4	1,195.7	1,190.4	1,213.0	1,222.5
Pipeline							
Opening RAB	691.7	699.7	708.3	714.2	706.0	726.7	764.8
Plus Capex	0.0	0.0	0.7	0.1	0.3	0.6	0.1
Less Depreciation	5.2	6.1	6.2	6.2	6.4	6.8	6.8
Plus Indexation	13.1	14.7	11.3	-2.1	26.8	44.3	33.7
Closing RAB	699.7	708.3	714.2	706.0	726.7	764.8	791.8
Total							
Closing RAB	1,963.9	1,954.6	1,962.6	1,901.6	1,917.0	1,977.8	2,014.3

a. The Plant figures include intake infrastructure, outlet infrastructure, pumping station, pre-operation payments, project development, periodic asset maintenance, membranes and corporate assets.
b. IPART advised SDP to use a June 2023 CPI forecast of 4.4% to roll the RAB forward into 2022-23. For comparability with SDP's proposal, IPART has continued to use this forecast. The June 2023 CPI value will be updated between the Draft Report and Final Report.
Note: Numbers may not add up due to rounding
Source: IPART analysis

We calculated the RAB in each year of the 2023 determination period by rolling forward the RAB to 2026-2027 by:

- adding $46.4 million of prudent and efficient forecast capital expenditure over the period (as discussed in Chapter 6)
- deducting $262.7 million for regulatory depreciation (of which $233.2 million is plant related, and the remaining $29.5 million is for the pipeline).

This gives the forecast RAB for each year of the 2023 determination period, which we use to set SDP's return on capital and allowance for depreciation.

Our RAB roll forward calculations for the 2023 determination period are shown in Table 7.2.

Table 7.2 RAB calculation over the 2023 determination period ($ millions, $2022-23)

Projected RAB	2023-24	2024-25	2025-26	2026-27
Plant[a]				
Opening RAB	1,222.5	1,189.5	1,141.5	1,088.9
Plus Capex	23.6	10.2	6.3	5.9
Less Depreciation	56.6	58.1	58.9	59.5
Closing RAB	1,189.5	1,141.5	1,088.9	1,035.3
Pipeline				
Opening RAB	791.8	784.5	777.5	770.2
Plus Capex	0.1	0.4	0.0	0.0
Less Depreciation	7.4	7.4	7.4	7.4
Closing RAB	784.5	777.5	770.2	762.8
Total				
Closing RAB	1,974.0	1,919.1	1,859.0	1,798.1

a. The Plant figures include intake infrastructure, outlet infrastructure, pumping station, pre-operation payments, project development, periodic asset maintenance, membranes and corporate assets.
Note: Numbers may not add up due to rounding.
Source: IPART analysis

Under our draft decisions, the RAB is $15.9 million lower at the end of the 2023 determination period than that proposed by SDP.[71] The difference is mainly driven by lower forecast capital expenditure than SDP proposed.

7.1.2 We set the real return on capital of 3.6%

We used our 2018 standard methodology to calculate the WACC. Under our approach, we estimate one WACC based on current market data and one based on long-term average data. When our uncertainty index, which indicates the level of volatility in capital markets, is within one standard deviation of its mean value, we select the mid-point of the current and long-term WACC values. The latest uncertainty index that we calculated is within this range.

The average of the 2 WACC values is 3.6% using parameters as at 31 January 2023. Appendix D shows the parameters we used to calculate the WACC. SDP proposed a placeholder WACC of 3.6%.

We also have decided to apply an end-of-period true-up adjustment for the cost of debt in the next determination. Our 2018 WACC methodology introduced a trailing average cost of debt. This means that the WACC changes every year over a determination period, as new tranches of debt are introduced to the trailing averages and the oldest tranches drop out.

We considered two options to adjust prices to account for annual WACC changes:

- To store the present value of the revenue adjustments caused by the changing WACC over a determination period, and apply a true-up at the next regulatory period (end-of-period true-up).
- Annual real price changes to reflect the changing WACC (annual true-up).[72]

We have considered this issue in recent water price reviews, and in those reviews we opted to apply an end-of-period true-up (including for WaterNSW Greater Sydney which, like SDP, supplies drinking water to Sydney Water). This is because:

- The end-of-period true-up provides price stability for customers
- There are benefits to aligning the approach between utilities especially when they are part of the same integrated water system.
- This would include a lower administrative burden and less shifting of risk from one entity onto the other (i.e. from SDP to Sydney Water).

SDP proposed that IPART should make a different decision for this review and allow for annual updates to its cost of debt.[73] Based on SDP's pricing proposal, this is:

- To ensure the closest possible cash flow match between regulatory allowance and the efficient cost of debt[74]
- To consider that SDP's circumstances are different from WaterNSW, Sydney Water and Hunter Water, which are all state-owned corporations. Unlike these entities, SDP argued that it is a "relatively small business that raises debt finance privately" and the consequences of large mismatches could be severe.[75]

We received a submission from Sydney Water on this issue. Sydney Water indicated that it is "open to IPART applying annual adjustments throughout the 2023 determination period with respect to changes in SDPPL's cost of debt".[76] However, it requested to be engaged by IPART on potential financial impacts on its business and customers.

After considering each of the reasons put forward by SDP, our view is there is no strong case to take a different approach than what we have taken in other reviews. While we agree that there may be cash flow mismatches, we note that the impact on an annual basis may not be high. This is because, under the trailing average cost of debt approach, only a small proportion of the debt is refinanced each year and consequently exposed to refinancing risk. Therefore, our draft decision is to allow an end-of-period true-up for this review.

7.1.3 Our draft decision on return on capital allowance is similar to SDP's proposed

Table 7.3 shows the resulting return on assets (i.e. RAB x WACC%) based on the RAB values set out in section 7.1, and our decision to apply a real post-tax WACC of 3.6%. Our draft decision on return on capital allowance is similar to SDP's proposed (only 0.6% lower) due to the same WACC and similar RAB values used.

Table 7.3 Draft decision on return on assets for the 2023 determination period ($ millions, $2022-23)

	2023-24	2024-25	2025-26	2026-27	Total
Plant[a]					
SDP's proposed	43.8	42.5	41.1	39.4	166.8
IPART draft decision	43.7	42.3	40.5	38.6	165.0
Difference ($)	-0.1	-0.3	-0.6	-0.8	-1.8
Difference (%)	-0.3%	-0.6%	-1.4%	-2.0%	-1.1%
Pipeline					
SDP's proposed	28.0	27.7	27.4	27.1	110.3
IPART draft decision	28.0	27.8	27.5	27.2	110.5
Difference ($)	0.0	0.0	0.1	0.1	0.2
Difference (%)	0.0%	0.1%	0.2%	0.4%	0.2%
Total					
SDP's proposed	71.8	70.2	68.5	66.5	277.1
IPART draft decision	71.7	70.0	68.0	65.9	275.5
Difference ($)	-0.1	-0.2	-0.5	-0.7	-1.6
Difference (%)	-0.2%	-0.3%	-0.8%	-1.0%	-0.6%

a. The Plant figures include intake infrastructure, outlet infrastructure, pumping station, pre-operation payments, project development, periodic asset maintenance, membranes and corporate assets.
Note: Totals may not sum due to rounding.
Source: IPART analysis

7.2 Depreciation

Our draft decisions are:

13. To calculate the allowance for depreciation, using:
    - a straight-line depreciation method
    - for existing assets, the rolled forward asset lives from the 2017 determination period as listed in Table 7.4
    - for new assets, the asset lives listed in Table 7.4

14. To set the allowance for depreciation at $258.1 million over the 2023 determination period as shown in Table 7.5.

We included an allowance for depreciation in the notional revenue requirement, to ensure the capital invested in regulatory assets is returned over the useful life of each asset. We calculated this allowance by determining the appropriate asset lives for the assets in SDP's RAB and the appropriate depreciation method to use.

7.2.1 We used straight-line depreciation to calculate the depreciation allowance

Consistent with our usual approach, we used the straight-line depreciation method to calculate SDP's depreciation allowance. Under this method, the assets in the RAB are depreciated by an equal value in each year of their economic life. We consider this method is superior to alternatives in terms of simplicity, consistency and transparency.

7.2.2 We maintained our approach for rolling forward asset lives for existing assets

We typically calculate the remaining lives of existing assets by rolling forward our previous determination to incorporate new efficient assets and accounting for asset disposals. We maintained this approach for the 2023 determination period for all asset categories rolled forward from the 2017 determination period.

7.2.3 We made changes to pipeline, membranes and periodic maintenance asset lives

SDP proposed no changes from the 2017 determination for most asset types except to the pipeline, membrane and periodic asset lives. We reviewed the proposed changes to SDP's pipeline, membrane and periodic maintenance asset lives with advice from Atkins.

Periodic maintenance

For the 2017 determination period, SDP's periodic maintenance capital expenditure was grouped within the 'Plant' asset category for depreciation purposes. This meant that periodic maintenance capital costs, like other assets within the 'Plant' category had a 30-year life. However, in its proposal, SDP proposed a new discrete category for periodic maintenance and assigned it a standard asset life of 7.6 years.[77] SDP stated this was based on a weighted average life of the underlying assets within the periodic maintenance category.[78]

Having reviewed SDP's proposal, Atkins agreed with SDP's calculation approach. However, it found that the proposed 7.6-year asset life covered a 5-year period (i.e. 2023-24 to 2027-28) rather than the 4-year 2023 determination period (i.e. 2023-24 to 2027-28). Consequently, Atkins recommended an adjustment to ensure only the 2023 determination period was covered resulting in an asset life of 6.6 years. In addition, Atkins noted some of the items included in the periodic maintenance projects relate to overhaul projects and recommended reviewing this separately in future determinations.[79]

We consider Atkins' advice on periodic maintenance asset lives is reasonable and have adopted the 6.6-year asset lives as shown in Table 7.4.

Membranes

SDP originally proposed a 4.5-year asset life for membranes based on the average membrane age.[80] However, during the expenditure review process SDP indicated this was an error and changed its proposed membrane asset life to 8 years.[81]

Based on advice from Atkins, we have adopted an asset life for membranes of 11 years as shown in Table 7.4. Atkins considered that because membranes will be used continuously in the 2023 determination period, they should last longer than the 8 years set in the 2017 Determination when the plant could be in shutdown mode outside drought.[82]

Pipeline

For the 2023 determination period, SDP has proposed reducing the asset life of new pipeline assets to 100 years as it did in 2017. Correspondingly, it has also proposed to reduce the remaining asset lives for existing pipeline assets from 109 to 89 years.[83] SDP stated the basis for this proposal is primarily that the asset life should reflect the design life of the pipeline (i.e. the intention or expectation under which the asset was originally designed). It considered the economic life of the pipeline was overshadowed by the stranded asset risk.[84]

Atkins reviewed the proposed 100-year asset life and concluded there is merit in setting asset lives based on design life. However, Atkins also considered that it would be reasonable to set the asset life at 116 years as this would provide consistency with SDP's 2017 Determination.[85]

Having considered SDP's proposal and Atkins' advice, our draft decision is to adopt the pipeline asset life of 116 years because:

- We consider the rationale we had for adopting a 120-year pipeline asset life in 2017 is still relevant.[86] However, we would update this with latest data provided by SDP on the percentage of the pipeline that is undersea.
- The design life of 100 years represents the minimum life expected for pipelines. We consider that setting the asset life based on the expected minimum might not represent good value for customers.

We also consider the stranded asset risk does not outweigh the economic life. The 2022 Greater Sydney Water Strategy signalled a policy move to having a portfolio of assets that represents a good mix of climate dependent and independent infrastructure.[87] We consider the need for SDP's assets is likely to continue beyond the supply agreement with Sydney Water (due to expire in 2062).

Table 7.4 Draft decision on asset lives for the 2023 determination period (years)

	Remaining lives of existing assets		Expected lives of new assets	
Asset Type	**Proposed**	**IPART draft decision**	**Proposed**	**IPART draft decision**
Plant	16.3 years	16.3 years	30 years	30 years
Intake Infrastructure	76 years	76 years	90 years	90 years
Outlet Infrastructure	86 years	86 years	100 years	100 years
Pumping station	11.5 years	11.2 years	25 years	25 years
Pre-operations payment	6.1 years	6.1 years	20 years	20 years
Project development	30 years	30 years	44 years	44 years
Corporate	4.2 years	3.1 years	5 years	5 years
Periodic asset maintenance	n/a	n/a	7.6 years	6.6 years
Membranes	n/a	n/a	8 years	11 years

Pipeline	89 years	105 years	100 years	116 years

Source: SDP, Pricing Proposal to IPART – Pricing Submission, September 2022, p 190, and IPART analysis

7.2.4 Our draft decision on depreciation is 7.7% lower than SDP's proposed

Our draft depreciation allowance is $21.5. million (7.7%) lower than proposed by SDP over the 2023 determination period. The difference is largely driven by our draft decision to set the pipeline asset life at 116 years compared to SDP's proposed 100 years.

Table 7.5 Draft decision on depreciation for the 2023 determination period ($ millions, $2022-23)

	2023-24	2024-25	2025-26	2026-27	Total
Plant[a]					
SDP's proposed	56.8	59.9	63.0	65.6	245.3
IPART draft decision	55.6	57.1	57.9	58.5	229.1
Difference ($)	-1.2	-2.8	-5.1	-7.2	-16.3
Difference (%)	-2.1%	-4.7%	-8.1%	-10.9%	-6.6%
Pipeline					
SDP's proposed	8.5	8.6	8.6	8.6	34.2
IPART draft decision	7.2	7.2	7.2	7.2	29.0
Difference ($)	-1.3	-1.3	-1.3	-1.3	-5.2
Difference (%)	-15.2%	-15.3%	-15.3%	-15.3%	-15.3%
Total					
SDP's proposed	65.4	68.5	71.5	74.2	279.6
IPART draft decision	62.9	64.4	65.1	65.7	258.1
Difference ($)	-2.5	-4.1	-6.4	-8.5	-21.5
Difference (%)	-3.8%	-6.0%	-8.9%	-11.4%	-7.7%

a. The Plant figures include intake infrastructure, outlet infrastructure, pumping station, pre-operation payments, project development, periodic asset maintenance, membranes and corporate assets.

Note: The allowance for depreciation is a mid-year figure (i.e. the RAB roll forward depreciation figure is discounted by half a year of WACC). It will therefore not match the end of year figures in Table 7.2. Totals may not sum due to rounding

Source: SDP pricing proposal to IPART (Information Return), September 2022 and IPART analysis.

7.3 Return on working capital

Our draft decision is:

15. To set the working capital allowance for the 2023 determination as shown in Table 7.6.

The working capital allowance component of the NRR represents the return the business could earn on the net amount of working capital it requires each year to meet its service obligations. It ensures the business recovers the costs it incurs due to the time delay between providing a service and receiving the money for it (i.e. when the bills are paid).

In 2018, we developed a standard approach to calculate the working capital allowance, which can be found on our website. We applied the standard approach to this review.

The amount we allowed for the 2023 determination period represents the holding cost of net current assets (Table 7.6). The allowance is 14.6% lower than that proposed by SDP. The difference reflects the movements on other building block costs.

Table 7.6 Draft decision for the return on working capital allowance for the 2023 determination period ($ millions, $2022-23)

	2023-24	2024-25	2025-26	2026-27	Total
Plant[a]					
SDP's proposed	1.48	1.54	1.62	1.66	6.3
IPART draft decision	1.23	1.35	1.38	1.36	5.3
Difference ($)	-0.24	-0.19	-0.24	-0.29	-1.0
Difference (%)	-16.6%	-12.3%	-14.8%	-17.7%	-15.4%
Pipeline					
SDP's proposed	0.29	0.28	0.29	0.29	1.1
IPART draft decision	0.27	0.25	0.25	0.25	1.0
Difference ($)	-0.02	-0.03	-0.03	-0.03	-0.1
Difference (%)	-6.2%	-11.9%	-12.1%	-12.0%	-10.5%
Total					
SDP's proposed	1.77	1.83	1.91	1.94	7.4
IPART draft decision	1.51	1.60	1.63	1.62	6.4
Difference ($)	-0.26	-0.22	-0.28	-0.33	-1.1
Difference (%)	-14.8%	-12.2%	-14.4%	-16.9%	-14.6%

a. The Plant figures include intake infrastructure, outlet infrastructure, pumping station, pre-operation payments, project development, periodic asset maintenance, membranes and corporate assets.

Note: Numbers may not add up due to rounding

Source: SDP pricing proposal to IPART (Information Return), September 2022 and IPART analysis

7.4 Tax allowance

Our draft decision is:

16. To adopt the regulatory tax allowance as set out in Table 7.7, using
    - a tax rate of 30%
    - IPART's standard methodology

We include an explicit allowance for tax because we use a post-tax WACC to estimate the allowance for a return on assets in the revenue requirement. This tax allowance reflects the regulated business' forecast tax liabilities.

Table 7.7 Draft decision on the tax allowance for the 2023 determination period ($ millions, $2022-23)

	2023-24	2024-25	2025-26	2026-27	Total
Plant[a]					
SDP's proposed	9.17	9.59	10.82	12.02	41.6
IPART draft decision	8.61	8.55	9.08	9.66	35.9
Difference ($)	-0.56	-1.04	-1.73	-2.37	-5.7
Difference (%)	-6.1%	-10.8%	-16.0%	-19.7%	-13.7%
Pipeline					
SDP's proposed	-2.00	-1.74	-1.49	-1.25	-6.5
IPART draft decision	-2.41	-2.19	-1.95	-1.73	-8.3
Difference ($)	-0.41	-0.45	-0.46	-0.47	-1.8
Difference (%)	20.4%	25.6%	30.9%	37.6%	27.5%
Total					
SDP's proposed	7.17	7.85	9.33	10.77	35.1
IPART draft decision	6.20	6.36	7.13	7.93	27.6
Difference ($)	-0.97	-1.49	-2.20	-2.84	-7.5
Difference (%)	-13.5%	-18.9%	-23.5%	-26.4%	-21.3%

a. The Plant figures include intake infrastructure, outlet infrastructure, pumping station, pre-operation payments, project development, periodic asset maintenance, membranes and corporate assets.

Note: Numbers may not add up due to rounding.

Source: SDP pricing proposal to IPART (Information Return), September 2022 and IPART analysis

We calculated the tax allowance for each year by applying a 30% statutory corporate tax rate adjusted for franking credits to the business's (nominal) taxable income. We applied our standard methodology to set the tax allowance. The allowance is 21.3% lower than that proposed by SDP, with the difference largely reflects the movements on other building block costs.

The tax allowance is not intended to recover SDP's actual tax liability over the determination period. Rather, it reflects the liability that a comparable commercial business would be subject to. Including this allowance is consistent with our aim to set prices that reflect the fully efficient costs a utility would incur if it were operating in a competitive market.

7.5 Revenue adjustments required by the Terms of Reference

Our draft decisions are:

17. Not to include an efficiency carryover adjustment for the 2023 determination period based on applying the 2017 methodology.

18. To include a reduction of the notional revenue requirement over the 2023 determination period to reflect customers' share of gains made on the sale of SDP's surplus energy over the 2017 determination period of $16.0 million or $4.1 million per year (real $2022-23 and including financing costs).

The Terms of Reference require us to apply the incentive mechanisms set out in our 2017 Methodology Paper to demonstrated efficiency savings (Efficiency Carryover Mechanism or ECM) and gains and losses made on the sale of SDP's surplus energy contracts (Energy Adjustment Mechanism or EAM). In this section, we outline how we have calculated the adjustments for each mechanism based on the 2017 Methodology Paper and how these adjustments will be passed through to prices over the course of the 2023 determination period.

The Terms of Reference allow us to update the Methodology Paper from time to time. Concurrently with the SDP price review, we have released a Draft 2023 Methodology Paper which would apply to efficiency savings and gains and losses made on the sale of SDP's surplus energy contracts over the 2023 determination period. Chapter 12 of this Draft Report discusses modifications we are proposing to make to the ECM and EAM methodologies which are set out in detail in the Draft 2023 Methodology Paper. We invite stakeholder feedback and comments on the Methodology Paper to be applied in future SDP price reviews.

7.5.1 Application of 2017 efficiency carryover mechanism

The ECM allows SDP to retain permanent efficiency savings for a specified period of time before they are passed on to customers through lower prices, regardless of when the efficiencies are achieved within the determination period. The Terms of Reference that applied during the 2017 price review specifically require us to allow SDP to carryover demonstrated efficiency savings for a period of 4 years following the year in which the efficiency saving was achieved (i.e. savings can be retained for 5 years total before they are passed onto customers through lower prices).

In its proposal, SDP did not indicate any permanent efficiency savings made during the 2017 determination period and therefore did not propose any efficiency carryover adjustment based on the application of the 2017 ECM methodology.[88] Accordingly, we have not included an ECM adjustment to SDP's total NRR for the 2023 determination period.

7.5.2 Application of 2017 energy adjustment mechanism

The purpose of the EAM is to pass through to customers any gains or losses outside a core-band from the sale of SDP's surplus energy contracts. The 2017 EAM defines:

- a core band of gains and losses of surplus energy that are fully retained by SDP (5%)
- a sharing ratio applied to any surplus gains or losses outside the core band (20% retained by SDP, 80% passed on to customers).[89]

We have found no evidence of imprudent management of SDP's surplus energy contracts

According to our 2017 Methodology Paper, in applying the EAM, we review whether there is evidence of imprudent management of SDP's surplus energy contracts over the application period. If there is any evidence of imprudent management we may exclude part of a trade, a trade, or multiple trades from the EAM calculation.[90]

We reviewed SDP's energy trading policy and activity and consider there is no evidence of imprudent management over the application period. We have therefore included all of SDP's surplus energy transactions over the application period in the EAM calculation.

Following our analysis, our draft decision is an EAM adjustment of $16.0 million to be recovered over the 2023 determination period

We have allowed a total EAM adjustment of $16.0 million. This equates to an annual adjustment of $4.1 million per year (including financing costs) over the 2023 determination period.

Our adjustment is 154% higher than SDP's proposed EAM adjustment (that is, our adjustment is $16.0 million and SDP's proposed adjustment is $6.29 million over the 2023 determination period). This is mainly because SDP's proposal excluded 2021-22 from the application period.[91] Our view is the application period should cover the years immediately preceding the review year. Therefore, in our calculation of the EAM adjustment we used a 6-year application period (i.e. 2016-17 to 2021-22), noting that this issue only arises for the 2023 determination period due to the extension of the 2017 regulatory period.

We note that the size of the EAM adjustment (and whether it results in an increase or decrease to SDP's total NRR) is largely dependent on the application period and the prevailing energy market prices in that period. While the EAM adjustment has resulted in SDP's total NRR being reduced for the 2023 determination, it had the opposite effect in 2017. For the 2017 determination period, SDP's NRR was increased by $29 million or $5.8 million per year due to the allocation of customers' share of losses over the 2012-13 to 2015-16 application period.[92]

Table 7.8 presents the customers' share of gains on the sale of SDP's surplus energy over the 2017 EAM application period.

Table 7.8 EAM pass-through adjustment ($million $2022-23)

	2023-24	2024-25	2025-26	2026-27	Total
2023 financing costs (%real)	1.0%	1.0%	1.0%	1.0%	
EAM pass through adjustment (including financing costs)	-4.1	-4.1	-4.1	-4.1	-16.3

Note: Totals may not sum due to rounding
Data Source: RBA, Non-financial corporate BBB-rated bonds, Yield, 3 year target tenor and IPART analysis and IPART analysis

7.6 True-up adjustment for 2022-23 deferral year

Our draft decision is:

19. To include an adjustment to account for the impact of the one-year deferral of the determination (2022-23).

20. To adjust SDP's notional revenue requirement to account for an over-recovery of $5.9 million accrued over the deferral year.

In July 2021, the then Minister for Water, Property and Housing requested IPART to defer the review of SDP's prices by one-year so that the upcoming review would consider the impact of SDP's new Network Operator's Licence. The deferral meant that SDP's 2021-22 prices were held constant in nominal terms over 2022-23 (i.e. 2021-22 prices continued until June 2023). The then Minister advised us to consider the best interests of customers in the deferral process and, welcomed our suggestion to consider compensating water customers for the impact of the one-year deferral of the determination.[93]

SDP proposed that we not apply a true-up to account for the impact of the deferral. SDP claimed that applying a true-up would:

- Be inconsistent with IPART's previous practice and best practice regulation. SDP noted that in cases where price determinations have been deferred for other water utilities, IPART's longstanding practice has been to make the new determination on a 'forward-looking basis, with no ex-post adjustments to revenue to account for the impact of the deferral.
- Conflict with the 2017 Determination. SDP argued that while the 2017 Determination sets out pricing arrangements to apply if there were to be a delay to SDP's next determination, the provision for a revenue adjustment in the subsequent determination was not made.
- Create significant decision-making uncertainty and price instability which would be against the long-term interest of customers.
- Cause prices to deviate from cost-reflective levels over the 2023 determination period.[94]

Notwithstanding SDP's proposal to not apply a true-up for the deferral year, SDP's proposal did include an estimate of what the true-up value would be in the event IPART decided to apply one.[95] SDP estimated an over-recovery of $15.1 million in 2022-23, for which an annuity equivalent to the $15.1 million would be subtracted from its annual notional revenue required for the 2023 determination period.

The key assumptions built into SDP's estimate of the deferral year over-recovery were:

- a proposed weighted average cost of capital (WACC) of 3.6%
- estimated actual energy costs based on its energy contract
- forecast fixed and variable costs assuming a 62.5ML/d level of production.[96]

7.6.1 We have made a draft decision to apply a true-up for the 2022-23 deferral year

We have considered SDP's proposal as well as correspondence from the then Minister which noted a "suggestion to consider compensating water customers" and have made a draft decision to apply a true-up. We consider there are principled reasons for applying a true-up for the deferral year:

- Adjusting prices over the 2023 determination period to account for any under- or over-recovery during the deferral year would not conflict with the 2017 Determination. This is because we would not be retrospectively recasting 2017 Determination prices. Rather, we would be setting prices prospectively, albeit with regard to past events (i.e. efficient costs that would have applied had we not delayed the review).
- In response to SDP's claim that a true-up would be inconsistent with IPART's previous practice and best practice regulation, we note the 2022 Essential Water and 2022 WaterNSW Murray River to Broken Hill Pipeline reviews. These price reviews included a true-up adjustment for the 6-month delay in the commencement of new prices.[97] While the circumstances of these reviews are different from that of SDP's, they nonetheless demonstrate the most recent principles IPART has applied in relation to deferral true-ups.
- A true-up would ensure SDP receives an appropriate return on assets over the life of its assets and would also allow customers to realise any under- or over-recovery of costs. It is our view that this is in the best long-run interest of customers.
- While SDP considers a true-up would cause prices to deviate from cost-reflective levels, we note that the prices we set for SDP already include adjustments for the EAM (see section 7.5).

Based on the above rationale, our draft decision is to calculate a true-up adjustment for the deferral year and factor it into the NRR for the 2023 determination period.

7.6.2 We have calculated a draft adjustment of an over-recovery of $5.9 million for the deferral year

Our draft true-up adjustment was calculated based on a WACC of 3.6% using a May 2022 sampling period. We note that this is a later sampling period than would be feasible for use in calculating a WACC in time for implementation of prices by 1 July of any given year. However, because we previously sent correspondence to SDP agreeing to the use of May 2022 sampling period, we have accordingly used it for calculation of the deferral true-up. As a comparison, had we used a March 2022 sampling period, the true-up adjustment would be an over-recovery of $9.1 million (based on a WACC of 3.4%).

A key difference between our draft true-up and SDP's estimate is the use of a benchmark energy price rather than SDP energy contracts to estimate the unit energy cost for the deferral. The benchmark all-in cost we used is $221.64/MWh. This value was based on benchmark wholesale energy and renewable energy certificate data provided by CIE (as part of the 2022 Essential Water and WaterNSW's Murray to Broken Hill Pipeline reviews) and other benchmark energy components contained in SDP's pricing proposal (that we understand were provided to SDP by Frontier Economics). We note the sampling period used for the benchmark wholesale and renewable energy is March 2022, consistent with when it would have been sampled during a review process to enable new prices to apply from 1 July 2022.

We note there is a substantial difference between SDP's 'all-in' contract cost and the benchmark 'all-in' estimate. However, our draft decision to calculate the true-up using the benchmark is consistent with our draft decision to continue to apply a benchmark for SDP's energy cost allowance in the 2023 Determination period (see section 5.1.2).

Our calculation of the draft true-up also adopts the estimates of fixed and variable costs for 2022-23 based on our consultants (Atkins) draft expenditure report for 2022-23.[98] In addition, while SDP assumed a production level of 23GL for the year, we have used SDP's latest available production information (i.e. actuals up to 1 March 2023, and Sydney Water's forecasts for the remainder of the year).

Table 7.9 True-up for the 2022-23 deferral of the determination ($million, $2022-23)

	2023-24	2024-25	2025-26	2026-27	Total
SDP's mid-year annuity estimate of over-recovery[a]	3.8	3.8	3.8	3.8	15.3
IPART's mid-year annuity estimate of over-recovery	1.5	1.5	1.5	1.5	6.0
Difference ($)	-2.3	-2.3	-2.3	-2.3	-9.3
Difference (%)	-60.7%	-60.7%	-60.7%	-60.7%	-60.7%

Note: SDP provided an estimate for the gain/(loss) resulting from the deferral year. The annuity for SDP's estimate presented in this table has been calculated by IPART on a consistent basis to IPART's estimated annuity. Totals may not sum due to rounding.
Source: SDP Pricing Submission Appendix, September 2022, p 129, and IPART analysis

7.7 Adjustment due to 2017 review RAB roll forward error

Our draft decision is:

21. To adjust SDP's notional revenue requirement by $0.1 million per year to account for an error in the RAB roll forward calculation in the 2017 Review.

In the 2017 review, there was an error in the calculation of the RAB roll forward which resulted in lower RAB values through the 2017 determination period than should have been the case. To correct for this error, we have made an adjustment to increase SDP's total revenue requirement by $0.1 million every year of the 2023 determination period.

Table 7.10 Adjustment due to 2017 review RAB roll forward error ($million, $2022-23)

	2023-24	2024-25	2025-26	2026-27	Total
2017 RAB error true-up	0.1	0.1	0.1	0.1	0.4

Source: IPART analysis

Chapter 8

Revenue requirement

Summary of our draft decisions for revenue requirement

Our draft decision is to set the NRR for the SDP plant at $753.8 million over the 2023 determination period.

This is $58.8 million or 7.2% lower than SDP's proposal due to three main contributing factors:

- A $19.6 million reduction in operating expenditure
- A $16.3 million reduction in regulatory depreciation
- A total of $22.9 million in other reductions and adjustments

Our draft decision is to set the NRR for the SDP pipeline at $133 million over the 2023 determination period.

This is $8.1 million or 5.8% lower than SDP's proposal due to three main contributing factors:

- A $5.2 million reduction in regulatory depreciation
- A $1.8 million reduction in the tax allowance
- A $1.2 million reduction in operating expenditure

The total NRR for both the SDP plant and pipeline is $886.9 million over the 2023 determination period.

This is $66.9 million or 7% less than SDP's proposal.

The notional revenue requirement (NRR) represents our view of the total efficient costs of providing SDP's monopoly services in each year of the 2023 determination period. We then apply any applicable adjustments to arrive at the NRR for each year.

The draft revenue requirement we have set for SDP over the 2023 determination period reflects our draft decisions on:

- Efficient operating and capital expenditure
- The value of the Regulatory Asset Base (RAB), return on capital and regulatory depreciation
- Taxation and working capital allowances
- Adjustments including for the Energy Adjustment Mechanism, the deferral to the price review and other adjustments.

The figures presented in this chapter assume average expected production of 68.4%.

8.1 Plant revenue requirement

Our draft decision is:

22. To set the notional revenue requirement for the SDP plant at $753.8 million over the 2023 determination period as shown in Table 8.1.

Table 8.1 Draft decisions on Plant revenue requirement ($million, $2022-23)

	21-22[a]	22-23	23-24	24-25	25-26	26-27	Total
SDP proposal							
Operating expenditure			88.1	88.5	93.0	90.4	360.1
Return on assets			43.8	42.5	41.1	39.4	166.8
Regulatory depreciation			56.8	59.9	63.0	65.6	245.3
Tax allowance			9.2	9.6	10.8	12.0	41.6
Return on working capital			1.5	1.5	1.6	1.7	6.3
NRR (pre adjustments)			**199.4**	**202.1**	**209.5**	**209.1**	**820.1**
EAM			-1.9	-1.9	-1.9	-1.9	-7.4
ECM			0.0	0.0	0.0	0.0	0.0
Deferral adjustment			0.0	0.0	0.0	0.0	0.0
Other adjustments			0.0	0.0	0.0	0.0	0.0
Total proposed NRR (A)			**197.5**	**200.3**	**207.6**	**207.2**	**812.6**
IPART draft decision							
Operating expenditure	69.0		85.5	82.9	88.6	83.5	340.4
Return on assets	56.0		43.7	42.3	40.5	38.6	165.0
Regulatory depreciation	51.0		55.6	57.1	57.9	58.5	229.1
Tax allowance	11.4		8.6	8.6	9.1	9.7	35.9
Return on working capital	0.0		1.2	1.4	1.4	1.4	5.3
NRR (pre adjustments)	**187.5**		**194.6**	**192.2**	**197.4**	**191.6**	**775.8**
EAM	6.3		-4.1	-4.1	-4.1	-4.1	-16.3
ECM	0.0		0.0	0.0	0.0	0.0	0.0
Deferral adjustment	NA		-1.5	-1.5	-1.5	-1.5	-6.0
Other adjustments	NA		0.1	0.1	0.1	0.1	0.4
Total draft NRR (B)	**193.7**		**189.1**	**186.7**	**191.9**	**186.1**	**753.8**
Difference (A) and (B) ($m)			-8.4	-13.6	-15.7	-21.1	-58.8
Difference (A) and (B) (%)			-4.3%	-6.8%	-7.6%	-10.2%	-7.2%

a. The allowances for 2021-22 have been inflated from the dollar basis used in the last SDP review ($2016-17) to $2022-23 by 8.6% to retain relativity to the prices applied in 2022-23. Prices are inflated using the March-to-March CPI lagged one-year, while costs are generally inflated for IPART purposes using the June-to-June CPI. The June-to-June CPI used to move costs from $2016-17 to $2022-23 for the expenditure review was 18.9%.

Source: Source: SDP pricing proposal and IPART analysis.

8.2 Pipeline revenue requirement

Our draft decision is:

23. To set the notional revenue requirement for the SDP pipeline at $133 million over the 2023 determination period as shown in Table 8.2.

Table 8.2 Draft decisions on Pipeline revenue requirement ($million, $2022-23)

	21-22[a]	22-23	23-24	24-25	25-26	26-27	Total
SDP proposal							
Operating expenditure			0.5	0.5	0.5	0.5	2.0
Return on assets			28.0	27.7	27.4	27.1	110.3
Regulatory depreciation			8.5	8.6	8.6	8.6	34.2
Tax allowance			-2.0	-1.7	-1.5	-1.3	-6.5
Return on working capital			0.3	0.3	0.3	0.3	1.1
Total proposed NRR (A)			**35.4**	**35.3**	**35.3**	**35.2**	**141.2**
IPART draft decision							
Operating expenditure	0.3		0.2	0.2	0.2	0.2	0.8
Return on assets	33.8		28.0	27.8	27.5	27.2	110.5
Regulatory depreciation	6.3		7.2	7.2	7.2	7.2	29.0
Tax allowance	-1.4		-2.4	-2.2	-2.0	-1.7	-8.3
Return on working capital	0.1		0.3	0.2	0.3	0.3	1.0
Total draft NRR (B)	**39.2**		**33.3**	**33.3**	**33.2**	**33.2**	**133.0**
Difference (A) and (B) ($m)			-2.1	-2.0	-2.0	-2.0	-8.1
Difference (A) and (B) (%)			-5.8%	-5.8%	-5.8%	-5.7%	-5.8%

a. The allowances for 2021-22 have been inflated from the dollar basis used in the last SDP review ($2016-17) to $2022-23 by 8.6% to retain relativity to the prices applied in 2022-23. Prices are inflated using the March-to-March CPI lagged one-year, while costs are generally inflated for IPART purposes using the June-to-June CPI. The June-to-June CPI used to move costs from $2016-17 to $2022-23 for the expenditure review was 18.9%.

Source: SDP pricing proposal and IPART analysis.

8.3 Plant and pipeline revenue requirement

The following table shows the combined revenue requirement for plant and pipeline that is presented in the sections above.

Table 8.3 Draft decisions on Plant and Pipeline revenue requirement ($million, $2022-23)

	21-22[a]	22-23	23-24	24-25	25-26	26-27	Total
SDP proposal							
Operating expenditure			88.6	89.0	93.5	90.9	362.0
Return on assets			71.8	70.2	68.5	66.5	277.1
Regulatory depreciation			65.4	68.5	71.5	74.2	279.6
Tax allowance			7.2	7.8	9.3	10.8	35.1
Return on working capital			1.8	1.8	1.9	1.9	7.4
NRR (pre adjustments)			**234.7**	**237.4**	**244.8**	**244.3**	**961.2**
EAM			-1.9	-1.9	-1.9	-1.9	-7.4
ECM			0.0	0.0	0.0	0.0	0.0
Deferral adjustment			0.0	0.0	0.0	0.0	0.0
Other adjustments			0.0	0.0	0.0	0.0	0.0
Total proposed NRR (A)			**232.9**	**235.6**	**242.9**	**242.4**	**953.8**
IPART draft decision							
Operating expenditure	69.4		85.6	83.1	88.8	83.7	341.2
Return on assets	89.8		71.7	70.0	68.0	65.9	275.5
Regulatory depreciation	57.3		62.9	64.4	65.1	65.7	258.1
Tax allowance	10.0		6.2	6.4	7.1	7.9	27.6
Return on working capital	0.1		1.5	1.6	1.6	1.6	6.4
NRR (pre adjustments)	**226.7**		**227.9**	**225.4**	**230.7**	**224.8**	**908.8**
EAM	6.3		-4.1	-4.1	-4.1	-4.1	-16.3
ECM	0.0		0.0	0.0	0.0	0.0	0.0
Deferral adjustment	NA		-1.5	-1.5	-1.5	-1.5	-6.0
Other adjustments	NA		0.1	0.1	0.1	0.1	0.4
Total draft NRR (B)	**232.9**		**222.4**	**220.0**	**225.2**	**219.3**	**886.9**
Difference (A) and (B) ($m)			-10.5	-15.6	-17.7	-23.1	-66.9
Difference (A) and (B) (%)			-4.5%	-6.6%	-7.3%	-9.5%	-7.0%

a. The allowances for 2021-22 have been inflated from the dollar basis used in the last SDP review ($2016-17) to $2022-23 by 8.6% to retain relativity to the prices applied in 2022-23. Prices are inflated using the March-to-March CPI lagged one-year, while costs are generally inflated for IPART purposes using the June-to-June CPI. The June-to-June CPI used to move costs from $2016-17 to $2022-23 for the expenditure review was 18.9%.

Source: SDP pricing proposal and IPART analysis.

Chapter 9

Prices

Summary of our draft decisions for prices

We have accepted SDP's proposal to have a simple price structure

We have made a draft decision to apply a 2-part price structure for SDP, comprised of fixed service charges (plant and pipeline) and volumetric usage charge over the next 4 years. This price structure is based on our expenditure consultants' advice that production costs are mostly linear.

We have set a Sydney Water requested zero production charge

We have decided to set prices for events that could occur outside the defined level of service between SDP and Sydney Water. In particular, we have decided to set a specific service charge for a zero production that is requested by Sydney Water. This would provide some flexibility to SDP should this occur, while allowing it to recover additional costs associated with a short-term shut down or zero production. In addition, we consider this could facilitate more efficient outcomes than what might occur if Sydney Water and SDP are not able to negotiate terms for a shutdown or zero production.

We have continued to share costs between Sydney Water and other purchasers of desalinated water

We have aimed to set prices to ensure Sydney Water and other purchasers of desalinated water would pay their fair share of SDP's costs. Based on the information currently available to us, our draft decision is for other purchasers to pay usage charge and prorated share of plant and pipeline service charges based on their water take per day as a proportion of total capacity.

Service charges would decrease and usage charge would increase

Under our draft decisions, SDP's total service charges would decrease by 1.4% in 2023-24 compared to 2022-23, then stay relatively stable over the 2023 determination period. The decrease largely reflects the fact that the rate of return has declined since our last review.

In addition, the draft usage charge would increase by 14.7% in 2023-24 compared to 2022-23, then projected to remain at higher levels. The trend largely reflects higher chemical and energy costs than the costs we used to set prices in 2017.

After determining draft efficient costs (see Chapters 4 to 7) for SDP, the next step is to decide on how we structure prices and the level we should set them at.

Generally, when we set prices for regulated water businesses, we aim to set prices to cover the efficient costs of providing their required water services to customers. This enables water businesses to continue providing safe and reliable services now and into the future.

For SDP, we will consider this aim and the matters specified in the Terms of Reference and the IPART Act. Specifically, we will set prices so that SDP can recover the efficient costs in providing its services in the Greater Sydney region. In setting prices, the Terms of Reference require us to consider several pricing principles including (among others) that the structure and level of prices should encourage SDP to be financially indifferent as to whether or not it supplies water.

This chapter discusses our draft decisions on pricing approach and prices for this review having regard to SDP's pricing proposal and submissions from stakeholders.

9.1 Price structures

Our draft decisions are:

24. To accept SDP's proposal for a simple 2-part price structure consisting of:
    a. Fixed water service and pipeline charges (expressed as $ per day), and
    b. Volumetric water usage charge (expressed as $ per ML).

25. To apply the 2-part price structure at all times.

26. To set a Sydney Water requested zero production charge that would apply if Sydney Water initiates SDP to shut down and SDP has agreed not to produce desalination water. This would be in addition to the 2-part tariff.

For the 2023 determination period, we have decided to maintain our broad pricing approach, where we set:

- Service charges ($ per day) that cover the cost of making the desalination plant, pipeline and other assets available. These reflect SDP's fixed operating and capital costs and apply whether or not the SDP supplies water.
- Water usage charge ($ per ML of water) that covers the cost of supplying non-rainfall dependent drinking water. This reflects SDP's variable operating costs and applies only when the SDP supplies water.

After considering SDP's pricing proposal and submissions, our draft decisions aim to balance having a simple price structure, providing flexibility in certain events where possible and having transparent pricing.

Table 9.1 provide an overview of our draft decisions on price structures, which is discussed in more detail in the next section.

Table 9.1 Comparison of draft decision on price structures against SDP's proposal and the 2017 Determination

Modes	2017 Determination	2023 Determination – SDP's proposal	2023 Determination – Draft Report
Operational mode under defined level of service	• Water usage charge • Base plant service charge • Incremental plant service charge • Pipeline service charge • Membrane service charge	• Water usage charge • Plant service charge • Pipeline service charge	• Water usage charge • Plant service charge • Pipeline service charge
Operational mode outside defined level of service	During shutdown and restart period: • Water usage charge • Base plant service charge • Pipeline service charge • Transition service charge to shutdown • Membrane service charge • One-off residual membrane service charge	• Charges to be negotiated between SDP and Sydney Water	• Sydney Water requested zero production charge • Option to reopen the determination for prolonged shutdown

9.1.1 We have decided to accept SDP's proposal for a simple 2-part price structure

In 2017, we set 6 different services charges and a usage charge for SDP based on different modes of operation.

For the 2023 determination period, SDP proposed a simple 2-part price structure comprised of fixed service charges (plant and pipeline) and volumetric usage charge. [99] This is because:[100]

- It would be operating flexibly and full-time under the defined level of service specified in its Network Operator's Licence. This is instead of having different modes of operations such as operational, shutdown or restart periods that were a feature of the 2017 Determination.
- It is expecting to have linear production costs from low to high levels of water production.

We have reviewed SDP's proposal in light of its new flexible, full-time role. We also received advice from our expenditure consultants that supports SDP's proposal that its production costs are linear from low to high production levels. We received a submission from Sydney Water to our Issues Paper that indicated a support for a simple tariff structure.[101]

Therefore, our draft decision is to accept SDP's proposal for a simple price structure consisting of:

- Plant and pipeline service charges ($ per day) to recover SDP's efficient fixed costs, and
- A usage charge ($ per ML) to recover SDP's efficient variable costs.

In addition, we have made a draft decision for SDP to apply this price structure at different production levels based on our expenditure consultants' advice that production costs are mostly linear. However, this price structure would need to be considered in conjunction with:

- SDP's requirements under its new Network Operator's Licence – i.e. must provide 90-110% of the water requested under the annual production request from Sydney Water
- the Sydney Water requested zero production charge, which is discussed in the next section.

9.1.2 We have decided to set a Sydney Water requested zero production charge

SDP proposed to have negotiated agreements with Sydney Water because:[102]

> While the proposed prices reflect the efficient costs of meeting the defined level of service which should cover the vast majority of water production requests from Sydney Water, it is difficult and impractical to attempt to estimate costs associated with meeting all possible levels of service in a way that is consistent with the Terms of Reference. For example, it is difficult to estimate the additional costs of SDP 'ramping up' more quickly (or more often) to meet a Sydney Water production request that is outside the defined level of service (i.e. above the costs assumed in Operational Mode) or any cost savings resulting from Sydney Water requesting the Plant be moved into Shutdown.

We raised this matter in the Issues Paper and Sydney Water provided its views as follows:[103]

> We note that SDPPL has proposed unregulated agreements to deal with certain kinds of service requests. Given the limited experience with a more flexible approach to operating SDP, we do not support unregulated agreements for the coming determination period. This may require IPART to determine prices for certain services where SDPPL did not propose a price, such as shutdown and restart events, or some form of ex-post true-up should these events be required during a determination period.

In addition, this issue was discussed in the Public Hearing:

- SDP highlighted that its proposal to have negotiated agreements with Sydney Water would be based on a deferred regulation framework. That is, SDP indicated that having the ability to negotiate a service and price with customer would provide flexibility in dealing with unknown scenarios.[104]
- Sydney Water reiterated its views that it is too early to have negotiated agreements given SDP's new operating environment.[105]
- SDP indicated that the only practical example that it has identified with Sydney Water that would be captured by negotiated agreement is a shutdown.[106] However, SDP was not suggesting to set a price for shutdown or restart because costs of these transitional activities could vary based on the length, scope or details of the activities.[107]

We also received advice from our expenditure consultants on costs associated with a shutdown of up to a year. Atkins considered that operational savings are likely to be material if the shutdown is pre-agreed in advance and long enough. For a short-term shutdown, it considered that savings are unlikely to be realised since SDP and the operator would need to retain its workforce and assets maintained in ready mode.[108] Chapter 5 provides more detail on costs that could be incurred by SDP under a short-term shut down.

We have carefully considered SDP's proposal, stakeholder views and our expert consultants' advice. Our draft decision is to not accept SDP's proposal to allow it to enter into negotiated agreements with Sydney Water for services which have been referred to IPART. Instead, we have decided to set prices for events that could occur outside the defined level of service between SDP and Sydney Water. In particular, we have decided to set a specific service charge for a zero production that is requested by Sydney Water and SDP has agreed to do.

There are several reasons for our draft decision, in particular:

- This would provide some flexibility to SDP should a zero production or shutdown occur as a request by Sydney Water. Over the 2023 determination period, SDP is expected to operate flexibly and continuously. We understand that a long-term shutdown is not envisaged for SDP. However, SDP and Sydney Water indicated that there may be some instances where Sydney Water initiates a short-term shutdown request due to operational reasons.[109]
- This would allow SDP to recover additional costs associated with a short-term shut down based on our expenditure consultants' advice.
- This approach could facilitate more efficient outcomes than what might occur if Sydney Water and SDP are not able to negotiate terms for a shutdown. For example, Sydney Water may request SDP to produce water even at low levels even if it does not need water because this could be the cheaper option.
- This addresses stakeholder feedback. Sydney Water did not support SDP's proposal for negotiated agreements and it suggested that IPART may need to set prices for shutdown/restart services.

If Sydney Water requests SDP to shutdown more than a year, we consider this to not be consistent with the 2022 Greater Sydney Water Strategy, and we may need to reopen the determination for SDP. However, we understand the likelihood of this scenario to occur appears low. Under the 4-year determination period, the risk of a prolonged shutdown requiring a reopener is limited and would diminish as we progress through the determination period.

In addition, our draft decision on setting a Sydney Water requested zero production charge should be considered with our draft decision on sharing prices between SDP's customers. To be clear, this zero production charge would only be applied if the customer is Sydney Water and SDP would not be producing any desalinated water.

Seek Comment

2. Is our approach to setting a Sydney Water requested zero production charge appropriate? Are there any unintended consequences that may occur that we should consider?

9.2 Service and usage charges

Our draft decision is:

27. To set draft plant and pipeline service charges, and usage charge for SDP from 1 July 2023 as shown in Table 9.2.

Table 9.2 sets out our draft decision on SDP's prices in $2023-24 dollars. That is, the draft prices outlined in this chapter have been adjusted for one year of inflation. We have assumed an inflation rate of 6.9% would apply from 1 July 2023.[y] Prices will continue to be adjusted in line with inflation each year to 30 June 2027, as future inflation information becomes available.

Our draft prices recover the draft efficient costs in the year they occur. As a result, there is no smoothing of the target revenue or prices.

Table 9.2 Draft decision on SDP's service and usage charges ($2023-24) – with inflation

	2021-22 ($2021-22)	2022-23 ($2022-23) (A)	2023-24 (B)	2024-25	2025-26	2026-27	% change from A to B
Plant service charge ($ per day)	417,854	417,854	421,092	423,141	423,133	419,196	0.8%
Pipeline service charge ($ per day)	107,741	107,741	97,295	97,405	97,362	97,254	-9.7%
Water usage charge ($ per ML)	669.35	669.35	767.54	723.26	812.86	735.82	14.7%

Note: The plant service charges in 2021-22 and 2022-23 are the sum of 3 service charges we set in 2017 Determination, which are base service charge, incremental service charge and membrane service charge.
Source: IPART analysis.

For 2023-24, we have set draft service charges lower and usage charge higher than charges in 2022-23 to reflect efficient costs

Under our draft decisions, SDP's total service charges would decrease by 1.4% in 2023-24 compared to 2022-23, then stay relatively stable over the 2023 determination period. The plant service charge increases by 0.8% in 2023-24, which is offset by pipeline service charge decreasing by 9.7%. The decrease in total service charges largely reflects the fact that the rate of return has declined since our last review.

In addition, the draft usage charge would increase by 14.7% in 2023-24 compared to 2022-23. Then, usage charges are projected to remain higher than 2022-23 although they would fluctuate over the 2023 determination period. The trend largely reflects higher chemical and energy costs than the costs we used to set prices in 2017.

[y] The 6.9% inflation rate is based on the average inflation rate forecast from Refinitiv as at 31 March 2023.

We have set draft prices that are lower than SDP's proposed prices

SDP's original proposed prices are presented in Table 9.3. To ensure like-for-like comparison, we adjusted the proposed prices by an inflation rate of 6.9% from 1 July 2023 (see Table 9.4). The differences between adjusted proposed prices and our draft prices are largely driven by our draft decisions on lower operating and capital expenditure (see Chapters 5 and 6).

Table 9.3 SDP's proposed service and usage charges ($2023-24) – with inflation rate of 2.8%

	2021-22 ($2021-22)	2022-23 ($2022-23) (A)	2023-24 (B)	2024-25	2025-26	2026-27	% change from A to B
Plant service charge ($ per day)	417,857	417,857	418,304	427,331	446,724	445,726	0.1%
Pipeline service charge ($ per day)	107,741	107,741	99,324	99,426	99,346	99,183	-7.8%
Water usage charge ($ per ML)	669.35	669.35	798	800	807	806	19.2%

Note: The plant service charges in 2021-22 and 2022-23 are the sum of 3 service charges we set in 2017 Determination, which are base service charge, incremental service charge and membrane service charge.

Source: IPART analysis.

Table 9.4 Adjusted proposed service and usage charges ($2023-24) – with inflation rate of 6.9%

	2021-22 ($2021-22)	2022-23 ($2022-23) (A)	2023-24 (B)	2024-25	2025-26	2026-27	% change from A to B
Plant service charge ($ per day)	417,857	417,857	434,988	444,375	464,540	463,503	4.1%
Pipeline service charge ($ per day)	107,741	107,741	103,286	103,391	103,308	103,139	-4.1%
Water usage charge ($ per ML)	669.35	669.35	830	831	839	839	24.0%

Note: The plant service charges in 2021-22 and 2022-23 are the sum of 3 service charges we set in 2017 Determination, which are base service charge, incremental service charge and membrane service charge.

Source: IPART analysis.

9.3 Sydney Water requested zero production charge

Our draft decision is:

28. To set the draft Sydney Water zero production charge for SDP from 1 July 2023 as shown in Table 9.5.

Table 9.5 sets out our draft decision on Sydney Water requested zero production charges over the next 4 years. These charges would only apply in the event that Sydney Water requested SDP to shut down for operational reasons and SDP has agreed not to produce any desalinated water.[z] If that were to happen, Sydney Water would pay the zero production charge in addition to service and usage charges outlined in section 9.2.

Table 9.5 Draft decision on Sydney Water requested zero production charge ($2023-24) – with inflation

	2021-22 ($2021-22)	2022-23 ($2022-23) (A)	2023-24 (B)	2024-25	2025-26	2026-27	% change from A to B
Sydney Water requested zero production charge ($ per day)	NA	NA	1,736	1,764	1,725	1,759	NA

Source: IPART analysis.

[z] The Draft Determination defines the term or period for this zero production to be: day(s) upon which SDP's Plant is shut down for the entire day(s) due to a request from Sydney Water to shut down the Plant on that day(s) which is in writing or provided to SDP and IPART's Chair before that day(s).

9.4 Allocating costs between Sydney Water and other purchasers of desalinated water

Our draft decision is:

29. To allocate a share of the plant service charge to other purchasers based on their water take as a proportion of SDP's total capacity. Sydney Water would then be allocated a share of the plant service charge equal to the full plant service charge less any amounts allocated to other purchasers.

30. To allocate a share of the pipeline service charge to other purchasers if they receive desalinated water from SDP via SDP's pipeline. The share of the pipeline service charge allocated to other purchasers would be based on their water take as a proportion of SDP's total capacity. Sydney Water would then be allocated a share of the pipeline service charge equal to the full pipeline service charge less any amounts allocated to other purchasers.

In sections 9.1 to 9.3, we discussed what charges we have decided to set over the 2023 determination period, when they apply, what costs are recovered by each charge and at what levels we set the prices. These draft decisions support the financial indifference principle set out in the Terms of Reference. That is, we have set prices to ensure SDP remains financially indifferent as to whether or not SDP is required to supply desalinated water by its customers.

To date, Sydney Water has been the only customer of SDP. Under SDP's new Network Operator's Licence, SDP will provide a firm service to Sydney Water. This means Sydney Water is the priority customer and can make full use of SDP's plant capacity. Because of this firm service and to ensure SDP remains financially indifferent, Sydney Water would have to pay all service and usage charges outlined in section 9.2, unless there are other purchasers of desalinated water.

In this section, we will discuss our draft decision on how the charges we set are to be shared between Sydney Water and potential other purchasers. Our understanding is that any other purchasers would receive a non-firm incidental service (see Box 9.1 for more explanation).

Box 9.1 Other purchasers of SDP's desalinated water – who are they and what service arrangement would they have with SDP

Who are other purchasers?

There are customers of SDP other than Sydney Water. Other purchasers could be from the Greater Sydney region or outside. A purchaser could be getting water directly from SDP and arrange its own water transportation to its location (i.e. only accessing SDP's plant). Alternatively, it could be accessing water from SDP's pipeline (i.e. utilising SDP's plant and pipeline).

What type of service arrangement would they have with SDP?

Under its new Network Operator's Licence, SDP needs to respond quickly to meet Sydney Water's water requests. Sydney Water could request water up to SDP's daily maximum production of 250ML.

Based on this, the service arrangements between other purchasers and SDP would likely have the following characteristics:

- The service to other purchasers would be non-firm and incidental. It would be subordinated to the service that SDP would have with Sydney Water.
- They can have access to spare capacity water from SDP, which is equivalent to maximum production capacity less water required by Sydney Water for that day.
- The service can be interrupted and not continuous.

Previous approach and SDP's pricing proposal

In 2012, we decided to share all of SDP costs between its customers based on each customers' proportionate use of SDP – i.e. how much desalinated water each customer purchases relative to the volumes of water produced that.[110] In 2017, we decided to use a principles-based approach to sharing SDP's costs. We used the impactor and beneficiary pays principles in a hierarchy to create an efficient allocation of costs. At the time, this approach recognised the purpose for which SDP's assets were built and funded, namely the provision of an additional supply of water when dam storage levels were low. It also recognised that other purchasers may want to use the plant outside of drought.[111]

While SDP proposed to maintain the cost sharing arrangements, it proposed a simple arrangement where Sydney Water would be the only customer over the 2023 determination period. SDP indicated it would be highly unlikely to supply to other purchasers in the foreseeable future. Over the 2023 determination period, SDP indicated it would have limited ability to supply to another customer. Consequently, SDP considered Sydney Water to be both the impactor and beneficiary in all circumstances. This means Sydney Water would be the only party 'sharing' SDP's costs.[112]

In its submission to our Issues Paper, Sydney Water indicated its support to not rule out the possibility of other purchasers in the future.[113]

Our approach for the 2023 determination period

We understand that SDP has had no other customer besides Sydney Water since we started setting SDP's prices in 2012. We also understand that other purchasers of desalinated water may be unlikely to materialise over the next few years. However, we consider that there is merit in continuing to set maximum prices for potential other purchasers. This is because it would provide flexibility to SDP in case it gets approached by other purchasers.

Accordingly, our draft decision is to ensure customers – Sydney Water and other purchasers – pay their fair share of SDP's costs.

Prices for other purchasers of SDP's services should be set to recover a share of SDP's efficient costs that is between incremental cost (lower bound) and stand-alone cost (upper bound). We have considered two options for pricing services to other purchasers of SDP's services.

1. Usage charge only.
2. Usage charge plus a share of SDP's plant and, if applicable, pipeline service charges. Under this option, any portion of SDP's service charges allocated to other purchasers, would result in a corresponding reduction in the service charges paid by Sydney Water.

Our draft decision is to adopt Option 2 so that other purchasers pay both the usage charge and a prorated share of plant and, if applicable, pipeline service charges based on water take per day as a proportion of total capacity. We consider that Option 1 could result in prices that are below incremental cost and therefore could result in inefficient use of SDP. We consider Option 2 falls within the efficient incremental cost to stand-alone cost range and we consider it is reasonable to share a portion of SDP's fixed costs with other purchasers of SDP's services.

Box 9.2 explains how the allocation of charges between Sydney Water and other purchasers would be implemented. Under our draft decision, any share of SDP's service charges that are levied to other purchasers would reduce, by an equivalent amount, the service charges paid by Sydney Water. The effect of this would be that SDP would receive no more or less than 100% of its service charges regardless of whether there are zero, one or more other purchasers. Towards the end of this section, we provide several examples to illustrate this point.

Box 9.2 Allocation of costs between all SDP customers

The usage charge would be levied to Sydney Water and other purchasers. All customers would pay based on their water take for that day.

For other purchasers, the plant service charge would be prorated to them based on their water take for that day as a proportion of total capacity. The plant service charge for other purchasers would be:

$$\frac{The\ volume\ of\ water, in\ ML, supplied\ by\ SDP\ to\ that\ customer\ on\ the\ day}{Maximum\ Production}$$

Then, Sydney Water's plant service charge would be:

$$\frac{Maximum\ Production - \ Total\ Third\ Party\ Supply}{Maximum\ Production}$$

The pipeline service charge would also be prorated to between Sydney Water and those other purchasers that require access to the pipeline. The prorating would be the same approach for the plant service charge.[a]

a. In the Draft Determination, clause 7 provides further information on how the pipeline charge will be split.
Note: The maximum production is defined in the Draft Determination as either the volume of water SDP supplies to customer on that day in ML or 250ML.

The following tables provide examples showing how prices are allocated:

1. Sydney Water takes majority of water and purchaser A would only access SDP's plant (and not the pipeline)
2. Sydney Water takes majority of water and purchaser A would access SDP's plant and pipeline
3. Sydney Water takes less water than purchaser A
4. Sydney Water requests a shutdown and no other purchaser
5. Sydney Water requests a shutdown but purchaser A requests water from SDP

Table 9.6 Example 1 – Sydney Water takes majority of water and purchaser A would only access SDP's plant

2023-24	Sydney Water	Customer A
Demand assumptions		
Water take for the day (ML)	150	30
Maximum production (ML)	250	250
Prorating share (%)	88%	12%
Applicable prices		
Usage charge (per ML)	767.54	767.54
Plant service charge (per day)	370,561	50,531
Pipeline service charge (per day)	97,295	0
Shutdown charge (per day)	N/A	N/A

Source: IPART analysis.

Table 9.7 Example 2 – Sydney Water takes majority of water and purchaser A would only access SDP's plant and pipeline

2023-24	Sydney Water	Customer A
Demand assumptions		
Water take for the day (ML)	150	30
Maximum production (ML)	250	250
Prorating share (%)	88%	12%
Applicable prices		
Usage charge (per ML)	767.54	767.54
Plant service charge (per day)	370,561	50,531
Pipeline service charge (per day)	85,620	11,675
Shutdown charge (per day)	N/A	N/A

Source: IPART analysis.

Table 9.8 Example 3 – Sydney Water takes less water than purchaser A

2023-24	Sydney Water	Customer A
Demand assumptions		
Water take for the day (ML)	50	150
Maximum production (ML)	250	250
Prorating share (%)	40%	60%
Applicable prices		
Usage charge (per ML)	767.54	767.54
Plant service charge (per day)	168,437	252,655
Pipeline service charge (per day)	38,918	58,377
Shutdown charge (per day)	N/A	N/A

Source: IPART analysis.

Table 9.9 Example 4 – Sydney Water requests a shutdown

2023-24	Sydney Water	Customer A
Demand assumptions		
Water take for the day (ML)	150	0
Maximum production (ML)	250	250
Prorating share (%)	100%	0%
Applicable prices		
Usage charge (per ML)	767.54	N/A
Plant service charge (per day)	421,092	N/A
Pipeline service charge (per day)	97,295	N/A
Shutdown charge (per day)	1,736	N/A

Source: IPART analysis.

Table 9.10 Example 5 – Sydney Water requests a shutdown but purchaser A requests water from SDP

2023-24	Sydney Water	Customer A
Demand assumptions		
Water take for the day (ML)	0	50
Maximum production (ML)	250	250
Prorating share (%)	80%	20%
Applicable prices		
Usage charge (per ML)	767.54	767.54
Plant service charge (per day)	336,873	84,218
Pipeline service charge (per day)	77,836	19,459
Shutdown charge (per day)	N/A	0

Source: IPART analysis.

Seek Comment

3. Is our approach to sharing costs between Sydney Water and other purchasers appropriate?

Chapter 10

Impact of draft decisions

Summary of the impacts of our draft decisions

Sydney Water's annual bill would be marginally higher

Under an averaged annual production level of 68.4%, our analysis show that Sydney Water's annual bill would be marginally higher at 1.5% than the bill in 2022-23. The change is largely driven by decreases in costs, which have been offset by the inflation rate of 6.9%.

Our draft decisions for this review would have a small impact on end-use water customers' annual water bills

In general, the portion of the end-use water customer's annual bill that relates to SDP is less than 10%. Our draft decisions would have the effect of limiting the impact of the current high rate of inflation on end-use customer bills.

Our draft decisions would allow SDP to remain financeable over the 2023 determination period

Overall, we did not identify any financeability concern for SDP that needs to be addressed in this review. It is our view that SDP can remain financially sustainable and continue to provide sustainable services over the determination period.

There are no significant impacts on general inflation as a result of our decisions

Our draft decisions to decrease SDP's service charges and increase usage charge will not put upward pressure on general inflation.

This chapter outlines the implications of our draft pricing decisions on the matters that we must consider under the Terms of Reference, section 15 of the IPART Act and WICA (see Appendices B and C). These include impact on:

- SDP's customers – i.e. Sydney Water, and end-use water customers in the Greater Sydney region
- SDP's service standards
- SDP's financial viability and shareholder
- general inflation, and
- the environment.

This chapter presents our findings on bill impacts in $2023-24. This is to show the immediate impact of our draft decisions on prices and customer bills in the first year of the 2023 determination period compared to prices and customer bills in the current 2022-23 period. This means that the $ and % changes in prices and bills in this chapter include the impacts of inflation from 2022-23 to 2023-24, but not from 2023-24 onwards. IPART's draft determination sets draft prices in $2023-24 for 4 years, from 1 July 2023, and then allows SDP to adjust these prices by changes in consumer price index (CPI) from 2024-25 onwards.

10.1 Impacts on Sydney Water

In reaching our pricing decisions, we consider the impacts of our draft prices on Sydney Water, who is SDP's only customer at present.

Under an averaged annual production level of 68.4% and no other SDP customer, our analysis show that Sydney Water's annual bill would be $237.3 million in 2023-24 based on draft prices (see Table 10.1). This is about 1.5% marginally higher than the bill in 2022-23 under the same production level. The increase in bills is largely driven by decreases in costs (as discussed in Chapters 6 to 8), which have been offset by the inflation rate of 6.9%.

Table 10.1 Forecast bills for Sydney Water at 68.4% production level ($million, $2023-24) – with inflation

	2022-23 ($2022-23)	2023-24	% change 2022-23 to 2023-24
Annual bill under 68.4% annual production level	234.3	237.8	1.5%

Source: IPART analysis.

The impact on Sydney Water's annual bills will vary each year based on SDP's actual annual production levels and if there are any other purchasers (see section 9.4 for pricing scenario analysis).

10.2 Impacts on end-use water customers in the region

Under our draft prices for SDP, the impact on the annual bills of end-use water customers would be very small. This is because our draft prices are lower than SDP's proposed prices. Box 10.1 steps out how end-use customers would be affected.

Box 10.1 Impact of SDP's prices on a typical end-use customer bill

Our draft decisions would result in prices for SDP's services to Sydney Water increasing by about 1.5% from 1 July 2023.

The costs of SDP's services to Sydney Water make up around 10% of a typical Sydney Water end use customer bill. Therefore, a 1.5% increase in the prices SDP charges to Sydney Water would translate about a 0.12% increase in end-use customer bills. For a typical Sydney Water customer bill of about $1,300 per year, this would amount to about a $2 increase in the bill.

We note that Sydney Water passes through changes in SDP costs to end-use customers following a 12-month lag. This means that changes in SDP's prices from 1 July 2023 would impact Sydney Water's end-use customer bills from 1 July 2024.

10.3 Implications for SDP's service standards

Under our determination, we expect SDP to achieve both operating and capital efficiency savings. We are satisfied that SDP can achieve these efficiency savings and therefore can generate sufficient revenue to achieve service standards at or above those expected by customers and required under its licences.

SDP holds a Network Operator's Licence and Retail Supplier's Licence under the WIC Act. IPART administers and reviews these licences.

We consider our draft decisions on SDP's operating and capital expenditure would enable it to operate efficiently and to implement infrastructure repairs and investments to meet service standards over the 2023 determination period. As outlined in Chapters 5 and 6, key expenditure items that would help SDP meet its service standards are:

- For operating expenditure, we have set:
  - Allowances for the impacts of membrane ageing to SDP's energy consumption allowance, allowing it to both efficiently consume energy, while optimising the usage of its membranes
  - Additional corporate cost allowances for the hiring of additional staff to support SDP's new flexible full-time operational requirements
  - Routine asset maintenance costs to facilitate the maintenance of SDP's assets in line with good industry practice
  - Insurance cost allowances to ensure SDP is efficiently and prudently managing its risks in line with the long-term interests of customers.
- For capital expenditure, we have set:
  - Membrane replacement program cost allowances, including for the replacement of first-pass membranes from FY24 to provide greater operational flexibility to SDP
  - Numerous periodic maintenance activities, including for the replacement of various ageing mechanical and electrical assets that are approaching the end of their design lives
  - The connection of an additional 132kV electrical feeder to the plant, to provide redundancy and greater plant reliability during periods of maximum or high production
  - An additional drinking water pump to provide DWPS redundancy and improve the reliability of SDP's DWPS in meeting maximum flow (250 ML/d) requirements.

10.4 Implications for SDP's ability to recover costs

Consistent with the Terms of Reference, our prices encourage SDP to be financially indifferent as to whether or not SDP supplies water to customers, including Sydney Water.

Notably, our draft volumetric water usage charge for the supply of non-rainfall dependent drinking water reflects efficient costs that vary with output, including chemical and energy costs. The fixed service charges for making the plant available to supply non-rainfall dependent drinking water are periodic payments. These reflect fixed costs, including the fixed component of operating costs, depreciation and a return on assets.

The service charges apply at all times, which means SDP is entitled to charge irrespective of its annual production levels.

We also set a customer-initiated shutdown charge to cover the additional cost that SDP may incur should Sydney Water request SDP to shut down for a short period of time.

10.5 Implications for SDP's shareholders

Our draft pricing decisions mean that SDP would be able to achieve the total notional revenue requirement we have set for the 2023 determination period. Therefore, we expect that SDP would earn a real post-tax rate of return on its RAB based on a WACC of 3.6% over the period (see Chapter 7). This calculation is based on the assumptions we used in our modelling of the financial impacts of our draft pricing decisions, and depends on SDP achieving the efficiency targets we have set.

In addition, we have also set the WACC to align with SDP's debt refinancing activities (see Chapter 4 and Appendix D). This should provide SDP with funding certainty over the period.

10.6 Implications for SDP's financial sustainability

When setting prices, we consider the financial sustainability (or 'financeability') of the business resulting from our pricing decisions. To do this, we undertake a financeability test to assess how our price decisions are likely to affect the business's financial sustainability and ability to raise funds to manage its activities over the upcoming regulatory period. The financeability test is based on the approach outlined in the 2018 Review of our financeability test (2018 Financeability Review).

We assessed SDP's financeability over the 2023 Determination by analysing its forecast financial performance, financial position and cash flows for both the **benchmark** and **actual** business. We then forecast financial ratios for both tests and assessed SDP's financial ratios compared to our target ratios.

In its pricing proposal, SDP considered the benchmark financeability test should:[114]

- Recognise that the business would raise nominal rather than real debt so the test should consider the business' ability to service those nominal debt obligations
- Allow for the possibility of financeability concerns arising if IPART inadvertently sets expenditure allowances too low
- Consider Debt Service Coverage Ratio (DSCR) as part of the benchmark test to consider the business' ability to have sufficient cash flow to cover interest payments and make principal repayments within the loan term.

In addition, SDP proposed that IPART should fully accept its pricing proposals so that a benchmark business in SDP's circumstances would remain financeable over the determination period and be able to maintain the benchmark BBB credit rating.

The following sections discuss in detail our assessment of SDP's proposals and results of the financeability tests.

10.6.1 We have decided to maintain our current approach for financeability tests

A key feature of the 2018 Financeability Review is to conduct separate tests using financial inputs for both a benchmark efficient business (benchmark test), and the business' actual financial inputs (actual test). This approach is very useful because:[115]

- conducting the test on the benchmark business would identify any estimation and cash flow impacts arising from our building block approach, and
- conducting the test on an actual business would indicate whether the business might face a financeability concern.

We understand that the first part of SDP's proposed changes to the financeability test is basically combining the benchmark and actual tests. Our draft decision is to maintain our current approach. This is because undertaking separate benchmark and actual tests would help in identifying the source of a financeability concern. We also consider that these proposed changes by SDP should be better consider holistically at the next IPART's review of the financeability test rather than at a water price review stage. This is because it would have implications for other regulated businesses.

We also understand that SDP is concerned that the test may not address future financeability problems that may arise in the event the expenditure allowance is set too low. We will address this as part of the findings of the tests in the next section.

In terms of the proposal to include the DSCR as part of the benchmark test, this issue was discussed in detail and concluded that:[116]

- It was not clear how to establish a target ratio for a benchmark efficient business in the regulated water industry.
- In practice, the depreciation allowance in the building block approach should provide an allowance that meets principal repayments.

Based on this, we have not changed the ratios we use for the tests. However, we have considered SDP's overall debt servicing capacity as part of the tests as discussed in the next section.

10.6.2 We have found no financeability concerns for SDP as a result of our draft decisions

Table 10.2 shows the financeability benchmark test results for this price review. For the actual test, we present the outcomes qualitatively only.

Overall, we did not identify a financeability concern for SDP that needs to be addressed in this review. It is our view that SDP can remain financially sustainable and continue to provide sustainable services over the determination period.

Table 10.2 Financeability benchmark test results

	Target ratios	2023-24	2024-25	2025-26	2026-27
Real Interest Coverage Ratio (RICR)					
Benchmark test	>2.2x	4.0x	4.0x	4.0x	4.1x
Does it meet the target?		✓	✓	✓	✓
Real FFO over Debt					
Benchmark test	>7.0%	8.0%	8.2%	8.4%	8.7%
Does it meet the target?		✓	✓	✓	✓
Net Debt / RAB					
Benchmark test	<70%	60.0%	60.0%	60.0%	60.0%
Does it meet the target?		✓	✓	✓	✓

Source: IPART analysis

There is significant headroom in interest coverage ratios

Under the benchmark test, SDP is forecast to have real interest coverage ratios (ICR) well above target, i.e. at least 4.1x compared to a target of 2.2x. This indicates that SDP could comfortably meet its interest payments. This healthy buffer means that SDP is in a good position to withstand interest rate increases or cost increases over the determination period.

Under the actual test, SDP is also forecast to be above the target.

The benchmark FFO over Debt is above the target, while actual is forecast to improve

FFO over Debt measures how much free cash a business generates (i.e. after covering its operating costs, interest expense and tax) relative to the size of its total borrowings. It measures a business' ability to generate cash flows to repay the principal of its debt.

For the benchmark test, SDP is forecast to have an average FFO over debt of 8.4%, which is higher than the target of 7%.

For the actual test, SDP is forecast to be below target in 2023-24, but forecast to improve over the period and almost reaching the target in 2026-27. We do not consider this represent a financeability concern because the trend is improving overtime and is explainable by the trend in the business' actual gearing level.

A transparent and predictable regulatory framework results in revenue predictability

We have followed the well-established principles of our building block framework when reviewing and setting SDP's prices and revenue allowances over the 2023 determination period. We consider the transparency of our regulatory framework, and the resulting revenue stability and predictability supports SDP's long-term financial sustainability.

The visibility of future cash flows that is generated by the regulatory framework provides SDP with an opportunity to implement counter measures to protect its credit risk profile. These counter measures could include finding efficiency savings, re-profiling expenditure, seeking equity injections or using retained earnings or dividends withheld to pay down debt.

10.7 Implications for general inflation

Under section 15 of the IPART Act, we are required to consider the effect of our determinations on general price inflation. SDP costs contribute to general water costs in Greater Sydney as they are included in Sydney Water prices as a cost pass-through.

To generate the national consumer price index (CPI), the Australian Bureau of Statistics (ABS) collects data on the capital-city prices of various items of household expenditure, including 'water and sewerage'. The weighting given to water and sewerage in the CPI for Sydney is 0.59 out of 100, meaning that a 1% change in the price of water and sewerage services in Sydney would result in a 0.0059% change in the CPI for Sydney, which is not large.[117]

Further, the water and sewerage measure for the Sydney CPI contributes 21.6% to the national measure of water and sewerage, which has a weighting in the national measure of 0.88 out of 100. This means that a 1% change in the price of water and sewerage services in Sydney would result in a 0.0019% change in the national CPI, which is negligible.[118]

With these weightings in the CPI, it would require an increase in the prices of water, wastewater and stormwater services in Sydney that is much larger than under our draft decisions to have significant impact on either the Sydney CPI or the national CPI.

Further, considering that the portion of end-use water customer bills for desalinated water is less than 10%, the impact of SDP's services on general inflation is negligible.

10.8 Implications for the environment

The NSW Government is responsible for determining any negative environmental impacts associated with SDP's activities, and for imposing standards or requirements on SDP to address these impacts.

In setting our prices, we have provided SDP with sufficient funding to meet its environmental and other obligations and to conduct its operations.

The project approval for SDP was premised on ecologically sustainable development

SDP was constructed by Sydney Water from 2007-2010 as part of the NSW Government's Metropolitan Water Plan. It was constructed in response to the worst drought in 100 years, when Sydney's dam levels fell to 34%.[119] The desalination plant was intended to reduce the likelihood of end-use water customers facing water restrictions and to increase Sydney's water security during droughts at the time. The project approval for SDP[aa] included a requirement that the plant use 100% renewable energy.[120] SDP has entered into long-term 20-year contracts with Infigen at the time to acquire fixed volumes of electricity and RECs at fixed real prices. SDP has contracted annual volumes of electricity sufficient to run the plant at full capacity. It has the ability to sell load back to the market if the plant's electricity demand is less than full capacity.

SDP holds an environmental protection licence

The NSW Environment Protection Authority (EPA) is the environmental regulator of SDP. It has issued an environment protection licence that requires Veolia, in its management of SDP, to meet certain requirements such as water quality criteria for the outfall. This licence is scheduled to be reviewed in October 2023.[121]

[aa] The project approval for SDP was granted under the *Environmental Planning and Assessment Act 1979*.

Chapter 11

Risk mechanisms

Summary of our draft decisions for risk mechanisms

We have not accepted most of the end-of-period true-ups and cost pass-throughs proposed by SDP

We have not accepted most of the proposed cost pass-throughs and end-of-period true-ups. This is because SDP has not demonstrated that these mechanisms are in customers' long run interests. We also observed that during the last regulatory period, SDP successfully managed fluctuations in costs within its total operating expenditure allowance, even if there were significant variations in individual cost items.

We have not accepted cost pass-throughs and end-of-period true-ups where either:

- there is a degree of control over the proposed cost category and so SDP would be best placed to manage risks associated with these costs.
- costs are unlikely to be material and SDP would be expected to manage variation in costs within its total operating expenditure allowance.

We have accepted SDP's proposal to continue to pass-through electricity network charges.

We recognise that generator compensation charges are exogenous, uncertain and potentially material. We propose to consider any generator compensation charges incurred by SDP during the 2023 determination period at our next price review.

We propose to consider any costs incurred by SDP during the 2023 determination period in relation to other components of SDP's GGRP contracts that are not already included in the benchmark energy price or network energy cost pass-through (i.e., unaccounted for energy (UFE), reliability and emergency reserve trader (RERT) charges, and any other new charges introduced by regulators and/or decision-makers) at our next price review.

We have clarified the events which would result in a mid-period re-opener of SDP's determination

Our approach to defining re-openers is principles-based, recognising that these events are by nature unforeseen and external to the control of SDP.

IPART would consider reopening the determination of SDP mid-period when an event has the following characteristics:

- the event is exogenous and cannot wait for a true-up of efficient costs, and a cost pass-through has not already been set.
- the event materially affects SDP's ability to deliver water or results in prices set during the determination period being no longer cost reflective.
- alternative risk management measures are not appropriate to mitigate or prevent the impact of the event.

We are maintaining the level of compensation for systematic risk in SDP's WACC

Our draft decision is to maintain the benchmark firm specific parameters used to calculate the WACC since the level of systematic risk is not materially different from that borne by SDP in previous regulatory periods. This is consistent with our other draft decision to not accept most of the risk reduction mechanisms proposed by SDP.

We have not accepted the proposal to include binding guiding principles for an expansion determination

The proposed expansion principles from SDP may constrain IPART in its assessment of efficiency and could be inconsistent with a future Terms of Reference. We have provided some general criteria that we are likely to consider when evaluating an expansion proposal.

Risk should be allocated to the party best placed to manage the risk. When the incentives are in place to manage risk, this can improve efficiencies and result in lower prices for customers in the longer term.

We note that SDP has proposed a range of new end-of-period true-ups and cost pass-throughs for costs it considers uncontrollable. SDP has defined uncontrollable costs as costs that are driven by market forces or decisions which are outside of its control. Additionally, SDP has stated these costs can be material, difficult to forecast, and cannot be effectively managed.

We discuss our analysis of the proposed end-of-period true-ups and cost pass-throughs in the sections below.

11.1 SDP's proposed end-of-period true-ups

Our draft decision is:

31. To not accept SDP's proposed end-of-period true-ups for:
    a. subordinated GRRP energy costs (i.e. ancillary service charges, market fees, and network loses)
    b. material movements in land tax, council rates, chemical costs and insurance

32. To not accept SDP's proposed end-of-period true-up for any new fees that may be introduced by energy market regulators. We propose to consider any costs relating to any new fees that may be introduced by energy market regulators that are incurred by SDP under the GGRP contracts over the 2023 determination period at our next SDP price review.

11.1.1 SDP has proposed a new end-of-period true-up mechanism for differences between forecast costs used to set prices and SDP's actual costs

SDP has proposed a new end-of-period true-up mechanism that would apply to identified uncontrollable costs in the 2023 determination period.

SDP's end-of-period true-up mechanism would apply to the following costs categories (SDP referred to them as 'Uncontrollable True-up Costs'):[122]

- ancillary service charges
- market fees
- network losses
- any new charges introduced by energy market regulators and/or decision-makers on market participants
- land tax
- council rates
- chemical costs
- insurance

SDP contends that while it included forecasts for these costs in its pricing proposal, these costs are outside SDP's control, can be material, difficult to forecast and cannot be effectively managed by SDP.[123] Further, SDP assess that:

- these costs do not have an immediate impact on the business' financeability
- the costs are assessable over the regulatory period, and so a forecast of these costs would be included in SDP's operating expenditure allowance

- it is appropriate that changes in these costs is borne by customers and that waiting to true-up these costs does not materially impact the cost reflectivity of prices.

The proposed end-of-period true-up mechanism would operate as follows:[124]

- SDP's proposed prices will include an estimate of each of the efficient Uncontrollable True-up Costs over the 2023 determination period
- SDP will calculate the difference between forecast Uncontrollable True-up Costs and:
  - an updated benchmark for chemical costs
  - actual costs for all other Uncontrollable True-up Costs
- SDP will calculate the total annual change to efficient costs due to movements across all Uncontrollable True-up Costs for each year of the 2023 determination period ('annual cost impact')
- Apply a materiality threshold, such that an end-of-period true up would only apply in the annual cost impact (calculated in the step above) is greater than 1% of SDP's annual regulated revenues[bb]
- The present value of any annual cost impacts that meet the materiality threshold would be carried forward to the end of the period (assuming all cash flows occur in the middle of the year)
- IPART would calculate a fixed annuity over the 2027-33 regulatory period that equates (in present value terms) to the material annual cost impacts (calculated in the step above) assuming middle of the year cash flows.

11.1.2 Stakeholder response

Sydney Water considered that SDP's proposed end of period true-ups shift a greater share of the risk from SDP to customers and questioned whether the proposed level of risk sharing was appropriate.[125]

Sydney Water also preferred an approach where proposed true-ups were calculated at end of period as this would better reflect the outcome that would apply in a competitive market as very few businesses are able to achieve full and immediate recovery of unexpected cost variances due to the pressure of competition.[126]

11.1.3 Analysis and recommendation

Our draft decision is to not accept SDP's proposed end of period true up mechanism. A summary of our reasons is outlined in Table 11.1 below.

[bb] For example, if in 2024/25 the annual cost impact of Uncontrollable True-up costs is $4 million, and annual revenue for that year is $300 million, then the 2024/25 annual cost impact total would be included in the end-of-period true-up. However, if in 2025/26 the annual cost impact of Uncontrollable True-up costs is $2.5million and annual revenue for that year is $300 million, then the 2025/26 annual cost impact would not be included in the end-of-period true-up.

Table 11.1 Summary of proposed end of period true-ups

Element	Cons for including	Draft decision
Ancillary service charges (ASC)	• Robust forecasts of ASC can be developed for the 2023 determination period • ASC are not material cost item for SDP	Not accept SDP proposed true-up
Market fees	• Robust forecasts of market fees over the 2023 determination period can be forecast • Market fees are not a material for SDP	Not accept SDP proposed true-up
Network losses	• No evidence actual network losses were materially different from that were forecast and included in prices during the 2017 determination period. • Network losses are included in the benchmark price and are not considered a material cost risk for SDP	Not accept SDP proposed true-up
Any new fees introduced by energy market regulators	• No evidence that new energy fees will be a material cost to SDP	Not accept SDP proposed true-up
Land tax	• The latest land tax information has been factored in the draft expenditure allowance • We consider that future variance is unlikely to be material to SDP and should be managed within the total operating expenditure allowance	Not accept SDP proposed true-up
Council rates	• Council rates is not a material cost to SDP and so any variance should be managed within the total operating expenditure allowance	Not accept SDP proposed true-up
Chemical costs	• SDP has influence over its chemical costs • No evidence that variation in chemical costs cannot be managed by SDP within its total operating expenditure allowance • SDP's proposal would transfer the risk for variation in chemical prices from itself to customers, without any corresponding adjustment to the rate of return.	Not accept SDP proposed true-up
Insurance	• SDP has influence over its insurance costs • A true-up for actual costs could weaken SDP's incentives to manage these costs and potential inefficient costs being passed through to customers • No evidence that variation in insurance costs cannot be managed by SDP within its total operating expenditure allowance. • SDP's proposal would transfer the risk for variation in insurance costs from itself to customers, without any corresponding adjustment to the rate of return.	Not accept SDP proposed true-up

Management of total operating expenditure

The regulatory framework is not designed to provide SDP with separate allowances for each of its forecast cost categories. Rather the regulatory framework incentivises SDP to manage its operating expenditure within the total operating expenditure allowance.

We observed that SDP's total operating expenditure allowance for the 2017 determination period and the 2022-23 deferral year was broadly in line with SDP actual costs, which suggest that while there may be variance in individual cost categories the total operating expenditure allowance was sufficient, specifically:

- SDP's actual plant and pipeline operating expenditure for the 5-year period of the 2017 determination plus the 2022-23 deferral year was within 1.8% of its allowance, and SDP outperformed its allowance for in the first 4 years of the regulatory period, and
- the individual costs categories identified in SDP's pricing proposal as being highly volatile were in total within 0.5% of their allowance for the 5-year period of the 2017 determination plus the 2022-23 deferral year[cc]

This suggests that the previous inclusions in SDP's total operating allowance was generally reflective of the cost incurred by SDP over the 2017 determination and the 2022-23 deferral year.

End-of-period true-ups for subordinate GGRP costs

SDP's GGRP contracts require it to pay Iberdrola Australia several subordinate energy costs including ancillary service charges, market fees and network losses. SDP has proposed an end-of-period true-up for these charges as well as catch-all provisions for future fees imposed by energy market regulators.

SDP proposed end-of-period true-ups for:

- **Ancillary service charges** – SDP considered that there is the potential for a step change in ancillary service charges as the energy market transitions to higher levels of renewable generation and less dispatchable capacity.[127]
- **Market fees** – SDP considered that is has no ability to forecast or influence the extent of market fees passed through to market customers for the provision of AEMO's services.[128]
- **Network losses** - SDP considered that there was no ability to forecast or influence the loss factors determined by AEMO.[129] However, we note that SDP do provide forecast for market fees and network losses as part of their proposal. [dd]
- **Any other fees introduced by energy market regulators and incurred by SDP under the GGRP contracts** – SDP highlighted that there had been preliminary discussion of a capacity charge if the NEM was to transition towards a capacity market which may result in potential large service charges being recovered by SDP.[130]

SDP has indicated that the combined cost of ancillary services, market fees and network losses was approximately $0.55m per year. In our view, these cost items are included in the benchmark energy price and are not material enough to require an end-of-period true-up.

[cc] Table 7.4 of SDP's proposal shows that the annual average cost of chemicals, land tax, council rates and insurance was $7.74 million while the allowance for these costs averaged $7.78 million. See SDP, *Pricing Submission to IPART | Prices from 1 July 2023 to 30 June 2027*, 16 September 2022, p 105.

[dd] We note that SDP provide forecasts for market fees, network losses and ancillary services as part of their proposal for the 2023-27 regulatory period. See SDP, *Pricing Submission to IPART | Prices from 1 July 2023 to 30 June 2027*, 16 September 2022, p 108.

Since we cannot forecast or assess the materiality of any new fees that may be introduced by energy market regulators and incurred by SDP under the GGRP contracts, we propose to consider any costs SDP incurs over the 2023 determination period relating to any new fees that may be introduced by energy market regulators and incurred by SDP under the GGRP contracts at our next SDP price review.

Other proposed end-of-period true-ups

SDP also proposed that the following other cost categories also be subject to an end-of-period cost true-up:

- land tax and council rates
- chemical costs
- insurance premiums.

SDP's proposal emphasised that these costs are difficult to forecast and varied substantially over the 2017 determination period and 2022-23 deferral year. We have reproduced Table 7.4 of SDP's pricing proposal below.

Table 11.2 Difference between actual and allowed costs for chemical, land tax, council rates and insurance costs over the 2017-23 regulatory period

Cost	2017-23 IPART Allowed (annual average)	2017-23 Actuals (annual average)	Difference (%)
Chemical costs	3.83	3.19	-16.6%
Land tax	0.62	0.88	41.3%
Council rates	0.51	0.28	-45.8%
Insurance costs	2.82	3.39	20.4%
Total*	**7.78**	**7.74**	**-0.5%**

Source: Table 7.4 of SDP's pricing proposal (16 September 2022) and IPART analysis

It is apparent from Table 11.2 that while these costs have varied substantially from that forecast by IPART, in total the four categories of costs are within 0.5% of their total forecast included in SDP's operating expenditure allowance. In our opinion, this data supports our view that SDP is able to manage variations in individual costs within its total operating expenditure allowance.

The remainder of this section examines each of SDP's proposal to include each of these costs in its end-of-period cost true-up.

Land tax and council rates

SDP's pricing proposal includes an end-of-period true-up for any difference between the costs for land tax and council rates, included in SDP's operating expenditure allowance and its actual land tax and council rates over the 2023 determination period.

SDP claims that it has a limited ability to forecast land tax and council rates, and no ability to influence the size of the costs over the 2023-27 regulatory period. The pricing proposal also states that these costs are material with an expected annual cost of approximately $1 million per year.

Although these costs may be difficult to forecast in any given year, we note that:

- over the 2017-23 period these costs (as set out above in Table 11.2) were within 3% of total forecast included in SDP's operating expenditure allowance, and
- these costs are individually not material and both in total represent less than 1% of SDP's revenues at minimum production

Given their relative immateriality, we believe that SDP can manage any annual variance in these costs within its total operating expenditure allowance. Furthermore, the inclusion of these costs within an end-of-period true-up would have the effect of shifting risk from the business onto consumers, without any corresponding reduction to SDP's rate of return. In our opinion, this outcome would not be in the long term interests of consumers.

Chemical costs

SDP is proposing an end-of-period true-up between the production allowance for chemical costs and a recast production allowance that is adjusted for changes in a benchmark chemical price. The objective of this true-up would be to protect SDP from volatility in chemical prices over the 2023 determination period.

SDP states that chemical prices are determined by global markets and that it is a price taker with little or no opportunity to influence or hedge these costs. Further, SDP estimates that these costs are approximately $8.8 million per year when the plant is producing 71.1 gigalitres.

Our analysis of this proposed end-of-period true-up included:

- SDP and Veolia as global leaders in water treatment are well positioned to provide robust forecasts of future chemical costs
- a mechanism to adjust the allowance for changes in input prices is inconsistent with the general regulatory framework, in that we do not adjust the operating expenditure allowance for changes in other input prices
- the adjustment mechanism introduces unnecessary complication into the regulatory framework
- there is no evidence that variations in chemical costs cannot be managed by SDP within it total operating expenditure allowance, and
- the proposal will shift risk from SDP onto customers without any corresponding adjustment to the rate of return.

To the extent that there are new costs or a step change in these chemical costs over the 2023 determination period, we consider that the mid-period re-opener is an appropriate mechanism to address any material cost impacts.

For these reasons our draft decision is to not accept SDP's proposal to include an end-of-period true-up for chemical costs.

Insurance costs

SDP's pricing proposal is for an end-of-period true-up for any difference between the costs for insurance, included in SDP's operating expenditure allowance and its actual insurance costs over the 2023 determination period.

SDP claims that insurance costs are material and that it is a price taker and cannot obtain a quote until one month prior to renewing its policies each year.

Our draft decision is to not accept SDP's proposal to include insurance costs in an end-of-period true up because:

- SDP does have some control over its insurance costs as it determines the level of coverage which reflects SDP's risk appetite, where this appetite should be a function of the price of insurance
- an end-of-period true-up would weaken SDP's incentives to manage its insurance costs efficiently having regard to the prevailing cost of insurance and SDP's operating and regulatory environment
- the mechanism has the potential to create a perverse incentive for SDP to purchase high-cost insurance to ensure that the annual true-up materiality threshold is satisfied
- there is no evidence that variations in insurance costs cannot be managed by SDP within its total operating expenditure allowance, and
- the proposal will shift risk from SDP onto customers without any corresponding adjustment to the rate of return.

To the extent that there are new costs or a step change in these insurance costs over the 2023 determination period, we consider that the mid-period re-opener is an appropriate mechanism to address any material cost impacts.

11.1.4 Our draft decision is to not accept SDP's end-of-period true-up mechanism

SDP proposed to apply a materiality threshold, so that only annual cost impacts of greater than 1% of annual regulated revenues would be carried forward to the end-of-period true-up. Under SDP's proposal, any annual cost impact that fall below the materiality threshold would not be included in the end-of-period true-up.

However, SDP's proposed mechanism can potentially result in perverse outcomes. For example, if during the 2023 determination period SDP has one year where its uncontrollable true-up costs were materially above that forecast, however, in all other years, actual costs are below that forecast but are deemed to be immaterial. In this scenario, it would be possible for SDP's Uncontrollable True-up Costs over all years of the 2023 determination period to be below that forecast at the start of the determination, but also result in a positive end-of-period true-up payment to be paid to SDP.

Notwithstanding, our draft decision to not accept SDP's proposed end-of-period true-ups, we do not accept SDP's end-of-period true-up mechanism. In future decisions that include an end of period true-up, we would consider a mechanism that:

- brings all annual present value of uncontrollable cost impacts to the review year
- applies a materiality threshold to the sum of all annual cost impacts, such as 2.5% of average annual revenues.

11.2 SDP's proposed cost pass-throughs

Our draft decisions are:

33. To maintain the cost pass-through for electricity network charges and remove the temporary fixed network charge cap.

34. To not accept SDP's proposed cost pass-through of generator compensation, unaccounted for energy (UFE) and Reliability and Emergency Reserve Trader (RERT) charges. We propose to consider any generator compensation, UFE and RERT costs that are incurred by SDP under the GGRP contracts over the 2023 determination period at our next SDP price review.

SDP has proposed four operating cost categories to be subject to a cost pass-through using a within period price adjustment mechanism. The cost categories proposed by SDP to be passed through to customers include:[131]

- the network component of energy costs, which was subject to a cost pass-through in the 2017-22 period. SDP also propose to remove the temporary Fixed Network Charge cap.
- other subordinate GGRP costs, specifically:
  - UFE charges.
  - RERT charges.
  - generator compensation charges.

We have assessed the cost pass-throughs proposed by SDP for consistency with our guiding criteria for cost pass-throughs (Box 11.1) and our overall assessment of the appropriate allocation of risk between SDP and its customers.

We note that as we transition to the new Water Regulatory Framework, we would expect SDP's proposed cost pass-throughs to be developed in consultation with customers. Further, SDP would also need to demonstrate how their proposed cost pass-throughs would deliver customer outcomes, particularly long-term improvements in service performance and efficiency.[132]

Box 11.1 IPART's criteria for cost pass-through mechanisms

Cost pass-through mechanisms should only be applied in situations where:

1. there is a trigger event (to activate the cost pass-through), which can be clearly defined and identified in the price determination
2. the resulting efficient cost associated with the trigger event can be fully assessed including whether there are other factors that fully or partially offset the direct cost of the event
3. the resulting cost is assessed to exceed a materiality threshold
4. the regulated business cannot influence the likelihood of the trigger event or the resulting cost
5. the mechanism is symmetric in that it applies equally to both cost increases and cost decreases (in cases where the risk can result in both cost increases and cost decreases)
6. it is clear that the cost pass-through will result in prices that better reflect the efficient cost of service

11.2.1 We will maintain the cost pass-through for network charges and remove the temporary fixed network cap charge

SDP has proposed to retain the cost pass-through for the network component of energy and remove the temporary fixed network charge cap.[133] SDP proposed to retain the cost pass-through of its energy network costs through the variable network charge and fixed network charge.

To the extent that SDP has a degree of flexibility in its operating profile, SDP may be able to influence its fixed network charges – particularly demand or capacity charges that are based on a rolling 12-month average of maximum demand.[134] This is because SDP will have some degree of flexibility to influence its operations under the new operating framework and may be able to influence its maximum demand usage.

We consider that direct cost pass-throughs for network charges reduce the incentive faced by SDP to:

- avoid exposure to peak periods, which has implications for productive efficiency since a reduction in peak demand may have implications for network investment.
- consider providing demand response.
- negotiate tariffs with their network service provider as a large individually calculated tariff customer.

However, we consider that there is sufficient uncertainty surrounding the degree of flexibility for operating profile of SDP based on production requests from Sydney Water to manage the risks associated with network costs.

Our draft decision for the 2023 determination period is that network costs should continue to be subject to a cost pass-through. As part of this decision, we will also remove the one-off temporary fixed network charge cap since the issues that led the establishment of the cap no longer apply.[ee]

The new operating environment will reveal the extent to which SDP has flexibility to influence its operations and whether stronger incentives are needed to encourage SDP to reduce its network charges.

11.2.2 We have assessed the proposal from SDP for additional cost pass-through categories

SDP has proposed that following subordinate GGRP costs be subject to a cost pass-through using a within period price adjustment mechanism:[135]

- generator compensation charges.
- UFE charges arises because electricity is consumers but cannot be traced to a particular meter and were introduced as a separate charge from 1 May 2022.
- RERT charges.

SDP proposed that these subordinate GGPR charges be subject to a cost pass-through because:

- these charges are uncontrollable costs.
- SDP is unable to forecast these costs over the regulatory period, and so have not been included in SDP's operating expenditure allowance.
- these costs could have an immediate impact of SDP's financeability and a material impact on the cost reflectivity of prices paid by customers.

We have not accepted the proposal for a cost pass-through for generator compensation charges but we propose to consider any generator compensation charges incurred by SDP during the 2023 determination period at our next SDP price review

Generator compensation charges are a legitimate cost borne by SDP and are currently being considered by AEMO as result of the market suspension in June 2022. These costs are highly uncertain and there is no reasonable basis for which to form a forecast. However, we have not accepted the proposal for a pass-through of charges instead our draft decision is to adopts the approach we applied to WaterNSW Murray River to Broken Hill Pipeline decision which was to be open to considering variances in these costs at our next price review.[136]

[ee] The temporary fixed network charge cap was established in response to storm related re-instatement works and was applied until SDP was called into operation mode to ensure network charges were set at a level consistent with shutdown.

We have not accepted the proposal for a cost pass-through of RERT charges

Forecast RERT costs were included in the benchmark price of electricity for the 2017 determination period. Consequently, the SDP proposal for a cost pass-through of RERT charges will shift the risk for variance in RERT costs from itself to customers.

We understand that RERT charges are levied on market customers and retailers in proportion to consumption during the RERT event.[ff] AEMO's use of RERT is frequently preceded by forecast lack of reserve (LOR) notices that indicate the potential for insufficient reserve. These notices may be forecast days or weeks in advance. It follows that SDP may have flexibility to reduce its RERT charges by reducing its consumption over these periods or could potentially offer RERT services to AEMO.

In our view, since they may be a degree of control over costs incurred for RERT, SDP is best placed to manage the risks associated with these costs.

We propose to consider any costs SDP incurs over the 2023 determination period relating to any RERT charges passed onto SDP under the GGRP contracts at our next SDP price review.

We have not accepted the proposal from SDP for a cost pass-through for Unaccounted for Energy (UFE) costs

SDP is required to pay charges for Unaccounted for Energy (UFE) under its GGRP contracts that are billed to SDP's retailer (Iberdrola Australia). SDP has not provided evidence to support the materiality of this cost pass-through.

Our draft decision is to not accept the proposed cost pass-through for UFE charges since these costs are unlikely to be a material cost to SDP, with the AEMC noting that these costs can be positive or negative and are estimated to be 0.02% of energy demand across the NEM.[137]

We propose to consider any costs SDP incurs over the 2023 determination period relating to any UFE costs that are passed onto SDP under the GGRP contracts at our next SDP price review.

11.3 Reopener provisions

Our draft decision is:

35. To accept the invitation by SDP to provide additional clarity on the events that would result in a mid-period re-opener of SDP's determination, but do not accept the proposed trigger for events that meet the materiality threshold of 1% of annual regulated revenue to automatically re-open the 2023 determination.

While there has always been the option for SDP to propose that its determination be re-opened, SDP's proposal sought to clarify the circumstances when its determination would be re-opened.

[ff] National Electricity Rules, rule 3.15.9(a).

SDP supported the continued ability for IPART to re-open its determination in circumstances where unforeseen costs arise, that have the potential to undermine the ongoing financeability of its operations. SDP noted that the re-openers are rarely used and so has proposed a number of principles that would help clarify when SDP's regulatory decision would be re-opened.[138]

SDP proposed that a re-opener would occur when an event that possesses the following characteristics occur:

- the event is exogenous (i.e. SDP has no ability to control over whether the event occurs).
- the event results in (or has the potential to result in) a material increase or decrease in SDP's efficient costs, where materiality is defined as greater than or equal to 1% of annual regulated revenue.
- alternative risk management measures are not appropriate to mitigate or prevent the impact of the event.

SDP suggests that the following types of events are likely to satisfy the above criteria:

- a regulatory change event
- a service standard event
- a tax change event
- an insurance coverage event
- an insurer's credit risk event
- a natural disaster event
- a terrorism event.

SDP claims that these re-opener principles and clarifications would provide a degree of certainty that SDP will be able to recover its efficient costs of supply water and thereby providing investment certainty and ensuring ongoing financeability, while maintaining appropriate incentives to manage risk and reduce costs. Further, SDP asserts that these principles ensure that risks are allocated to the party best able to manage these risks (i.e. customers), and would facilitate a potential transition to longer determination periods.

11.3.1 We have taken a principles-based approach to re-opener events

While an explicit re-opener provision has not been a feature of SDP's pervious regulatory determinations, it is an option for SDP to propose that its determination be re-opened. The Issues Paper indicated the Tribunal's intent to clarify the type of events that will constitute re-opener events over the 2023 determination period.

The rationale for a re-opener mechanism is to address the impact of events that were unforeseen at the time of the regulatory determination. As a consequence, it would be inappropriate for the re-opener mechanism to only apply to a predetermined list of events. Instead, a principles-based approach to defining a re-opener event should be adopted. Further, the understanding of these principles can be enhanced through the provisions of illustrative examples of events that would satisfy these principles.

We have considered the following two options for the principles for the types of events that would constitute a re-opener event:

- SDP's proposed principles, which would identify a re-opener event as one that possess the following characteristics:
  - the event is exogenous (i.e. SDP has no ability to control over whether the event occurs)
  - the event results in (or has the potential to result in) a material increase or decrease in SDP's efficient costs, where materiality is defined as greater than or equal to 1% of annual regulated revenue
  - alternative risk management measures are not appropriate to mitigate or prevent the impact of the event.
- principles that align more closely to those outlined in the new Water Regulatory Framework, where a re-opener event would possess the following characteristics:
  - the event is exogenous (i.e. SDP has no ability to control over whether the event occurs) and cannot wait for a true-up of efficient costs, and a cost pass-through has not already been set
  - the event materially affects SDP's ability to deliver water, or results in prices set during the determination being no longer cost reflective
  - alternative risk management measures are not appropriate to mitigate or prevent the impact of the event.

The primary difference between these two options is whether a re-opener event is automatically triggered if an event breaches the fixed materiality threshold of 1% of annual regulated revenues or whether IPART should retain the discretion to determine to consider all the circumstances before reaching a decision whether the event was material.

11.3.2 Sydney Water raised concerns with a pre-defined materiality threshold

Sydney Water was the only external stakeholder to provide feedback on the issue of a materiality threshold for re-openers.

Specifically, Sydney Water:[139]

- noted that unexpected variations in cost can always occur during a determination and would not support an automatic re-opener to deal with these circumstances
- supported IPART using its own discretion when considering whether to re-open a determination
- noted that a pre-defined materiality threshold may be of benefit to SDP in achieving more favourable terms from their financiers, but that there would be no way for this benefit to be shared with end-use customers
- viewed re-openers to be a last resort solution reserved for those cases where unforeseen cost changes result in material impacts to a business's capacity to carry out its services, and
- a materiality threshold may be a useful trigger to further assessment of the implication of any variance in costs.

11.3.3 Our draft decision is for IPART to retain the discretion whether to re-open SDP's determination

Re-opening of SDP's determination would be a resource intensive exercise and so should be a last resort solution, reserved for circumstances where the business's ability to deliver the service is materially impaired. Assessing the impact of an event on the ability of a business to deliver the service necessarily requires a holistic evaluation of the circumstances surrounding the event, including:

- whether the event resulted in a permanent or temporary change in SDP's efficient costs, or is the result of costs being brought forward or deferred from another financial year
- movements in other costs which may mitigate the impact of the re-opener event on SDP's ability to deliver the service
- the period of time before the next determination which would reset SDP's water prices to reflect the cost impact of the event.

In contrast, a fixed trigger may lead to the re-opening of SDP's decision in circumstances where SDP's financial viability is not at risk nor when the ongoing price of water paid by customers continues to reflect its efficient production costs.

The potential for parties to incur significant costs when re-opening a determination means that all the circumstances of an event should be considered before determining whether to re-open the 2023 determination.

Our draft decision is to provide the following guidance on how we will consider any mid-period proposal by SDP to re-open the 2023 determination, has there been an event that possesses the following characteristics:

- the event is exogenous (i.e. SDP has no ability to control over whether the event occurs) and cannot wait for a true-up of efficient costs, and a cost pass-through has not already been set
- the event materially affects SDP's ability to deliver water, or results in prices set during the determination being no longer cost reflective
- alternative risk management measures are not appropriate to mitigate or prevent the impact of the event.

In assessing whether the event materially affects SDP's ability to deliver water regard shall be had to the following matters:

- has the event resulted in a material change in the SDP's efficient cost of providing water services.
- has the event resulted in a permanent or temporary change in SDP's efficient costs.
- is the variance in cost the result of expenditure being brought forward or deferred from another financial year.
- any factors that offset the financial impact of the event.
- the period of time before the SDP's next determination.
- any other matters relevant to SDP's ability to deliver water.

11.4 Risk allocation and the WACC

Our draft decisions are:

36. To accept the proposal to maintain the level of compensation for systematic risk in SDP's WACC

37. To not accept SDP's proposal to implement an annual adjustment for changes in the trailing average cost of debt and to apply end-of-period true-up for the cost of debt

The weighted average cost of capital (WACC) represents the return that utilities earn on their investments, and by extension, the systematic risk that they bear. The WACC is important for enabling utilities to earn a reasonable return that facilitates efficient infrastructure investments for the benefit of customers. If we set a WACC that is too high, customers would pay too much and utilities could be encouraged to over-invest. il we set it too low, the utility's financial viability could suffer, and it may under-invest in necessary infrastructure. Neither outcome is in the long-term interest of customers.

11.4.1 SDP have proposed to maintain the level of compensation for systematic risk

SDP's rate of return proposal is to adopt a WACC that is in line with IPART's current WACC methodology (see chapter 7 and Appendix D of this report). Table 3 WACC estimates, IPART final decision (2017) and SDP proposal (2023).

A key feature of SDP proposal was to maintain the equity beta value of 0.7, with its advisors Frontier Economics stating that:[140]

> IPART's beta methodology to adopt the status quo estimate unless the empirical evidence has departed materially and for a prolonged period of time (two regulatory periods or more) from that level.

Implicit in the decision to not change the value of the equity beta, is that, on balance, the level of systematic risk borne by SDP over the 2023 determination period is no different from that experienced in early regulatory periods. However, SDP's pricing proposal is to both expand the coverage of the existing cost pass-through mechanism and to subject a number of 'uncontrollable costs' to a new end-of-period true-up mechanism.[99]

[99] SDP's proposed cost pass-through and end-of-period true-up mechanisms are discussed in greater detail in sections 11.1 ad 11.2 of this Draft Report.

11.4.2 Responses from stakeholders

A number of stakeholders responded to the questions of whether SDP's proposal represented a fair and reasonable allocation of risks between SDP, Sydney Water and end use customers, including:

- Sydney Water acknowledged that SDP's role has evolved and that the plant must operate more flexibly in the future, however, they were concerned that SDP sought to transfer too many risks to Sydney Water and end users. Further, some of the proposed changes were unrelated to the move to flexible operation and simply seek to transfer risks to end-use water customers[141]
- the Department of Planning and Environment supported SDP's proposal, however, it noted that the proposal represents a very low level of risk to SDP which should be reflected in its rate of return. The Department notes that if SDP takes on no risk it should not earn a risk premium and only earn the risk free rate of return.[142]

11.4.3 Assessment of whether to adjust SDP's WACC

The rate of return that a regulated utility is able to earn on its invested capital, is calculated through the estimation of a WACC. The WACC is a risk adjusted rate of return, that is underpinned by the assumption that investors require a higher return to finance more risky investments.

We currently use the Sharpe-Lintner capital asset pricing model (SL-CAPM) to calculate the cost of equity. According to this model, only systematic risk affects the expected return required by the marginal investor. This is because the marginal investor would hold a well-diversified portfolio of equities, and a diversification strategy can remove firm specific risk.

A number of SDP's proposed changes to the regulatory framework in the 2023 determination period have the potential to change the level of systematic risk borne by SDP. Specifically, SDP's proposal includes number of new mechanisms that shift risk from itself onto customers, including:

- expanded cost pass-throughs mechanism
- a new end of period true-up for 'other uncontrollable' costs
- mid period re-opener for events that are exogenous to SDP
- changes to the incentive mechanisms, so that customers bear a higher share of any difference between the SDP's actual operating costs and that forecast at the start of the regulatory period.

These mechanisms, if implemented, will reduce the volatility of SDP's earnings and so reduce both SDP's systematic and non-systematic risk. To ensure that customers do not pay too much any material lessening of SDP's systematic risk should result in a reduction in the allowed WACC.

11.4.4 Our draft decision is to make no adjustment to SDP's WACC

Our draft decision is to not make an adjustment to SDP's WACC for the 2023 determination period because the share of risks between and customers is not materially different from the current regulatory control period, specifically:

- to not accept any of the end-of-period true-up for material movements in ancillary service charges, market fees, network losses or any other new fees by energy market regulators, land tax and council rates, chemical costs or insurance
- to not accept a cost pass-through for UFE and RERT costs
- to maintain the sharing ratio of the EAM and ECM
- for IPART to retain the discretion to re-open SDP's decision for exogenous material events.

11.4.5 Our draft decision is to apply an end-of-period true-up for cost of debt

Our 2017 review of the WACC method introduced a trailing average cost of debt. One consequence is that the WACC changes every year, as new tranches of debt are introduced to the trailing averages and the oldest tranches drop out.

We considered two options to adjust price to account for annual WACC changes:

1. To store the present value of the revenue adjustments caused by the changing WACC and apply a true-up at the next regulatory period.
2. Annual real price changes to reflect the changing WACC.

We have considered this issue in recent water price reviews and in those reviews we have decided on end-of-period true-up (including for WaterNSW Greater Sydney which, like SDP, supplies drinking water to Sydney Water). This is because:

- The end-of-period true-up provides price stability for customers
- There are benefits to aligning the approach between utilities especially when they are part of the same integrated water system.
- This would include a lower administrative burden and less shifting of risk from one entity onto the other (i.e. from SDP to Sydney Water).

SDP proposed that IPART should make a different decision for this review and allow for annual updates to its cost of debt. Based on SDP's pricing proposal, this is:

- To ensure the closest possible cash flow match between regulatory allowance and the efficient cost of debt[143]
- To consider that SDP's circumstances are different from WaterNSW, Sydney Water and Hunter Water, which are all state-owned corporations. Unlike them, SDP argued that it is "relatively small business that raises debt finance privately" and the consequences of large mismatches could be severe.[144]

We received a submission from Sydney Water on this issue. Sydney Water indicated that it is "open to IPART applying annual adjustments throughout the 2023 determination period with respect to changes in SDPPL's cost of debt". However, it requested to be engaged by IPART on potential financial impacts on its business and customers. [145]

We have considered each of the reasons put forward by SDP and our draft decision is to allow for end-of-period true-up for this review. This is consistent with the approach we have taken in other water decisions and we are not persuaded that SDP's circumstances are sufficiently different to change the approach we have taken in other reviews. In addition, while there may be cash flow mismatches, we note that the impact on annual basis may not be high. This is because, under the trailing average cost of debt approach, only a small proportion of the debt is refinanced each year and therefore expose to refinancing risk.

11.5 Expansion principles

Our draft decision is:

38. To not accept the proposed guiding principles for expansion determination, and instead provide guidance on the principles that IPART would have regard to in any future expansion determination

SDP has proposed for IPART to establish a set of agreed principles to guide any future expansion determination to better promote regulatory certainty.[146] SDP considered that there were learnings from the previous government direction to investigate an expansion of SDP[147] and highlighted the need for clarity over detail and timing of any expansion determinations.[148] Specifically, SDP stated that: [149]

> In our view, this engagement process highlighted the need for better clarity about the process, timetable and key decision-making principles for adjusting or setting these prices — particularly as the 2017 Determination did not include a mechanism to manage this event.

In addition, several principles were proposed for consideration as part of SDP's pricing proposal which we discuss in the sections below.

11.5.1 Expansion cost recovery principles proposed by SDP

SDP highlighted that during the 2023 determination period, these is the potential for an expansion of the Plant to be re-initiated. To ensure that any Expansion Determination occurs in an efficient and timely manner, SDP proposes that IPART articulate in its 2023 determination a set of agreed principles under which a future Expansion Determination would be made.

SDP suggested expansion principles are set out in following four categories:[150]

- **Review Scope** – The Expansion Determination should focus on the efficient incremental costs associated with the Expansion (i.e. augmentation of capacity, not operation of existing capacity) and how these costs should be recovered in SDP's prices

- **Review process: Timetable for making a Determination**:
  - timeframe for making the Determination to align with other elements of the expansion planning timetable, and to be consistent with the expansion planning objectives
  - Design and Construct (D&C) costs would be provided to IPART after the finalisation of any competitive tender (i.e. cost information would not be shared with IPART prior to the negotiations with preferred tender)
- **Review process: Assessing efficient costs and revenue requirements:**
  - IPART's assessment of prudent and efficient costs should:
    - IPART should not assess the prudence, or need, or specification for the Expansion investment that has been determined by the NSW Government
    - if the D&C tender process is robust and approved by the NSW Government then the resulting expansion costs should be deemed efficient
  - asset lives should reflect their economic lives
  - agreed efficient costs are not subject to ex-post review
- **Prices and application of the Determination:**
  - the principal charge should be a daily charge set by IPART that represents the efficient incremental cost of the expansion
  - recovery of efficient capital costs as incurred, such that cost recovery commences from when the NSW Government issues SDP with formal notification to commence expansion
  - expansion variable costs reflect SDP's efficient variable costs of the Expanded Plant
  - an integrated Determination (both existing and Expansion Determination) should be made in due course:
  - inclusion of prudent SLIS exclusions and principles for expansion related activities
    - existing Plant should not be penalised due to any prudent and efficient reduction in supply from expansion related activities
    - SLIS should not apply during the proving period
    - SLIS should be set out and confirmed upfront so SDP can have regard to this mechanism in its planning and procurement process

11.5.2 The expansion principles proposed by SDP constrain the ability of IPART in its assessment of efficiency

In our view, the principles proposed by SDP would constrain IPART's ability to review or assess expenditure in line with industry best practice. For instance, under the proposal from SDP:[151]

- the timing that cost information is shared with IPART, would not allow IPART to assess the prudence or net benefit of this expenditure until after binding contracts have been signed
- predefining what can, or cannot, be reviewed by IPART in its Expansion Determination, may contradict the future Terms of Reference of the review

- the requirement to only have regard to the incremental costs and production of the Expansion (i.e. there is no consideration of augmentation of capacity or operation of existing capacity) may limit the ability for IPART to require that a share of any synergies in the production cost of water (between the existing and Expansion Plant) is passed through to customers
- the requirement any costs resulting from a robust tender process are efficient unnecessarily limits the analysis considered by IPART, for example, benchmarking analysis would not be allowed
- it would limit the ability for IPART to ensure that expenditure is efficient, for example, these principles may limit the ability to introduce incentive mechanisms or conduct an ex-post review of costs.

For these reasons, our draft decision is to not accept SDP's proposed Expansion Cost Recovery Principles

11.5.3 Guidance on how we will assess any expansion of SDP consistent with the long term interests of customers

A binding set of specific principles may constrain our ability to regulate in the long term interests of customers and may also be inconsistent with the future Terms of Reference for the Expansion Determination.

Instead, our draft decision is to include the following observations that may assist SDP when contemplating a future expansion of water production capacity:

- Any expansion determination would likely be guided by:
  - the overarching objective set out in the *Water Industry Competition Act 2006*, i.e. to promote the economically efficient use and operation of, and investment in, significant water industry infrastructure, thereby promoting effective competition in upstream or downstream markets, and
  - our statutory obligations under the *Independent Pricing and Regulatory Tribunal Act 1992*
- The Expansion Determination would be undertaken in a manner consistent with NSW Government's decision and the Ministerial Terms of Reference we receive, which may limit the scope of the review. However, if the review is unfettered, we would likely consider:
  - how the business case considers least cost option and long-run interest of customers, which could include having regard for potential alternative supply sources and forecast future demand of the region
  - if the expansion of SDP's Kurnell plant is found to be the preferred option and approved by the NSW Government, IPART would assess the efficiency SDP's proposal, including:
    - the extent that SDP has engaged with stakeholders. We would expect SDP to develop a business case around a strong understanding of its customers (both direct and end-use customers) including their preferences and willingness to pay for the expansion. This understanding can be developed independently and/or in collaboration with Sydney Water

  - the efficiency of expansion expenditure, including the optimal timing for the proposed expansion, and the potential value from staging the expansion
  - the potential for ex ante incentive mechanisms to ensure that both SDP and end users share in the benefits and costs and any future expenditure efficiencies
- in determining the efficient price of water, we would likely consider re-opening SDP's price determination to ensure that the price paid by customers reflects the efficient cost of water production by SDP.

Chapter 12

Incentive mechanisms

Summary of our draft decisions for incentive mechanisms

We are not including a service performance incentive scheme for the upcoming regulatory period

Our draft decision to not accept the proposed service level incentive scheme (SLIS) reflects our analysis that it would be inappropriate to reward SDP when it is in breach of its licence conditions. We would rely upon the penalty provisions embedded in SDP's licence to ensure that water deliveries are within 10% of the APR.

We have adjusted the efficiency carryover mechanism (ECM) to align with SDP's flexible role

We have accepted the proposal to remove the mode-specific distinction in the ECM to reflect the expected service level under SDP's new Network Operator's Licence. The amended ECM will ensure SDP has a financial incentive to seek ongoing improvements in reducing operating expenditure regardless of the volume of water produced.

The energy adjustment mechanism will provide SDP with financial incentive to maximise the sale of its surplus energy position

The revised energy adjustment mechanism will ensure that SDP has an appropriate financial incentive to operate its plant in a manner that maximises the value of surplus electricity, by operating the plant during periods of low electricity prices and not operating when the price of electricity spikes. We have also refined the core band to minimise the potential distortions that arise from SDP bearing the full cost and accruing the full benefits from the sale of surplus electricity.

Financial incentives for efficiency savings would be capped at 2.5% of fixed plant service charges

Our draft decision is to apply an annual cap for the ECM for rewards and penalties of up to 2.5% of fixed plant charges, consistent with the proposal from SDP and stakeholder feedback.

We will not assess whether SDP's trading policy is prudent because there is financial incentive to maximise the value of surplus energy and LGC contracts

We consider that an ex-post assessment of SDP's trading strategy is no longer necessary and will instead relay on SDP's financial incentive to manage its trading position effectively via the EAM.

We want to incentivise SDP to improve its performance and provide greater customer value. The new operating environment will provide SDP with increased flexibility around its operations, particularly when water orders are less than its nameplate capacity.

SDP has proposed a number of changes to incentive mechanisms to reflect the new operating environment, including:

- replacing the abatement mechanism with a SLIS to reward or penalise SDP for water deliveries outside a core band of the APR set by Sydney Water.
- amendments to the ECM that provides rewards for permanent reductions in operating expenditure.
- amendments to various elements of the EAM which distributes gains and losses made on the sale of surplus energy when SDP is not operating at full capacity.

We present the results of our analysis on the proposal from SDP, stakeholder response to our Issues Paper, public hearing and our draft decisions in the sections below.

12.1 Abatement and SLIS

Our draft decisions are:

39. To not accept the service level incentive scheme proposed by SDP in the upcoming regulatory period.

40. To remove the abatement mechanism on the basis that SDP's Network Operator's Licence provides sufficient incentive to ensure the performance of SDP.

In our Issues Paper, we outlined our intention to review the current abatement mechanism and consider alternative performance incentive mechanisms, such as the SLIS proposed by SDP.

Our draft decision is to not include a service performance incentive scheme for SDP in the upcoming regulatory period. This reflects our analysis that provisions in SDP's new Network Operator's Licence provide sufficient incentive for performance – and accounts for uncertainty over how performance should be measured under the new flexible operation mode of SDP.

We note that SDP's proposal for some insurance policies is contingent upon the application of a SLIS or abatement mechanism. Our draft decision to include neither a SLIS nor abatement would therefore have implications on SDP's total insurance allowance, as discussed in Chapter 5.

12.1.1 The existing abatement mechanism is no longer fit for purpose

In 2012, we introduced an abatement mechanism to SDP's pricing determination to financially incentivise SDP to maintain full production of water during drought. In 2017, we broadened and strengthened the abatement mechanism to apply across different modes of operation, including during periods of shutdown and restart. The abatement mechanism was crucial to providing the right incentive for SDP to maximise its production as a drought response asset to support Greater Sydney's water security plan at the time.

Under SDP's new flexible role, the abatement mechanism is no longer fit for purpose. This is because the current abatement mechanism:

- assessed SDP's performance in maximising average daily production during periods of drought response rather than fulfillment of a flexible annual production requirement.
- depends on the mode of operation, i.e. drought response, shutdown and restart modes. This was to ensure SDP had the incentives to maintain the plant during periods of shutdown or to efficiently restart when triggered by the water security plan.

The shift away from a drought-response role means that the existing abatement mechanism is no longer fit for purpose because SDP will operate flexibly. It follows that the incentives provided under the abatement mechanism no longer align with SDP's new flexible operating mode.

12.1.2 Future reviews will consider the role of Outcome Delivery Incentives

This is the last time we review pricing proposal from SDP under the current regulatory framework. IPART will implement a new approach to regulatory reviews to improve the way prices are set for the water utilities to promote greater customer value.

The new regulatory framework encourages businesses to improve their service relative to past performance. Specifically, new Outcome Delivery Incentives (ODIs) will provide financial rewards and penalties tied to the delivery of key customer outcomes that promote customer value. We expect that ODIs will be proposed as part of a package of incentives across service quality, and capital and operating expenditure. This approach will balance the incentives faced by SDP when considering the efficient level of investment in, and operation of, SDP in meeting the objectives of the new licence.

We expect that the learnings from SDP's new flexible operation model will be used to inform the design of an ODI in the next regulatory period, if appropriate.

12.1.3 SDP has proposed a SLIS to replace the abatement mechanism

SDP has proposed a SLIS to replace the existing abatement mechanism. The SLIS is a service performance incentive mechanism that provides rewards or penalties consistent with the new flexible full-time mode of operation of SDP.

Specifically, the SLIS proposed by SDP would:[152]

- provide targeted and symmetric financial penalties or rewards for water production that exceeded a 10% tolerance band above or below the APR.
- apply to the flexible full-time operation model, i.e. performance incentives would no longer depend on whether the plant was in drought response, shutdown or restart operating modes.
- apply to annual production requests above the proposed minimum production level of 23 GL per year, and would not apply to requests outside the APR.
- be subject to a combined cap of 2.5% of the fixed plant service charge across the SLIS and ECM on an annual basis.
- would not apply financial rewards or penalties for circumstances that are outside SDP's reasonable control, or that SDP is not insured against.

SDP proposed for financial rewards and penalties to be applied via a performance factor on the fixed plant service charge with a true-up for rewards or penalties over the following regulatory period.

12.1.4 Stakeholders raised several concerns with the proposed SLIS

Stakeholders including Sydney Water, the Department of Planning and Environment (DPE) and SDP provided feedback on elements of the SLIS.

Sydney Water and DPE did not support financial rewards for water deliveries significantly in excess of what was requested, particularly in instances where excess water may have limited value because dams are full.[153] In addition Sydney Water contended that SDP incorrectly recognised significant overproduction relative to the APR as a benefit in attempting to design a symmetric incentive mechanism.[154]

Sydney Water considered that financial penalties for not meeting the APR by more than 10% could be appropriate.[155] Sydney Water also observed that the SLIS may provide a comparatively weak incentive to the abatement mechanism due to the 2.5% combined cap on the SLIS and ECM (since the abatement mechanism applied to up to 100% abatable charges which are broadly equivalent to fixed plant service charges).[156]

Sydney Water highlighted that, in its view, the value of water is only revealed ex-post, and therefore a consistent approach to over or under production is required regardless of dam levels to incentivise the efficient operation of the SDP.[157]

Separately, SDP stated that the SLIS was designed prior to finalisation of SDP's Network Operator's Licence. SDP noted during the public hearing that the SLIS may be obsolete because for rewards or penalties to accrue, SDP must be in breach of its licence conditions[158] and would not receive a service charge from Sydney Water for production over 110% of the APR.[159]

12.1.5 The Network Operator's Licence is sufficient to provide the right performance incentives

SDP's new Network Operator's licence defines a performance band SDP must meet to be compliant with its licence, i.e. to be compliant SDP must produce between 90% and 110% of an APR from Sydney Water in the relevant financial year.

The SLIS proposed by SDP applies financial rewards or penalties for volumes of water outside a 10% tolerance band of the APR. It follows that for penalties or rewards to be incurred under the SLIS, SDP must be in breach of its licence conditions.

In our view, the proposed SLIS could perversely reward SDP for a breach of its licence conditions (noting that Sydney Water would not be obliged to pay for water deliveries above 110% of the APR).

Our assessment is that SDP's Network Operator's Licence provides sufficient incentive for performance. The WIC Act provides for very substantial financial penalties for a breach of SDP's licence conditions, including a failure to provide 90-110% of the water requested under an APR.[hh] SDP would also be exposed to reputational risk, and potential suspension or cancellation of licence in the event of extended non-compliance.

12.1.6 We are not including a service performance incentive mechanism for the upcoming regulatory period

Our draft decision is to not include incentive mechanisms for service performance as part of this determination. Specifically, our draft decision is to:

- remove the abatement mechanism since it is no longer fit for purpose under SDP's flexible full-time operating model.
- not implement the SLIS proposed by SDP.

In subsequent regulatory reviews, we will consider the new Water Regulatory Framework that will apply to SDP in the next regulatory pricing period. We expect that learnings from experience in a flexible operating environment will help inform targeted and effective service performance incentives that promote customer value in the pricing submission from SDP.

[hh] *Water Industry Competition Act 2021 No 26,* division 6.

12.2 Efficiency carryover mechanism

Our draft decisions are:

41. To accept the proposal to remove the mode-specific distinction in the efficiency carryover mechanism.

42. To not accept the proposal to calculate efficiency savings as the difference between forecast and actual costs.

43. To amend the efficiency carryover mechanism to calculate efficiency savings in two components for fixed and variable costs separately. This is to address SDP's concerns about the operation of this mechanism under differing levels of water production.

44. To apply a financial incentives cap of 2.5% of fixed plant charges, noting that it is now only applied to the efficiency carryover mechanism.

The efficiency carryover mechanism (ECM) provides a financial incentive for SDP to pursue ongoing improvements in operating expenditure where permanent efficiency savings can be demonstrated.

In our Issues Paper, we outlined our position to retain the ECM, but with some changes to reflect its expanded role consistent with SDP's new operating environment.

12.2.1 The ECM incentivises SDP to pursue ongoing efficiency savings in operating expenditure

The purpose of the ECM is to provide a time consistent incentive for SDP to pursue efficiency savings by allowing the business to retain savings for a period of four years following the year in which the saving was made (i.e. five years in total), irrespective of the time remaining in the determination period. In contrast, under some forms of regulation, SDP would face a weakening incentive to make efficiency savings throughout the regulatory period.

For clarity, we note that the ECM:

- only applies to operating expenditure, i.e. there is no corresponding incentive scheme for capital expenditure.
- includes SDP's energy volumes but does not account for movements in energy prices as these are excluded from the ECM.
- excludes operating costs outside the scope of SDP's regulated prices.

While efficiency savings are initially retained by the business, they are eventually passed on to customers in lower prices.

12.2.2 SDP has proposal several amendments to the ECM, including to the calculation of efficiency gains

SDP has proposed several changes to the ECM to align with SDP's new Network Operator's Licence.

Specifically, SDP proposed to amend the ECM to:[160]

- remove the mode-specific distinction.
- calculate efficiency gains as the difference between the expenditure allowance and actual expenditure, for a given supply volume in each year. This would result in SDP's operating expenditure allowance varying from year to year consistent with APRs.

We discuss the responses from stakeholders and our consideration of these proposed changes in the sections below.

12.2.3 Sydney Water supported the proposed changes to the ECM as a transitionary arrangement towards the new Water Regulatory Framework

Sydney Water was the only external stakeholder to provide ECM-specific feedback on our Issues Paper.

Specifically, Sydney Water:

- supported the removal of mode-specific distinction in the ECM.[161]
- considered efficiency savings based on actual levels of supply was appropriate for SDP's new operating regime.[162]
- considered that a financial incentive cap of 2.5% would provide SDP with a strong incentive to achieve superior performance without materially changing the impact on Sydney Water customers.[163]
- noted that there is no equivalent capital expenditure incentive scheme to ensure SDP does not prioritise operating expenditure efficiencies over other forms of improved service.[164]
- considered that while IPART could take a range of concerns with the ECM into account, it may not be necessary to, since SDP would be expected to replace the ECM with an Efficiency Benefits Sharing Scheme (EBSS) as part of the new Water Regulatory Framework.[165]

Sydney Water's feedback was made in the context of this iteration of the ECM being a transitionary arrangement towards the new Water Regulatory Framework.[166]

12.2.4 We would remove the mode-specific distinction from the ECM

SDP has proposed to remove the distinction between "general" efficiency savings and "mode-specific" efficiency savings in the ECM to better reflect SDP's new flexible role. Mode-specific efficiency savings related to savings arising when SDP is in operational, shutdown or restart modes. Maintaining the current mode-specific approach would not reflect SDP's new flexible operation role.

Under the current framework, mode-specific efficiency savings can be retained for up to five years if SDP remains continuously in that mode of operation. SDP considered this mode distinction weakens incentives to make ongoing efficiency savings, since there are relatively few opportunities for SDP to remain in a specific mode of operation and retain efficiency savings for the full five-year period.[167]

We agree that a mode-specific distinction in the ECM is no longer appropriate. Our draft decision is to remove the mode distinction from the ECM to reflect SDP's new Network Operator's Licence.

12.2.5 We would amend the ECM calculation methodology to ensure that efficiency savings are enduring

SDP has proposed an amendment to the calculation of efficiency gains in the ECM as the difference between its operating expenditure allowance and its actual expenditure, for a specific supply volume. Under this proposal the level of operating expenditure allowance would be expected to vary in line with the volume of water in APRs.

The ECM proposed by SDP means that any difference between its allowance and actual operating expenditure (for a given volume of supply) is treated as a permanent efficiency saving. This saving can be retained for four years following the year in which the saving was achieved by SDP. SDP did not propose to adjust its operating expenditure allowance to reflect a change in reduced variable or fixed costs following identification of a permanent efficiency saving,

In our view, the ECM proposed by SDP has the potential to overstate ongoing efficiency gains. For example, If SDP was able to achieve an ongoing $2 million reduction to fixed operating costs during the first year of the regulatory period, under the ECM proposed, this would be reflected as four separate $2 million efficiency savings. SDP would then be able to retain each of the gains for five years.

A stylised example of how the ECM proposed by SDP would operate is reflected below in Table 12.1.

Table 12.1 Stylised calculation of efficiency gains under the ECM proposed by SDP

	Year 1	Year 2	Year 3	Year 4
Plant utilisation	100%	100%	100%	100%
Variable costs ($m)				
Allowance	100	100	100	100
Actual	98	98	98	98
Recognised ECM carry-forward gain	2	2	2	2

In our view, the proposal from SDP may incorrectly recognise multiple permanent efficiency savings. SDP's proposal contrasts to the current ECM which calculates efficiency gains on an incremental basis, with its operating expenditure allowance adjusted in accordance with the saving to reflect the new base level of efficient operating expenditure.

We recognise that SDP's new flexible operation role complicates the application of an ECM and the current format of the ECM is not appropriate. However, we consider that SDP's proposal to calculate efficiency gains will incorrectly calculate efficiency savings.

The following section addresses SDP's concerns about the complexity and suitability of using year-to-year marginal efficiency gains in the ECM calculation.[168]

12.2.6 We would calculate efficiency savings in the ECM in two components

Our draft decision is to determine efficiency savings in the ECM for SDP's fixed and variable costs separately. This ensures that savings can be calculated on an incremental basis to reflect genuine permanent efficiency savings.

SDP's costs are separated in to a fixed and variable cost component. SDP define its types of operating costs as:[169]

- Variable costs, i.e. those costs that vary with output, including energy and variable operating and maintenance costs.
- Fixed costs, i.e. those costs that don't vary with changes to plant production such as capital, tax, fixed operating and maintenance charges, and return on capital.

For fixed costs, where SDP can achieve a permanent efficiency saving this should reflect a reduction in the fixed operating cost allowance for subsequent years of the regulatory period with SDP retaining the saving for five years.

For variable costs, where SDP can demonstrate a reduction in the variable cost per unit of water, i.e. through more efficient operation of the plant, a saving should be retained based on the capacity of SDP, with a corresponding adjustment to SDP's variable costs in following years.

The variable component of the ECM would operate by:

- forecasting variable cost allowance on a per unit of water basis, calibrated to SDP's variable per unit cost of water in its base year
- calculating the incremental variable cost gains and losses on a per unit of water basis.

This approach ensures that efficiency savings in variable costs are retained by SDP for a period of five years before that saving is passed through to customers, irrespective of the amount of water ordered in any given year.

An implicit assumption of this approach is that variable costs (on a per unit of water basis) are generally constant over different levels of production. We note that this assumption is consistent with SDP's proposal for a fixed variable price for water. That said, we expect that one of the learnings from the 2023 determination period will be the appropriateness of assuming a fixed variable cost.

12.2.7 Subsequent regulatory review will consider the role operating expenditure incentive schemes as part of a package of incentives

As part of SDP's next regulatory review, we will consider the role of the new regulatory framework which would likely include an incentive scheme for operating expenditure, with equivalent schemes for service performance and capital expenditure. In our view, these schemes will better align the incentives of SDP with its customers through symmetric penalties and rewards which allow SDP to internalise and balance the trade-offs between service quality, investment and operating decisions.

12.2.8 We have accepted SDP's proposal to cap annual financial incentives at 2.5%

SDP proposed a new combined annual cap on financial rewards and penalties across the SLIS and ECM of 2.5% of fixed plant charges (between approximately 1.5% and 1.9% of SDP's total revenues at full production).[170] The present value of this balance would then be paid out to SDP over the subsequent regulatory period.[171]

In section 12.1, we outlined our draft decision to not include the SLIS proposed by SDP in the upcoming regulatory period and for the current abatement mechanism to be removed from the regulatory framework. It follows that the proposal from SDP for a combined cap across the SLIS and ECM would not be possible under this arrangement.

Our draft decision is to apply an annual cap for the ECM for rewards or penalties of up to 2.5% of fixed plant charges. This decision is consistent with the financial incentives cap proposed by SDP and was supported by Sydney Water in its response to our Issues Paper.[172] A cap of 2.5% also aligns with the new Water Regulatory Framework which sets a financial rewards cap of 2.5% for businesses assessed as having "leading" proposals (i.e. where a business can demonstrate in its proposal how it delivers significant improvements in customer value).[173]

12.3 Energy adjustment mechanism

Our draft decisions are:

45. To accept the proposal to remove the mode distinction in the energy adjustment mechanism.

46. To accept the proposal from SDP to reduce the core band for the energy adjustment mechanism from 5% to 2.5%.

47. To not assess whether SDP's management of its surplus energy is efficient because we can rely on the financial incentive SDP has to manage its surplus energy efficiently under the energy adjustment mechanism.

48. To commence the 2023 EAM application period from 2022-23.

Desalination is an energy intensive process. Because energy costs are the key driver of operating costs, we want to provide the right incentive for SDP to pursue operational efficiencies that maximise the sale of its surplus energy position where it has flexibility around its operations.

SDP has long term (20-year) contracts to acquire electricity and Large Scale Generation Certificates (LGCs) at fixed real prices (indexed to inflation). Specifically, SDP has contracted: [174]

- annual volumes of electricity sufficient to run the plant at full capacity.[175]
- minimum annual volumes of LGCs.[176]

However, if the plant is not operating at full capacity, SDP holds contracts for surplus energy[ii] and is exposed to the risk of selling electricity at the market price.

This presents risks and opportunities for SDP because:

- if the market price exceeds the contract price, SDP makes a gain on the resale of surplus energy and LGCs.
- if the market price is less than the contract price, SDP must pay the difference on the resale of surplus energy and LGCs.

The Terms of Reference for this pricing review require IPART to develop and implement a mechanism to pass through the gains and losses to customers, beyond a core band, resulting from the sale of SDP's surplus energy and LGC contracts.

The EAM incentivises SDP to pursue efficient management of its surplus energy by exposing SDP to gains and losses from the sale of energy it manages on the behalf of its customers.

[ii] The volume of surplus LGCs may differ from the volume of surplus energy since SDP is only obliged to purchase a minimum volume of LGCs (whereas we understand that SDP purchases energy contracts to cover its full capacity).

12.3.1 We would remove the mode-specific distinction from the EAM

The EAM currently only applies to gains or losses on the sale of surplus energy when SDP is in shutdown or restart mode. The EAM does not apply in operation mode because the plant is assumed to be in full production, resulting in full utilisation of SDP's energy contracts.

Our draft decision is to expand the scope of the EAM to include all of SDP's surplus energy, i.e. we would remove the mode distinction from the EAM. This change will ensure that the EAM is flexible to varying levels of surplus energy resulting from changes in the level of production.

12.3.2 SDP will have flexibility to shift its energy use under the new operating arrangements

Under previous operating arrangements, SDP had little flexibility to actively manage its energy use because:

- when operating for drought response, SDP was required to operate at full capacity (zero surplus energy to consider for sale). SDP would also have limited operational flexibility in this mode
- when in shutdown or restart mode, SDP would have some ability to predict the quantity and duration of its surplus energy positions but would have limited operational flexibility to manage its energy use.

However, the EAM did provide SDP with an incentive to maximise the sale of surplus energy when the plant was shutdown. For example, SDP could choose to actively manage the sale of surplus energy through the option of forward selling it surplus energy, having regard to both dam levels and depletion rates and the 8 month restart period.

SDP's new flexible role has implications for its management of its energy use and surplus energy position because SDP:

- will have surplus energy contracts if APRs are less than SDP's capacity.
- may have surplus LGCs contracts depending on SDP's minimum contracted volume of LGCs relative to the energy usage required to fulfill an APR.
- may have some flexibility over the rate or periods in which it operates to fulfill APRs and phasing requests from Sydney Water, i.e. management of production over a daily, weekly or monthly timescale to meet overall APR requirements
- may have some flexibility over the rate or periods in which it meets its 'best endeavours' requests for short-term production
- has less long-term ability to predict the quantity and duration of its surplus energy position because it is expected to respond to changing production requests.

In instances where SDP has received an APR of less than 100% of its capacity, we want to provide an incentive for SDP to maximise its operational flexibility and sale of surplus energy.

Although SDP faces a constant financial cost for its energy use through its long term contracts for electricity and LGCs, it faces a variable underlying resource cost given its potential exposure to the sale of surplus energy. The incentives arising from the operation of the EAM ensures that SDP considers these underlying resource costs and the opportunity cost of selling surplus energy and LGCs.

Where SDP can operate flexibly, we consider that the sale of surplus energy could provide considerable benefits to SDP and its customers. This approach also replicates the efficient market dynamics of how SDP would operate in the absence of long term electricity contracting, i.e. by incentivising SDP to consider lower plant utilisation during periods of very high energy prices.

12.3.3 Our draft decision is that SDP should be provided with a strong incentive to manage its energy use and surplus energy position in the interests of customers

SDP should be incentivised to seek operational efficiencies and optimise the sale of its surplus energy position where it has flexibility over its operating profile. For example, SDP could minimise its energy use during forecast high price periods thus maximising the volume and sale of its potential surplus energy position.

We anticipate that SDP could consider a range of operational efficiencies that would maximise the sale of its surplus energy position, i.e.:

- scheduling maintenance during periods of high forecast electricity prices, i.e. due to notice of lack of reserve from AEMO.
- ramping water production over the course of the day (or night) to limit production during peak pricing periods and maximise the sale of its surplus energy position.
- ramping production over the course of a year to correspond with "shoulder" season periods where electricity prices in NSW are lower than average. This arrangement would work most effectively where production requests from Sydney Water are averaged over the longest possible period to allow SDP a high degree of operational flexibility.

The value in deferring production in some periods could be significant, given that the spot price for electricity over the 2023 determination period can vary between -$1,000 to $19,500 per megawatt hour.[jj]

We note that having SDP actively managing its operation and selling surplus electricity during peak price events will have benefits beyond the EAM, in that when SDP lowers its demand for electricity when electricity prices are high, this will potentially lower the average electricity price paid by all NSW customers.

[jj] Reliability Panel AEMC, 2022 Review of the reliability standards and settings, Final report, 1 September 2022, page 66. Noting that the current market price cap is $15,500 per megawatt hour which will then rise to $17,500 per megawatt hour from 1 July 2025 and then to $19,500 per megawatt hour from 1 July 2026 and $21,500 per megawatt hour from 1 July 2027.

12.3.4 SDP proposed to reduce its exposure to its surplus energy positions under an amended EAM

SDP proposed to reduce its exposure to energy price movements under the EAM by refining the core band and reducing the share of gains or losses incurred by SDP outside the core band.

SDP has proposed to amend the EAM to:

- apply during all modes of operation, consistent with the terms of reference.[177] The EAM previously only applied during shutdown and restart modes.
- reduce the core band from 5% to 2.5%.[178]
- reduce the sharing ratio of gains and losses outside the core band from 20% to 5% (i.e. 95% of gains or losses would be retained by consumers).[179]

SDP considered that under the current EAM, the risk borne by SDP is disproportionate to its control over gains and losses because it has no control over surplus energy volumes, contract prices or market prices it receives for the sale of surplus energy.[180] SDP also noted that since market prices are likely to exceed benchmark prices over the next regulatory period, SDP estimates that it will make a total gain on the sale of surplus energy with the higher sharing ratio resulting in greater proportion of these funds going to customers.[181]

In contrast, Sydney Water supported retaining the existing core band and sharing ratio since the EAM proposed by SDP would dilute incentives to continuously improve energy efficiency.[182] Sydney Water also supported an expanded EAM that captured surplus energy gains or losses across the flexible mode of operation.[183]

12.3.5 We will maintain the sharing ratio and reduce the core band to incentivise SDP to manage its surplus energy position in the interests of customers

In our view, the proposal from SDP to reduce its sharing ratio of gain or losses outside the core band from 20% to 5% significantly reduces the incentive of SDP to pursue strategies that maximise the sale of its surplus energy in the long-term interests of customers. Because SDP has a degree of control over both plant operation and the sale or surplus energy, we consider that the proposal from SDP does not provide the appropriate incentive to maximise the sale of surplus energy positions under the new operating framework.

The Terms of Reference require IPART to consider an EAM that allocates gains and losses on the sale of surplus energy beyond a core band. SDP's proposal included an amendment to the EAM to reduce the core band from 5% to 2.5%.

Our draft decision is to reduce the core band from 5% to 2.5%, consistent with the proposal from SDP. In our view, a narrower core band minimises distortions from SDP incurring full gains or losses within the core band.

We would also retain the existing sharing ratio for the EAM to ensure that SDP faces a proportionate financial incentive to manage its energy position, i.e. customers would retain 80% of surplus gains and loses beyond the core band with SDP retaining the residual 20%.

The intention of the EAM is to provide SDP with incentives to maximise the sale of electricity within the constraints of its new flexible role and trade-offs with other costs, rather than directing SDP when to produce.

12.3.6 SDP has proposed changes to IPART's assessment of whether trading was prudent

SDP has proposed changes to the calculation methodology for the EAM. Specifically, SDP proposed that IPART, in its assessment of whether the expenditure was prudent:

- amend the calculation of the hypothetical gain or loss for LGCs to the average spot price in the last quarter of each calendar year and the first quarter of the next calendar year. This is because LGCs operates on a calendar year basis and SDP will only know the volume of surplus LGCs at the end of a calendar year.[184]
- recognise that forward selling may not be an appropriate trading strategy when reviewing the prudence of surplus energy trades, since SDP will have no control when it will be called upon to deliver water, how much water will be required to produce under each request and how much surplus energy SDP will hold in future periods. [185]

Under the EAM, SDP has a financial incentive to maximise the value of its surplus energy and LGC positions. Because our draft decision for the EAM is to maintain the current sharing ratio of gains or losses outside the core band, we consider that SDP faces a proportionate incentive to manage its energy position in the best interests of customers.

Our draft decision is to not review whether the trading strategies of SDP are prudent at the end of the determination period on the basis that SDP faces a commercial incentive to manage its energy and LGC position effectively.

12.3.7 We have generalised the definition of the EAM application period

Consistent with the current operations of the EAM, our draft decision is that the application period for the 2027 Determination from 2022-23 until the year immediately preceding the review year. Table 12.2 illustrates the 2023 EAM application and adjustment time periods. These periods are indicative and assume the review occurs in 2026-27 and that the 2027 determination period is 5 years.

Table 12.2 2023 EAM application period and adjustment period

2023 determination period					2027 determination period				
22-23	**23-24**	**24-25**	**25-26**	**26-27**	**27-28**	**28-29**	**29-30**	**30-31**	**31-32**
2023 EAM application period					2023 EAM adjustment period				
1	2	3	4	**Review year**	1	2	3	4	5

Note: This example assumes a five-year 2027 determination period.
Source: IPART analysis

Appendices

Appendix A

Building block approach

We will continue to use the building block approach to calculate SDP's notional revenue requirement. This approach breaks down SDP's costs into the following components (or building blocks):

- **operating allowance**
- **capital allowance**
- **tax allowance**
- **working capital allowance**

The annual sum of these building blocks is the notional revenue requirement (pre-adjustments) and is our assessment of the total efficient costs SDP should incur in delivering its services (see figure A.1).

Consistent with our Terms of Reference, we also include additional allowances for an:

- **energy adjustment mechanism (EAM)**, to share demonstrated energy gains or losses with customers, and
- **efficiency adjustment mechanism (ECM),** to allow SDP to carryover demonstrated efficiency savings, net of efficiency losses, in providing water supply and security.

The EAM and ECM adjustments are added to the building block cost allowances to obtain the total NRR for SDP. The total NRR may be higher or lower depending on the EAM and ECM outcomes. We then set prices to recover the total NRR amount.

However, for this review, the total NRR amount also includes an **adjustment to account for the impact of the one-year deferral** of the determination on SDP's 2022-23 prices and an adjustment due to 2017 review RAB roll forward error.

A.1 Operating allowance

Operating costs relate to a utility's day-to-day costs for maintaining its operations. These costs include wages, electricity, and consumable materials. For SDP, operating costs are largely driven by energy costs, as well as operation and maintenance costs (i.e. payments to their contractor, Veolia, for operating and running SDP). Operative allowance would be set to cover these costs.

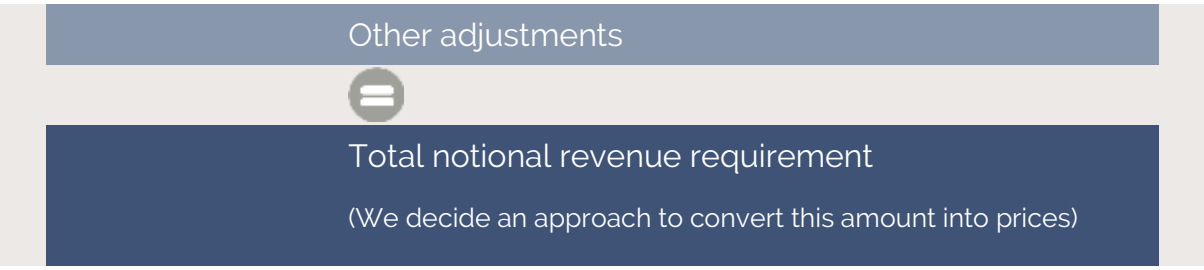
A.2 Capital allowance

To calculate the allowances for a return on assets and regulatory depreciation in the revenue requirement, we need to determine 3 key inputs:

- the value of SDP's RAB, which represents the economic value of the assets used to deliver the monopoly services
- the appropriate rate of return (i.e. using the WACC) on SDP's RAB
- the appropriate asset lives and depreciation method to apply to SDP's RAB.

In the 2017 Determination, we set separate RABs for SDP's plant, pipeline and short-lived assets (or corporate assets). At this stage, we are considering continuing this approach.

Figure A.1 How we set SDP's prices



A.3 Tax allowance

The tax allowance is one of the last building block items we calculate, due to its dependence on other items such as operating cost allowances and WACC parameters. Our standard approach is to calculate the tax allowance for each year by applying a 30% statutory corporate tax rate adjusted for gamma to the utility's (nominal) taxable income. For this purpose, taxable income is the notional revenue requirement (excluding tax allowance) less operating cost allowances, tax depreciation, and interest expenses.

A.4 Working capital allowance

We include this allowance in the notional revenue requirement to ensure businesses can recover the costs incurred due to delays between delivering regulated goods or services and receiving payment for those goods or services (net of any benefits received due to delays between them businesses receiving goods or services and paying for those good or services). It typically represents around 1% of their NRR. We have a Working Capital Allowance Policy Paper that outlines our approach, which we will use for this review.

A.5 Energy adjustment mechanism

In 2017, we maintained the energy adjustment mechanism for SDP. The purpose of this mechanism was to pass through to customers any gains and/or losses outside a core band from the sale of SDP's surplus energy while during shutdown and restart. Surplus energy includes electricity and renewable energy certificates. This purpose and how we generally calculate the adjustment is outlined in the 2017 Methodology Paper we prepared for the 2017 price review.

For the energy adjustment amounts, we will use the 2012 Methodology Paper to assess the adjustments required for 2016-17 and 2017 Methodology Paper for the 2017-18 to 2022-23 period. Our draft decisions regarding the application of the EAM for the 2023 determination period are set out in our Draft Methodology Paper.

A.6 Efficiency carryover mechanism

In 2017, we maintained the efficiency adjustment mechanism for SDP. This mechanism removes the incentive for SDP to delay efficiency savings by allowing the business to retain a permanent savings for the same number of years regardless of when the saving is achieved within a determination period, while maintaining all other aspects of the form of regulation. The purpose of this mechanism and how we calculate the adjustment is outlined in the 2017 Methodology Paper. Our draft decisions regarding the application of the EAM for the 2023 determination period are set out in our Draft Methodology Paper.

A.7 True-up adjustment for the deferral year

The review of SDP's prices was deferred by one-year at the request of the then Minister so that the review would consider the impact of SDP's new Network Operator's Licence. The deferral meant that SDP's 2021-22 prices were held constant in nominal terms over 2022-23. We have therefore considered whether SDP's prices for the 2023 Determination should be adjusted to account for any under- or over-recovery accrued over 2022-23 because of the deferral (refer to section 7.6).

Appendix B

Terms of Reference

The Hon. Kevin Anderson MP
Minister for Lands and Water
Minister for Hospitality and Racing

Our ref: B22/2430

Ms Carmel Donnelly PSM
Chair
Independent Pricing and Regulatory Tribunal
PO Box K35
Haymarket Post Shop NSW 1240

Dear Ms Donnelly Carmel

I write regarding the Terms of Reference for Referral of Sydney Desalination Plant Pty Ltd (**SDP**) to IPART under Section 52 of the *Water Industry Competition Act 2006*.

Amended Terms of Reference are attached to this letter.

Greater Sydney Water Strategy

The final Greater Sydney Water Strategy (GSWS) has been approved by Government and will be published in the coming weeks. The Strategy charts the long-term vision and direction for delivering sustainable and resilient water services to Greater Sydney, including the Illawarra and the Blue Mountains, for the next 20 years.

The Strategy provides for an amended operating regime for the Sydney Desalination Plant (**Plant**) to optimise its contribution to the overall system resilience including water supply security, drought management and operating flexibility. In future, the Plant will operate on a flexible basis (including with respect to the volume of water produced) rather than only at full capacity during periods of drought, in line with a Decision Framework currently being developed by Sydney Water for my endorsement.

I encourage the Tribunal to work with stakeholders to consider the implications of the new operating regime, with a view to creating a pricing framework that is in the long-term interests of customers and consistent with the Decision Framework and need for a more flexible operating regime.

The principles under which SDP is expected to operate include:

- That the Plant provides a minimum baseload volume each year to achieve the desired performance set out below
- That the Plant can respond to shocks in the network, as required by the agreements between SDP and Sydney Water
- That the volume of water produced by the Plant can be varied as needed (in line with the Decision Framework) to support the resilience of the system, including slowing down dam depletion during droughts and keeping dam levels higher when needed, but also to be decreased when dam levels are high in order to minimise the risk of spills and maintain cost effectiveness.

Energy adjustment mechanism

As has been the case for the previous price determinations, I note for clarity that the intention of the proposed energy adjustment mechanism (which includes an efficiency gains and losses carryover mechanism to accommodate significant gains and losses associated with the sale of surplus electricity and Renewable Energy Certificates (**RECs**)) is to ensure that SDP customers for water (in Sydney Water's Area of Operations) receive the benefit of significant gains and bear significant losses incurred

GPO Box 5341 Sydney NSW 2001 ▪ P: (02) 8574 5550 ▪ W: nsw.gov.au/ministeranderson

as a result of the difference between the cost of electricity and RECs under SDP's contracts with Infigen (now Iberdrola Australia) and the market price for electricity and RECs arising from the sale of SDP's surplus electricity and RECs.

For electricity, the mechanism would mirror the 'Calculation of Shortfall Adjustment' in SDP's Electricity Supply Agreement with Infigen (now Iberdrola Australia), with the 'market price' defined as the half-hourly spot price and/or the price of a contracted 'available block'.

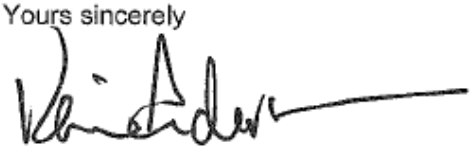
For RECs, the 'market price' would be the price shown in the Nextgen Greenroom Report, or another equivalent report.

I note also that:

> SDP is required by its Project Approval 05_0082 (as modified) to implement a greenhouse gas reduction plan, which incorporates the long term electricity and REC arrangements between SDP and Infigen (now Iberdrola Australia) that were entered into at the time of developing the Plant.
>
> SDP did not know that it would be asked to operate the plant in accordance with the new operating regime when entering into those agreements with Infigen.

I ask that IPART have regard to the points above in making its price determination.

Yours sincerely



The Hon Kevin Anderson MP
Minister for Lands and Water
Minister for Hospitality and Racing

Date: 16.6.2022

Terms of Reference for Referral of Sydney Desalination Plant Pty Limited to IPART under Section 52 of the Water Industry Competition Act

Background

On 29 June 2010 Sydney Desalination Plant Ply Limited (**SDP**) was granted a network operator licence in relation to the *desalination plant*. The Minister for Finance and Services has, under section 51 of the Water Industry Competition Act 2006, declared that SDP is a monopoly supplier in relation to the water supply services it provides under its network operator licence.

SDP is the only supplier of non-rainfall dependent drinking water in New South Wales. Currently, the primary purchaser of drinking water supplied from the desalination plant is Sydney Water Corporation. Sydney Water Corporation purchases bulk water from two main sources, WaterNSW and, since its commissioning, the *desalination plant*.

The Greater Sydney Water Strategy (GSWS) charts the long-term vision and direction for delivering sustainable and resilient water services to Greater Sydney, including the Illawarra and the Blue Mountains, for the next 20 years. The GSWS replaces the 2017 Metropolitan Water Plan. The *desalination plant* is a key element in Sydney's water security plan and the Greater Sydney Water Strategy.

The GSWS provides for an amended operating regime for the Sydney Desalination Plant (**Plant**) to increase its contribution to water supply security and drought management, and not only as a drought-response service. A Decision Framework is being developed by Sydney Water for my endorsement and will guide the flexible operating approach. It adopts a principle-based approach aimed at enhancing resilience and is intended to remain adaptive to the changing circumstances and needs across Sydney Water's network. As part of IPART's review of SDP's network operator's licence, reference to the Decision Framework in the licence will provide additional information about the intended operation of SDP, and will be consistent with the Government's objectives stated in the GSWS.

Prices set by the Independent Pricing and Regulatory Tribunal (IPART) should therefore reflect the water supply services provided by SDP set out below:

(a) the supply of non-rainfall dependant drinking water to purchasers (noting the potential range and variation of production required under the Decision Framework) and

(b) the making available of the *desalination plant* to supply non-rainfall dependant drinking water.

Matters for consideration - pricing principles

Unless indicated otherwise each *price determination* is to be consistent with the following pricing principles:

1. Maximum prices should be set so that expected revenue generated will recover the efficient costs of providing the services described at (a) and (b) above over the life of the assets. Costs include operating costs, a return on the assets and return of assets (depreciation).

2. In calculating the return on invested assets:

   i. The rate of return (or Weighted Average Cost of Capital) should reflect the commercial risks faced by the asset owner in providing the services.

   ii. IPART should determine an appropriate opening asset value.

3. Return of assets (depreciation) is to reflect the economic lives of the assets.

4. The structure of prices should encourage SDP to be financially indifferent as to whether or not it supplies water. As such the structure of prices should comprise separate charges for the different water supply services described at (a) and (b) above.

5. The amount of any adjustments under the mechanisms in principle 8 should each be separately quantified and published by IPART.

6. The charges for water supply services in (b) above should be a periodic payment and should reflect fixed costs including, return on assets, return of assets, and the fixed component of operating costs. SDP is to be entitled to charge for providing the water supply services in (b) above irrespective of levels of water in dam storages servicing Sydney or availability of water from other sources.

7. The charges for water supply services in (a) above should reflect all efficient costs that vary with output, including variable energy, labour costs, and maintenance costs.

7A. The SDP Project Approval under former s 75J of the *Environmental Planning and Assessment Act 1979* (05_0082) required the development of a greenhouse gas reduction plan (**GGRP**), to be approved by the Director-General, prior to the commencement of operation of the plant. The GGRP details a strategic plan for the management, minimisation and off-set of greenhouse gas generation associated with electricity supply for the plant. As part of the approved GGRP, certain contracts were entered into with Infigen (now Iberdrola Australia) to acquire electricity and RECs (**GGRP Contracts**). The price determination should consider SDP's ability to recover all costs it incurs in complying with the GGRP and the GGRP Contracts other than costs related to surplus energy in relation to which the energy adjustment mechanism described in paragraph 8 (iii) applies.

8. For each *price determination* other than the first price determination:

   i. SDP should be allowed to carryover demonstrated efficiency savings, net of efficiency losses, in operating expenditure in providing the water supply services specified at (a) and (b) above for a period of 4 years following the year in which the efficiency saving was achieved.

   ii. In calculating the notional revenue requirement, IPART should determine the demonstrated efficiency savings and treatment of energy gains or losses in accordance with the Methodology Paper; and

   iii. A mechanism(s) is required to allocate the costs or benefits to SDP customers (in Sydney Water's area of operation) of actual gains or losses beyond a core band that result from the difference between SDP's costs of electricity and RECs under its contracts with Infigen (now Iberdrola Australia) and revenues from the sale of surplus electricity and RECs. The mechanism would only operate at times when SDP complied with its requirements to maintain and operate the desalination plant under clause A2 of its network operator licence.

9. Any other matters that IPART may consider relevant

Methodology Paper
IPART must publish on its website a methodology paper setting out its approach to implementing pricing principle 8 above (**Methodology Paper**). IPART may update the Methodology Paper from time to time.

Timing
The determination period is to be confirmed as part of the IPART review process. For each successive price determination period, IPART is to make the price determination before the expiry of the current determination period.

B.1 How we have complied with the Terms of Reference

The Terms of Reference require that prices set by IPART should reflect the water supply services provided by SDP:

a. The supply of non-rainfall dependant drinking water to purchasers (noting the potential range and variation of production required under the Decision Framework) and

b. The making available of the desalination plant to supply non-rainfall dependant drinking water.

In Chapters 9 and 10, we explain our draft decisions on what charges we have decided to set over the 2023 determination period, when they apply, what costs are recovered by each charge and at what levels we set the prices. In particular, we set:

- The draft volumetric water usage charge for the supply of non-rainfall dependent drinking water reflects efficient costs that vary with output, including chemical and energy costs.
- The fixed service charges for making the plant available to supply non-rainfall dependent drinking water are periodic payments. These reflect fixed costs, including the fixed component of operating costs, depreciation and a return on assets.
- The Sydney Water zero production charge to cover the additional cost that SDP may incur should Sydney Water request SDP to shut down for a short period of time.

Table B.1 sets out the pricing principles for consideration under the Terms of Reference and how this Draft report complies with them.

Table B.1 Consideration of the Terms of Reference pricing principles

Matters for consideration - pricing principles	Report reference
1. Maximum prices should be set so that expected revenue generated will recover the efficient costs of providing the services described at (a) and (b) above over the life of the assets. Costs include operating costs, a return on the assets and return of assets (depreciation).	Chapters 5 and 6 set out our forecast of the total efficient costs SDP would incur to deliver its services. Further detail is provided in Chapter 7 on other costs and in Chapter 8 on the NRR.
2. In calculating the return on invested assets: Appendix AThe rate of return (or Weighted Average Cost of Capital) should reflect the commercial risks faced by the asset owner in providing the services. c) IPART should determine an appropriate opening asset value.	a) Section 7.2 outlines how we have determined an appropriate rate of return. Appendix D also provides further detail on our WACC methodology. b) Section 7.1 sets out how we have determined an appropriate opening regulatory asset base (RAB).
3. Return of assets (depreciation) is to reflect the economic lives of the assets	Section 7.2 explains how we have determined an appropriate depreciation allowance to reflect the economic lives of SDP's assets.
4. The structure of prices should encourage SDP to be financially indifferent as to whether or not it supplies water. As such the structure of prices should comprise separate charges for the different water supply services described at (a) and (b) above.	Section 10.4 explains how our prices encourage SDP to be financially indifferent as to whether or not it supplies water to customers, including Sydney Water, with reference to the fixed service charge and water usage charge.

Matters for consideration - pricing principles	Report reference
5. The amount of any adjustments under the mechanisms in principle 8 should each be separately quantified and published by IPART.	Section 7.5 separately sets out the adjustment amounts to be applied to SDP's NRR under the energy adjustment mechanism and efficiency carryover mechanism.
6. The charges for water supply services in (b) above should be a periodic payment and should reflect fixed costs including, return on assets, return of assets, and the fixed component of operating costs. SDP is to be entitled to charge for providing the water supply services in (b) above irrespective of levels of water in dam storages servicing Sydney or availability of water from other sources.	Chapters 5-7 outline SDP's fixed costs including return on assets, depreciation, and the fixed component of operating costs. Chapter 9 discusses SDP's draft prices that account for these costs.
7. The charges for water supply services in (a) above should reflect all efficient costs that vary with output including variable energy, labour costs, and maintenance costs.	Chapters 5 and 6 discuss SDP's efficient costs that vary with output including variable energy, labour costs and maintenance costs. Chapter 9 discusses SDP's draft prices that account for these costs.
7A. The SDP Project Approval under former s 75J of the Environmental Planning and Assessment Act 1979 (05_0082) required the development of a greenhouse gas reduction plan (GGRP), to be approved by the Director-General, prior to the commencement of operation of the plant. The GGRP details a strategic plan for the management, minimisation and off-set of greenhouse gas generation associated with electricity supply to the plant. As part of the approved GGRP, certain contracts were into with Infigen (now Iberdrola Australia) to acquire electricity and RECs (GGRP contracts). The price determination should consider SDP's ability to recover all costs it incurs in complying with the GGRP and the GGRP Contracts other than costs related to surplus energy in relation to which the energy adjustment mechanism described in paragraph 8 (iii) applies.	Section 5.1 explains how we have considered SDP's ability to recover all costs it incurs in complying with the GGRP and the GGRP contracts.
8. For each price determination other than the first price determination: 1. SDP should be allowed to carryover demonstrated efficiency savings, net of efficiency losses, in operating expenditure in providing the water supply services specified at (a) and (b) above for a period of 4 years following the year in which the efficiency saving was achieved. 2. In calculating the notional revenue requirement, IPART should determine the demonstrated efficiency savings and treatment of energy gains or losses in accordance with the Methodology Paper; and i. A mechanism(s) is required to allocate the costs or benefits of SDP's customers (in Sydney Water's area of operation) or actual gains or losses beyond a core band that result from the differences between SDP's costs of electricity and RECs under its contracts with Infigen (now Iberdrola Australia) and revenues from the sale of surplus electricity and RECs. The mechanism would only operate at times when SDP complied with its requirements to maintain and operate the desalination plant under clause A2 of its network operator licence.	i. Section 7.5.1 outlines how SDP's demonstrated efficiency savings from the 2017 determination have been accounted for in the NRR for the 2023 determination period. ii. Section 7.5 explains how we have included the energy adjustment and efficiency carryover mechanisms as outlined in the 2017 Methodology Paper in the calculation of SDP's NRR. iii. Chapter 12 outlines the changes we propose to make to the energy adjustment mechanism to account for SDP's flexible full-time operation in the 2023 Determination period. Further detail is also provided in the 2023 Draft Methodology Paper.

Appendix C

Legislative requirements

In making our decisions, we must comply with our Terms of Reference, issued by the then Minister for Lands and Water under section 52(1)(a) of the *Water Industry Competition Act 2006* (WIC Act). These terms require us to determine prices for two services:

1. the supply of non-rainfall dependent drinking water to purchasers
2. the making available of the desalination plant to supply non-rainfall dependent drinking water.

We must also comply with:

- relevant sections of the *Independent Pricing and Regulatory Tribunal Act 1992* (IPART Act) which sets out matters that we must have regard to
- Part 5 of the *Water Industry Competition (General) Regulation 2021* (WIC Regulation) which sets out requirements that we must meet in conducting an investigation under the Terms of Reference.

C.1 How we have complied with the IPART Act

IPART is required under section 15(1) of the IPART Act to have regard to the following matters in making determinations and recommendations:

a. The cost of providing the services concerned
b. The protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standard of services
c. The appropriate rate of return on public sector assets, including appropriate payment of dividends to the Government for the benefit of the people of New South Wales
d. The effect on general price inflation over the medium term
e. The need for greater efficiency in the supply of services so as to reduce costs for the benefit of consumers and taxpayers
f. The need to maintain ecologically sustainable development (within the meaning of section 6 of the *Protection of the Environment Administration Act 1991*) by appropriate pricing policies that take account of all the feasible options available to protect the environment
g. The impact on pricing policies of borrowing, capital and dividend requirements of the government agency concerned and, in particular, the impact of any need to renew or increase relevant assets
h. The impact on pricing policies of any arrangements that the government agency concerned has entered into for the exercise of its functions by some other person or body
i. The need to promote competition in the supply of the services concerned
j. Considerations of demand management (including levels of demand) and least cost planning
k. The social impact of the determinations and recommendations
l. Standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or otherwise).

Table C.1 outlines how we plan to address each matter.

Table C.1 Consideration of matters under section 15(1) of the IPART Act

Section 15(1)	Report reference
Cost of providing the services	Chapters 5 and 6 set out our forecast of the total efficient costs SDP would incur to deliver its services. Further detail is provided in Chapter 7 on other costs and in Chapter 8 on the NRR.
Protection of consumers from abuses of monopoly power	We consider our decisions would protect consumers from abuses of monopoly power, as they reflect the efficient costs SDP requires to deliver its services. This is addressed throughout the report, particularly in Chapters 9 and 10 where we set out our pricing decisions and assessed impact of our decisions.
Appropriate rate of return and dividends	Chapter 7 outlines that we have allowed a market-based rate of return on debt and equity, and that this will enable a benchmark business an efficient level of dividends to its owner.
Effect on general price inflation	Chapter 10 outlines that the impact of our prices on general inflation is negligible.
Need for greater efficiency in the supply of services	Chapters 5 and 6 set out our decisions on SDP's prudent historical expenditure and efficient forecast expenditure. We have continued to incorporate an on-going efficiency adjustment to its operating expenditure. Further, Chapter 12 discusses our use of the efficiency carryover mechanism (as required by the Terms of Reference) to encourage SDP to identify further inefficiencies.
Ecologically sustainable development	Chapters 5 and 6 set SDP's historical expenditure and efficient forecast expenditure that allows it to meet all its regulatory requirements, including its environmental obligations. Chapter 10.5 outlines the implications of our decisions for the environment.
Impact on borrowing, capital and dividend requirements	Chapter 7 explains how we have provided SDP with an allowance for a return on and of capital. Chapter 10 details our assessment of SDP's financeability.
Impact on pricing policies of any arrangements that the government agency concerned has entered into for the exercise of its functions by some other person or body	Chapter 5 and 6 determine SDP's prudent historical and forecast efficient expenditure, including the efficient costs of any contracted works to deliver its capital expenditure.
Need to promote competition	Section 9.4 details our methodology for allocating costs and adjusting prices in the event that SDP serves multiple customers.
Considerations of demand management and least cost planning	Chapters 5 and 6 set out our forecast of the total efficient costs SDP would incur to deliver its services. Chapter 4 discusses our expectation on average water production by SDP. In addition, Chapter 12 discusses the incentives in place to encourage SDP to be efficient in managing its energy demand.
Social impact	Chapter 10 considers the potential impact of our pricing decisions on both Sydney Water, end-use customers and wider community.
Standards of quality, reliability and safety	Chapters 5 and 6 detail our assessment of SDP's prudent historical and efficient forecast costs so that it can meet the required standards of quality, reliability and safety in delivering tis services.

C.1.1 Section 16 – Report on financial impact if maximum price not charged

Section 16 of the IPART Act states:

> If the Tribunal determines to increase the maximum price for a government monopoly service or determines a methodology that would or might increase the maximum price for a government monopoly service, the Tribunal is required to assess and report on the likely annual cost to the Consolidated Fund if the price were not increased to the maximum permitted and the government agency concerned were to be compensated for the revenue foregone by an appropriation from the Consolidated Fund.

We have considered this requirement and, notwithstanding the reference to 'government monopoly service' which we note SDP does not provide, have formed a view that if SDP's maximum prices in its 2023 Determination were to increase and if SDP did not raise its prices to the maximum permitted, SDP would not be compensated for any revenue foregone by an appropriation from the Consolidated Fund and therefore there would be no cost to the Consolidated Fund.

C.1.2 Consideration of matters under section 14A(2) of the IPART Act

Under section 14A(2) of the IPART Act, where IPART sets a methodology for fixing maximum prices (as it proposes to do in respect of SDP's services) it may have regard to the matters set out in section 14A(2)(a)-(i). Under section 14A(3), IPART must indicate in this report what regard it has had to those matters.

Table C.2 Consideration of matters under section 14A(2) of the IPART Act

Section 14A(2)	Report reference
SDP's economic cost of production	Chapters 5 and 6 set out SDP's total efficient costs to deliver its regulated services over the determination period.
Past, current or future expenditures in relation to SDP's services that have been referred to IPART	Chapters 5 and 6 set out our decisions on SDP's prudent historical expenditure and efficient forecast expenditure.
Charges for other monopoly services provided by SDP	Not applicable, because SDP does not provide any other services which are either "government monopoly services" under the IPART Act or services referred to IPART under section 52 of the WIC Act
Economic parameters, such as— (i) discount rates, or (ii) movements in a general price index (such as the Consumer Price Index), whether past or forecast	Chapter 7 sets out how we have indexed SDP's regulatory asset base to account for inflation. Chapter 9 explains how we have set prices to raise revenue that recovers efficient costs over the determination period in net present value terms.
A rate of return on the assets of SDP	Chapter 7 outlines that we have allowed a market-based rate of return on debt and equity which would enable a benchmark business to return an efficient level of dividends.
A valuation of the assets of SDP	Chapter 7 sets out the value of SDP's assets on which we consider it should earn a return on capital and an allowance for regulatory depreciation.
The need to maintain ecologically sustainable development (within the meaning of section 6 of the *Protection of the Environment Administration Act 1991*) by appropriate pricing policies that take account of all the feasible options available to protect the environment	Chapter 5 and 6 set out SDP's efficient historical and forecast expenditure that allows it to meet all its regulatory requirements, including its environmental obligations.
The need to promote competition in the supply of the service concerned	We have been mindful of relevant principles that promote competition for example we have set cost reflective prices as outlined in Chapter 9. Cost reflective prices encourage Sydney Water to make informed choices when ordering water from SDP which promotes between SDP and other water sources available to Sydney Water.
Considerations of demand management (including levels of demand) and least cost planning	Chapter 5 and 6 outline how we have assessed SDP's efficient historical and forecast expenditure required to deliver its regulated services at least cost. Chapter 9 and 10 outline how we have set prices to reflect efficient costs, including the usage price to reflect the approximate estimate of marginal cost of supply – such cost-reflective prices promote the efficient use and distribution of resources (all else being equal).

C.2 How we have complied with the WIC Regulation

Part 5 of the WIC Regulation specifies the steps we must take in conducting a significant price investigation referred to us by the then Minister for Lands and Water under section 52 of the WIC Act. Clause 43 of the WIC Regulation is the provision within Part 5 which provides for the procedural and substantive requirements for this report. Table C.3 below sets out the relevant requirements from clause 43 and explains how this report meets them.

Table C.3 Consideration of matters under clause 43 of the WIC Regulation

Requirement under clause 43	Report reference / Explanation of how this report meets the requirement
Before preparing the draft report, IPART must consider all submissions made to it on the Issues Paper for the investigation, and on the investigated monopoly supplier's submissions, that it considers material.	Section 3.5 details how we have sought input and feedback from stakeholders up to the Draft Report stage of our review process. It describes how we received submissions from SDP and other stakeholders on our Issues Paper and notes the hybrid Public Hearing we held on 21 February 2023. As noted numerously through the report, our draft decisions have been made with due consideration to the submissions to our Issues Paper and the outcomes of our Public Hearing.
The draft report must include the determination of pricing IPART proposes to make	A full Draft Determination of the maximum prices SDP may charge from 1 July 2023 will accompany this report and be published on IPART's website.
The draft report must include the pricing methodology for the proposed determination	The Draft Determination that will accompany this report and be published on IPART's website will set out the precise methodology proposed to be used to fix SDP's maximum prices.
The draft report must include any significant methodological changes and the reasons for those changes	Chapter 9 sets out methodological changes to the pricing methodology and price structures. Chapter 11 and 12 set out methodological changes and the reasons for changes in SDP's incentive and risk mechanisms. Further, the Draft Methodology Paper which will accompany this report also outlines methodological changes to the energy adjustment and efficiency carryover mechanisms.
The draft report must include the assumptions IPART has made for the proposed determination and the reasons for the assumptions	Throughout the Draft Report, we have explained how we have derived in our draft decisions, the assumptions we used and the results. In addition, all assumptions made in the Draft Determination are clearly stated and reasons for those assumptions are provided.
The draft report must include IPART's response to submissions received on the Issues Paper that IPART considers material, including the reasons for accepting or not accepting, whether wholly or in part, material submissions made by the investigated monopoly supplier	This Draft Report acknowledges SDP's submission to the Issues Paper on issues that affect each of the draft decisions made in this report, including providing reasons for accepting or not accepting SDP's positions as stated in its submissions. The explanations of our draft decisions provided in this report also give regard and makes reference to submissions to the Issues Paper received from other stakeholders, including Sydney and Department of Planning and Environment.
A copy of the draft report must be— (a) given to the investigated monopoly supplier, and (b) published on the IPART website for access by members of the public.	This report will be provided to SDP and published on our website.

Appendix D

Weighted average cost of capital

To calculate an allowance for the return on assets in the revenue requirement, we multiply the value of the regulatory asset base in each year of the determination period by an appropriate rate of return. To do this, we determine the rate of return using a weighted average cost of capital (WACC).

This appendix shows the parameters we used to calculate the WACC and explains our decision about how to treat annual changes in the WACC over the 2023 determination period.

D.1 We use our standard approach to calculate the WACC

We used our standard 2018 WACC methodology to calculate the WACC. Under this approach we estimate one WACC based on current market data and one based on long-term average data. When our uncertainty index, which indicates the level of volatility in capital markets, is within one standard deviation of its mean value, we select the mid-point of the current and long-term WACC values. The uncertainty index was within this range at the time we calculated the WACC.

Table D.1 sets out the parameters we used to derive SDP's 3.6 % post-tax real WACC.

Table D.1 WACC calculation using IPART's standard approach

	Step 1 – Market data	
	Current	**Long term**
Nominal risk-free rate	3.20%	2.60%
Inflation	2.70%	2.70%
Implied Debt Margin	2.80%	2.50%
Market Risk premium	7.7%	6.0%
Debt funding	60%	60%
Equity funding	40%	40%
Total funding (debt + equity)	100%	100%
Gamma	0.25	0.25
Corporate tax rate	30%	30%
Effective tax rate for equity	30%	30%
Effective tax rate for debt	30%	30%
Equity beta	0.70	0.70
Cost of equity (nominal post-tax)	8.6%	6.8%
Cost of equity (real post-tax)	5.7%	4.0%
Cost of debt (nominal pre-tax)	6.0%	5.1%
Cost of debt (real pre-tax)	3.2%	2.3%
Nominal vanilla (nominal post-tax) WACC	7.0%	5.8%
Post-tax real WACC	**4.2%**	**3.0%**
Pre-tax nominal WACC	8.0%	6.6%
Pre-tax real WACC point estimate	5.2%	3.8%

	Step 2 – Final WACC range		
	Lower	**Mid-point**	**Upper**
Nominal vanilla (nominal post-tax) WACC	5.8%	6.4%	7.0%
Post-tax real WACC	**3.0%**	**3.6%**	**4.2%**
Pre-tax nominal WACC	6.6%	7.3%	8.0%
Pre-tax real WACC point estimate	3.8%	4.5%	5.2%

Source: IPART calculations.

D.2 Our methodology to calculate WACC parameters

Sections D.3 to D.7 below explain the methodology for each parameter used to calculate the WACC under our standard approach.

D.3 Gearing and beta

In selecting proxy industries, we consider the type of business the firm is in. If we can't directly identify proxy firms that are in the same business, we would consider what other industries exhibit returns that are comparably sensitive to market returns.

We adopted the standard values of 60% gearing and an equity beta of 0.7 for SDP's WACC. These values are based on our standard selection of proxy firms for water businesses.

D.4 Sampling dates for market observations

Our calculation assumes that SDP commenced its transition to the trailing average cost of debt in FY22 (i.e. in the price review 'deferral year'). The 3.6% WACC we calculated therefore assumes that FY23 is the second year of SDP's transitionary period to the trailing average cost of debt approach. This approach is consistent with our correspondence with SDP.

For FY22, the sampling period we used for SDP's WACC data sampling was to the end of May 2022. For the Draft Report, we applied a sampling period up to the end of January 2023 for the current year's market observations. This sampling period will apply only for the purpose of the WACC calculated in this Draft Report. When we release our Final Report on SDP's prices, we will use a sampling period that is closer to our Final Report release date and consistent with our 2018 WACC method.

Our inflation forecast was produced using IPART's standard approach,[186] with the Reserve Bank of Australia's 1-year ahead forecast sourced from the February 2023 Statement on Monetary Policy.

D.5 Tax rate

We assumed the Benchmark Equivalent Entity is a large public water utility. The scale economies that are important to firms of this type suggested the Benchmark Equivalent Entity would be likely to be well above the turnover threshold at which a firm becomes ineligible for a reduced corporate income tax rate. Therefore, we used a tax rate of 30%.

D.6 Application of trailing average method

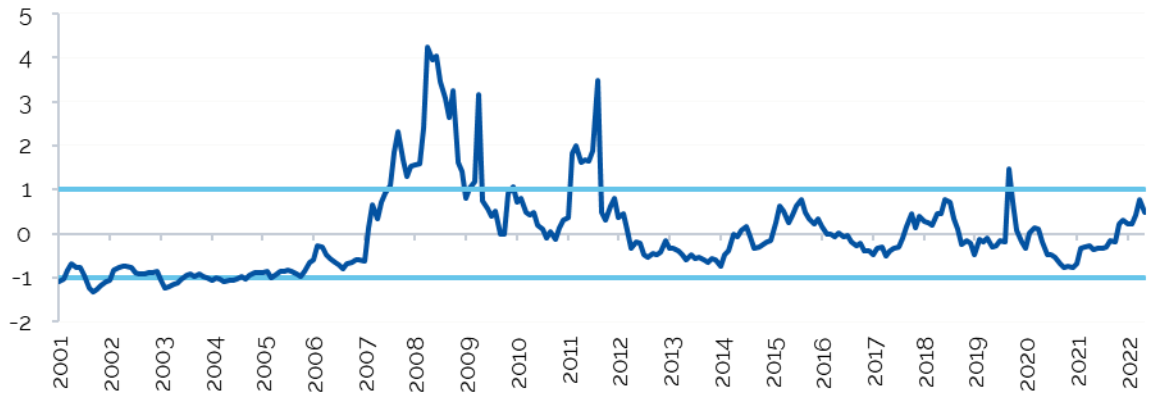
Our 2018 review of the WACC method introduced a decision to estimate both the long-term and current cost of debt using a trailing average approach, which updates the cost of debt annually over the regulatory period. As foreshadowed in our 2018 review of the WACC method, we employed a transition to trailing average in our calculation of SDP's WACC.

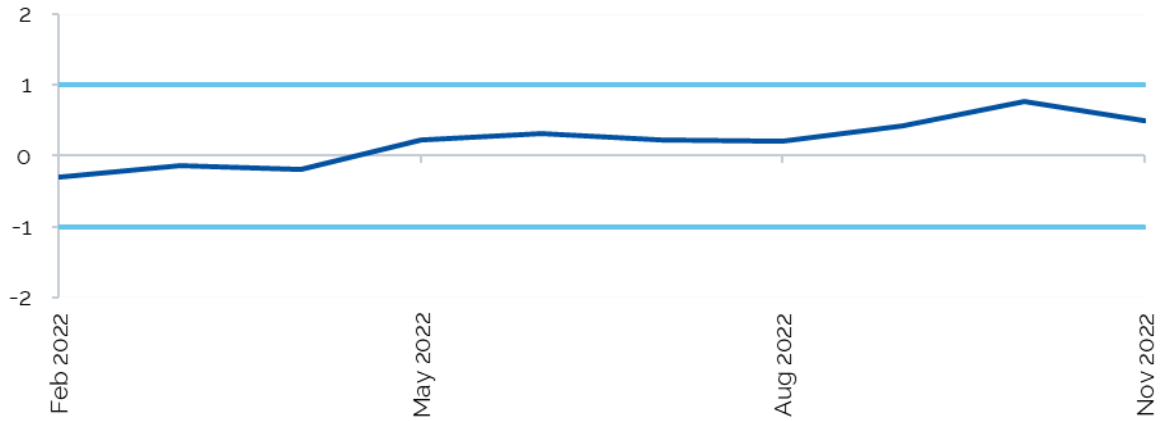
However, since SDP's 2023 price review was deferred by one year, we commenced the transition to the trailing average method from FY22. Therefore, in the calculation of SDP's 3.6% WACC for this Draft Report, SDP is taken to be in the second year of its transition to the trailing average cost of debt method.

D.7 Uncertainty index

We tested the uncertainty index for market observations to the end of November 2022, which is the latest data currently available, noting that one of the data inputs to our uncertainty index calculation has been unavailable since then. At the time, the uncertainty index was within the bounds of plus and minus one standard deviation of the long-term mean value of zero. Therefore, we maintained the default 50%/50% weighting between current and historic market estimates of the cost of debt and the cost of equity (Figure D.1).

Figure D.1 IPART's uncertainty index





Source: Refinitiv and IPART calculations

Appendix E

Glossary

E.1 Glossary

Term	Definition
2017 Determination or 2017 Review	PART determination on the maximum prices SDP may charge from 1 July 2017 to 30 June 2022.
2023 Determination	IPART determination on the maximum prices SDP may charge from 1 July 2023 to 30 June 2027.
Abatement mechanism	A pricing mechanism intended to create a financial incentive for SDP to maximise its production of drinking water when required under its operating rules.
AER	Australian Energy Regulator.
Annual Production Request	A request made by Sydney Water by 1 May each year for the supply of water from the SDP over the following financial year, of the type referred to in section 4.2.2 of the Decision Framework, and includes a six-monthly modification of such a request and any other request agreed between SDP and Sydney Water from time to time, provided that the modification: complies with the Decision Framework; and is notified by the Sydney Water to IPART and SDP, in writing, before it takes effect.
Building block approach	IPART's standard methodology to establish notional revenue requirement.
Consumer Price Index	The Australian All Groups Consumer Price Index number (Weighted average of eight capital cities) published by the Australian Bureau of Statistics.
Cost pass-through	Tool to allow businesses to pass some costs directly to customers within the determination period, under limited circumstances.
DPE	Department of Planning and Environment in New South Wales
EPA	Environment Protection Authority, the primary environmental regulator for New South Wales
Expenditure review	IPART's method for reviewing a business's expenditure to ensure customers are only paying efficient costs
Financial indifference principle	This is a pricing principle under Terms of Reference that means "the structure of prices should encourage SDP to be financially indifferent as to whether or not it supplies water. As such the structure of prices should comprise separate charges for the different water supply services."
FNC	Fixed Network Charge
IPART	Independent Pricing and Regulatory Tribunal of NSW.
IPART Act	The Independent Pricing and Regulatory Tribunal Act 1992, which establishes IPART's regulatory role and functions in New South Wales.
LGCs	Large-scale generation certificates.
LRMC	Long-run marginal cost.
ML	Megalitre.
Net present value (NPV)	The discounted value of a stream of benefits (or costs) taking into account the time value of money.
NRR	Notional Revenue Requirement, the revenue needed by a business to recover the cost of providing their services
O&M contract	Operating and maintenance contracts between SDP and Veolia (the plant operator).
Other purchasers	SDP's customers other than Sydney Water that SDP may agree to provide a service to in the future.
RBA	Reserve Bank of Australia.

Term	Definition
RECs	Renewable Energy Certificates.
Regulatory Asset Base (RAB)	Calculated as the economic value of all assets the business owns. The RAB is used as basis to calculate the revenue we provide to businesses in our determinations.
SDP	Sydney Desalination Plant Pty Ltd.
SDP's monopoly services	SDP's declared services referred to IPART under Terms of Reference are: (a) the supply of non-rainfall dependent water to purchasers, and (b) the making available of the desalination plant to supply non-rainfall dependent drinking water.
Sharing ratio	The fixed ratio of sharing of gains (or losses) between customers and SDP on the sale of SDP's surplus energy.
Stakeholder submission	Submission prepared by stakeholders (such SDP, government agencies advocacy groups, and other regulators) in response to our Issues Paper or Draft Report
Storm event	On 16 December 2015, SDP sustained significant damage from a storm event that occurred in areas across Sydney.
Sydney Water	Sydney Water Corporation.
Terms of Reference	Terms of Reference for Referral of Sydney Desalination Plant Pty Limited to IPART under section 52 of the Water Industry Competition Act 2006, 16 February 2012.
True-up	Mechanism to allow businesses to pass some unexpected costs to consumers in the following determination period. This is reserved for limited circumstances
Underspend	Actual expenditure savings in any year of a regulatory period compared to forecast expenditure. A negative underspend is an overspend.
Veolia	Veolia Water Australia Pty Ltd.
Water Supply Agreement	Commercial agreement between Sydney Water and SDP
Weighted average cost of capital (WACC)	The post-tax real cost of capital as determined by IPART as part of a regulatory review.
WIC Act	Water Industry Competition Act 2006 (NSW).
WIC Regulation	Water Industry Competition (General) Regulation 2021 (NSW).

1 Australian Water Association, Desalination Fact Sheet, p 3. Accessed 23 March 2023.
2 SDP webpage - our history. Accessed 24 March 2023.
3 Metropolitan Water, 2017 Metropolitan Water Plan, March 2017.
4 Department of Planning and Environment, Greater Sydney Water Strategy, August 2022, p 2.
5 Department of Planning and Environment, Greater Sydney Water Strategy, August 2022
6 IPART, 5-year review of the Sydney Desalination Plant's network operator's (10_010) and retail supplier's (10_011R) licences, August 2022.
7 The then Minister for Lands and Water, Variation of Network Operator's Licence - Notice of Decision - Sydney Desalination Plant Pty Ltd, September 2022.
8 Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 3.
9 Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 75.
10 The then Minister for Lands and Water, Hospitality and Racing, Letter to IPART re Amended Terms of Reference, 16 June
2022, p 1.
11 Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 75.
12 Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, pp. 25-26.

[13] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 7.
[14] Department of Planning and Environment, Submission to IPART, January 2023, p. 7,
[15] Sydney Water, Response to Issues Paper, p 11.
[16] SA Water, South Australia's water sources – The Adelaide Desalination Plant
[17] SA Water, South Australia's water sources – The Adelaide Desalination Plant
[18] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 6
[19] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 91.
[20] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 61.
[21] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 61.
[22] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 61.
[23] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 63
[24] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 63
[25] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 63
[26] The Minister for Lands and Water, Hospitality and Racing, Letter to IPART re Amended Terms of Reference, 16 June 2022, pricing principle 7A.
[27] The Minister for Lands and Water, Hospitality and Racing, Letter to IPART re Amended Terms of Reference, 16 June 2022.
[28] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 72.
[29] IPART, Review of water prices for Sydney Desalination Plant Pty Limited – Final Report, December 2012, p. 100
[30] IPART, Sydney Desalination Plant Pty Ltd - Review of prices from 1 July 2017 to 30 June 22 - Final Report, June 2017, p. 98.
[31] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 145.
[32] Sydney Water, Sydney's Desalination Plant Greenhouse Gas Reduction Plan, November 2009, p. 26
[33] Sydney Water, Response to Issues Paper, p 12.
[34] Sydney Water, Sydney's Desalination Plant Greenhouse Gas Reduction Plan, November 2009, pp. 18-22
[35] Sydney Water, Sydney's Desalination Plant Greenhouse Gas Reduction Plan, November 2009, p. 26
[36] The Minister for Lands and Water, Hospitality and Racing, Letter to IPART re Amended Terms of Reference, 16 June 2022, pricing principle 7A.
[37] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, pp 137-145.
[38] IPART, Final Technical Report - Review of WaterNSW's prices for the Murray River to Broken Hill Pipeline, November 2022, pp. 29-30
[39] Essential Services Commission, Melbourne Water Price Review 2021 Price Determination, June 2021, p. 18
[40] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 80.
[41] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 76.
[42] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 76.
[43] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 9.
[44] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 48-49
[45] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 153
[46] IPART, Sydney Desalination Plant Pty Ltd - Review of prices from 1 July 2017 to 30 June 22 - Final Report, June 2017, pp 94-95.
[47] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 157.
[48] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 157.
[49] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 9.
[50] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 51.
[51] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p.58.
[52] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 52.
[53] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 88.
[54] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 88
[55] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 164.

[56] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 92.
[57] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 96
[58] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 97.
[59] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 165.
[60] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 175.
[61] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 175
[62] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 175
[63] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, pp. 109-110.
[64] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 113.
[65] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, pp. 103-104.
[66] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 110.
[67] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, pp. 110-111.
[68] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 174.
[69] Sydney Water, Response to Issues Paper, p 40.
[70] IPART, Sydney Desalination Plant Pty Ltd - Review of prices from 1 July 2017 to 30 June 22 - Final Report, June 2017, p 117.
[71] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 188-189
[72] IPART, Review of our WACC method, February 2018.
[73] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 181.
[74] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, pp 178-179.
[75] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, pp 179-180.
[76] Sydney Water, SDP Price Review 2022-23 Response to IPART Issues Paper, p 38.
[77] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 190.
[78] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 190.
[79] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 115.
[80] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 190.
[81] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 14.
[82] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 114.
[83] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 189-190.
[84] Sydney Desalination Plant Pty Ltd, Appendix to SDP Pricing Submission, September, p 123-125.
[85] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 113-114.
[86] IPART, Sydney Desalination Plant Pty Ltd - Review of prices from 1 July 2017 to 30 June 22 - Final Report, June 2017, p 128.
[87] Department of Planning and Environment, Greater Sydney Water Strategy, August 2022, p 64.
[88] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 193.
[89] IPART, Energy Adjustment and Efficiency Carryover Mechanisms – Methodology Paper, June 2017, p 15.
[90] IPART, Energy Adjustment and Efficiency Carryover Mechanisms – Methodology Paper, June 2017, p 2.
[91] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 194.
[92] IPART, Sydney Desalination Plant Pty Ltd - Review of prices from 1 July 2017 to 30 June 22 - Final Report, June 2017, p 69.
[93] The then Minister for Lands and Water, Hospitality and Racing, Letter to IPART re Amended Terms of Reference, 16 June 2022, p 1.
[94] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 195-196.
[95] Sydney Desalination Plant Pty Ltd, Appendix to SDP Pricing Submission, September, p 127-130.
[96] Sydney Desalination Plant Pty Ltd, Appendix to SDP Pricing Submission, September, p 129-130.
[97] IPART, Review of WaterNSW's prices for the Murray River to Broken Hill Pipeline – Final Technical Report, November 2022, p 16.
[98] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p. 50-51.
[99] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 201
[100] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, pp 197-201.
[101] Sydney Water, Response to Issues Paper, p 36.
[102] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 71
[103] Sydney Water, Response to Issues Paper, p 36.
[104] IPART, Review of prices for Sydney Desalination Plant Pty Ltd – Public Hearing Transcript, February 2023, p 35.
[105] IPART, Review of prices for Sydney Desalination Plant Pty Ltd – Public Hearing Transcript, February 2023, p 36.

[106] IPART, Review of prices for Sydney Desalination Plant Pty Ltd – Public Hearing Transcript, February 2023, 36.
[107] IPART, Review of prices for Sydney Desalination Plant Pty Ltd – Public Hearing Transcript, February 2023, p 35.
[108] Atkins & Marsden Jacob Associates, Sydney Desalination Plant ("SDP") Expenditure Review – Draft Report, April 2023, p 51.
[109] IPART, Review of prices for Sydney Desalination Plant Pty Ltd – Public Hearing Transcript, February 2023, p 36.
[110] IPART, Sydney Desalination Plant Pty Ltd - Review of prices from 1 July 2017 to 30 June 22 - Final Report, June 2017, p 139.
[111] IPART, Review of water prices for Sydney Desalination Plant Pty Limited from 1 July 2012 – Final Report, December 2011, p 28.
[112] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 200
[113] Sydney Water, SDP Price Review 2022-23 Response to IPART Issues Paper, p 36.
[114] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 204.
[115] IPART, Review of our financeability test, November 2018, p 2.
[116] IPART, Review of our financeability test, November 2018, p 48.
[117] Australian Bureau of Statistics, Annual weight update of the CPI and Living Cost Indexes, 20 December 2022, Table 2 – CPI weights, September quarter 2022, Eight capital cities and Weighted average of eight capital cities.
[118] Australian Bureau of Statistics, Annual weight update of the CPI and Living Cost Indexes, 20 December 2022, Table 1 – CPI weights, September quarter 2022, Weighted average of eight capital cities, and Table 3 – CPI weights, September quarter 2022, Capital city percentage contribution to the Weighted average of eight capital cities.
[119] SDP, Our History, accessed on 20 March 2023.
[120] IPART, Review of water prices for Sydney Desalination Plant Pty Limited from 1 July 2012 - Final Report, December 2011, p 17.
[121] NSW Environmental Protection Agency, Licence summary for Veolia, accessed April 2023.
[122] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, pp 102-106.
[123] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 102.
[124] Sydney Desalination Plant Pty Ltd, Appendix to SDP Pricing Submission, September, p 51
[125] Sydney Water, Response to Issues Paper, January 2023, p 16.
[126] Sydney Water, Response to Issues Paper, January 2023, pp 16 and 34.
[127] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 106.
[128] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 102.
[129] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 103.
[130] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 107.
[131] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, pp 101-106.
[132] IPART, Delivering customer value, Our water regulatory framework– Final Technical Paper, May 2022, p 54.
[133] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, 16 September 2022, p 101.
[134] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 101.
[135] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, pp 101-106
[136] IPART, Review of WaterNSW's prices for the Murray River to Broken Hill Pipeline – Final Technical Report, November 2022, pp 37-38.
[137] AEMC, Removal of Unaccounted for Energy from liable load in the Retailer Reliability Obligation, Consultation paper, 28 October 2021, p 11.
[138] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 109.
[139] Sydney Water, Response to Issues Paper, January 2023, pp 16-17, 34-35.
[140] Sydney Desalination Plant Pty Ltd, Supporting Material 11-2 – Allowed rate of return for SDP (Frontier Economics), September 2022, p 10.
[141] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 11.
[142] Department of Planning and Environment, Response to Issues Paper, January 2023, p 8.
[143] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, pp 178-179.
[144] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, pp 179-180.
[145] Sydney Water, Response to Issues Paper, January 2023, p 38.
[146] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 114.
[147] Terms of reference – expansion of the Sydney Desalination Plant, 19 December 2019.
[148] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 114.
[149] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 48.
[150] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, pp 115 to 117.
[151] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, pp 48, 114 – 117.
[152] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 89.
[153] Department of Planning and Environment, Response to Issues Paper, page 8 and Sydney Water, Response to Issues Paper, p 29.
[154] Sydney Water, Response to Issues Paper, January 2023, p 29.
[155] Sydney Water, Response to Issues Paper, January 2023, p 13.
[156] Sydney Water, Response to Issues Paper, January 2023, p 14.
[157] Sydney Water, Response to Issues Paper, January 2023, p 30.
[158] IPART, Public Hearing (Transcript), 21 February 2023, p 28.
[159] IPART, Public Hearing (Transcript), 21 February 2023, p 28.
[160] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 91.
[161] Sydney Water, Response to Issues Paper, January 2023, p 31.

[162] Sydney Water, Response to Issues Paper, January 2023, p 31.
[163] Sydney Water, Response to Issues Paper, January 2023, p 15.
[164] Sydney Water, Response to Issues Paper, January 2023, p 31.
[165] Sydney Water, Response to Issues Paper, January 2023, p 15.
[166] Sydney Water, Response to Issues Paper, January 2023, p 14.
[167] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 90.
[168] Sydney Desalination Plant Pty Ltd, Response to Issues Paper, p A-9.
[169] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 14.
[170] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 88.
[171] Sydney Desalination Plant Pty Ltd, Appendix to SDP Pricing Submission, September, p 28.
[172] Sydney Water, Response to Issues Paper, January 2023, p 15.
[173] IPART, Water regulation - Draft Handbook, December 2022, pp 12 and 48.
[174] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, pp 91-92.
[175] IPART, Sydney Desalination Plant Pty Ltd - Review of prices from 1 July 2017 to 30 June 22 – Draft Report, March 2017, p 134.
[176] IPART, Review of water prices for Sydney Desalination Plant Pty Limited from 1 July 2012 - Final Report, December 2011, p 18.
[177] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 98.
[178] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, pp 97 and 98.
[179] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, pp 97 and 98.
[180] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, pp 93 and 94.
[181] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, pp 98 and 99.
[182] Sydney Water, Response to Issues Paper, January 2023, p 16.
[183] Sydney Water, Response to Issues Paper, January 2023, p 16.
[184] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 100.
[185] Sydney Desalination Plant Pty Ltd, Pricing Proposal to IPART – Pricing Submission, September 2022, p 100.
[186] IPART, Review of our WACC method, February 2018. pp 79-81.

ISBN 978-1-76049-632-6