REVIEW OF PRICES FOR HUNTER WATER

RESPONSE TO IPART DRAFT DECISIONS

Hunter Water

09 April 2020

EXECUTIVE SUMMARY

Hunter Water welcomes the release of IPART's Draft Report and Draft Determination (Draft Report and draft decisions) on water, wastewater, stormwater and associated prices to apply from 1 July 2020.

This executive summary captures the key points in our response to IPART's draft decisions.

We note that the public health crisis caused by COVID-19 pandemic has shifted the focus of many stakeholders since the Draft Report was published on 10 March 2020. We recognise the importance of people and businesses looking out for each other as we face and deal with the impacts of the pandemic.

Our top priority is to protect the safety, health and wellbeing of our people and our community. We are an essential service provider, and our community relies on us for relies on us to ensure essential water and wastewater services continue. This includes the provision of high quality drinking water and the effective collection, treatment and disposal of wastewater. Both are services are critical as we all take steps to combat the rapid spread of the virus.

We are taking the time to actively participate in this final step of the price review in the knowledge that the decisions taken now will prevail for four years – hopefully enduring much longer than the current crisis.

We are pleased that IPART's draft decisions reflect the need to increase expenditure to ensure that our service levels for customers do not deteriorate, particularly in the key areas of environmental compliance, public health, public safety and employee safety. This has been achieved with lower customer bills.

We support IPART's refinements to its regulatory model, such as those related to the allowance of discretionary expenditure and price structures. We maintain our support for a comprehensive 'step-back' review of IPART's regulatory model after the completion of the 2019-20 water reviews. This should focus on complementary reforms and incentive mechanisms, streamlining aspects of the process for future price reviews.

We are disappointed that IPART's draft decisions do not support the financial viability of Hunter Water. IPART's own financeability tests show that, in respect of the funds from operations (FFO) over debt ratio, Hunter Water would not be financeable under IPART's draft prices over the 2020-24 regulatory period, but would be financeable under Hunter Water's proposed prices. We observe:

- IPART has not followed the decision-making process for identifying a financeability concern that it established in 2018. This included an analysis of trends over the period, engagement with the regulated entity to identify the source of the financeability problem, and tailoring its response depending on the source of the problem. IPART has simply concluded that Hunter Water would face no financeability concerns.
- IPART has exercised judgement that is neither transparent nor replicable by stakeholders. This serves to undermine the integrity and predictability of the regulatory regime.
- IPART has presented no evidence that credit rating agencies such as Moody's have lowered target FFO/debt ratios since 2018.

Given that Hunter Water fails the financeability test in relation to the FFO/debt ratio, the possible solutions to that problem are clear. As IPART identified correctly in the Hunter Water draft determination, for a regulated entity, FFO represents the sum of the depreciation allowance and the after-tax return on equity. Too low an FFO/debt ratio means that:

1. The regulatory depreciation allowance is too low. This can be addressed by shortening assumed asset lives, thereby increasing the speed of the return of capital.
2. The real return on equity allowance is too low. This can be addressed by either increasing IPART's nominal WACC allowance or reducing the inflation estimate used to deflate the nominal WACC estimate. Lowering IPART's estimate of inflation (perhaps closer to current market expectations of inflation, which are materially lower than IPART's estimate at the present time) would increase the return on capital, thus providing Hunter Water with greater free cash flows.

This response to IPART's Draft Report sets out our position, rationale and evidence in support of four key changes to IPART's draft decisions. We request that IPART:

1. **Adopt the existing and new asset lives detailed our 2019 Pricing Proposal; and**
2. **Apply an end-of-period true-up of the WACC inflation estimate based on revised WACC method, and allow a separate stream of cash flows in the current period to smooth revenue and bill impacts over the two price periods; and**
3. **Reduce the 0.8% per year compounding ongoing efficiency adjustment to operating and capital expenditure; and**
4. **Adopt Hunter Water's updated forecast water sales volume**.

Return of assets

Hunter Water does not agree with IPART's draft decision to defer the correction of asset lives for key Hunter Water RAB sub-categories where there is clear evidence to support the adoption of alternative (shorter) asset lives. There are strong efficiency and equity grounds for using accurate economic lives of existing assets and new assets. Furthermore, getting the regulatory depreciation allowance closer to the underlying efficient cost would substantially improve Hunter Water's financial viability.

We request that IPART reconsider its draft decision *"not to accept Hunter Water's proposed asset lives, and instead use longer asset lives for new and existing categories".*

Hunter Water's first preference is for IPART to adopt Hunter Water's proposed asset lives for existing and new categories as well as the proposed regulatory treatment of the 'Corporate transition RAB' – as set out in Hunter Water's 2019 pricing proposal.

Should IPART not accept our proposed asset lives, for whatever reason, **Hunter Water's second preference** is for IPART to apply a 5 year life to corporate intangibles – to both the 'Corporate transition RAB' and new corporate intangible assets.

Hunter Water's position is supported by the following:

- There is strong evidence showing Hunter Water's proposed asset lives are reasonable when compared those of other water businesses, and where applicable, other utilities. It is also evidenced through comparison to Hunter Water's accounting and tax asset lives, which are externally reviewed and audited.
- IPART's draft report adopts asset lives for existing assets consistent with the recommendation in the 2016 expenditure review by consultants Jacobs. This analysis has fundamental flaws, including errors in the input data and calculations that led to a weighted average life of 62 years. Hunter Water's re-analysis of Jacobs' work supports a weighted average life of existing assets in the range of 31 to 50 years.
- There are legitimate reasons to apply different asset lives for new assets for Hunter Water and Sydney Water. In addition to different supply chain structures and different levels of financial leases, the utilities have quite different expenditure profiles. This is due to a range of factors including growth profiles, regulatory arrangements, system configurations and local geography.
- There is a substantial body of evidence from the water sector, energy sector and ATO justifying a 5 year life for corporate intangibles.

Rate of return – adjustment for inflation expectations

IPART's allows Hunter Water to earn a weighted average cost of capital on the regulatory asset base. IPART first calculates a nominal WACC estimate in accordance with the 2018 WACC method before applying a real WACC estimate using an estimate of inflation over the regulatory period.

IPART's current approach to forecasting future inflation produces an estimate close to 2.5% in all market conditions. This is because IPART takes the RBA 1-year inflation forecast and then assumes that inflation will be 2.5% in all remaining years of the regulatory period. In some market conditions, this approach will produce a reasonable forecast of future inflation. However, an estimate close to 2.5% is implausibly high in the current market conditions.

It is important to note that this problem does not arise due to any action of the regulated entity, or due to any commercial risk that would be faced by unregulated business. Rather, it arises solely from the regulator adopting a poor forecast of future inflation and the fact that the regulatory model (inconsistently) uses different figures in the two steps where inflation appears (WACC method and RAB indexation).

Hunter Water has modelled the difference between:

- Allowed revenues using the parameters adopted in the draft decision, including forecast inflation of 2.3%; and
- Allowed revenues holding all other parameters fixed but using forecast inflation of 1% (which exceeds the estimates from market data above).

Hunter Water estimates the difference in revenues to be $49 million in 2020-21 increasing to $54 million in 2023-24. The sum over the four-year regulatory period is $206 million. These impacts on revenues are material by any metric.

Hunter Water submits that IPART should conduct a formal comprehensive review of its approach to regulatory inflation as soon as is feasible. The review should, at a minimum, consider (a) IPART's approach to forecasting future inflation and (b) IPART's approach of deriving the real WACC using its forecast of inflation while indexing the RAB using observed outturn inflation. Hunter Water looks forward to actively engaging in that review process.

The under-recovery caused by the use of an implausible inflation forecast can be quantified, at the completion of the forthcoming regulatory period, by comparing:

- The allowed revenues in each year of the regulatory period, computed using the current IPART inflation forecast of 2.3%; with
- The allowed revenues in each year of the regulatory period, computed using observed outturn inflation.

An ex-post true-up ensures that the regulated entity is made whole in a net-present-value sense. However, it does not provide any additional cash flows during the forthcoming regulatory period as the true-up occurs ex-post. There are three problems with a pure ex-post true-up:

- A pure ex-post true-up does not address any financeability concerns that may arise during the forthcoming regulatory period;
- A pure ex-post true-up would be inconsistent with the regulatory principles of inter-generational equity and setting efficient prices in every regulatory period;
- A pure ex-post true-up would result in a price shock in the subsequent regulatory period if a material amount of under-recovery is added to what is to be recovered over that period. Thus, prices can be smoothed by advancing some of the ex-post true-up into the forthcoming regulatory period.

Hunter Water considers that the evidence set out in this response supports the use of an inflation forecast of 1.7% per annum for the purpose of accelerating some of the ex-post true-up into the forthcoming regulatory period. In this scenario, the average residential customer bill would:

- Increase by approximately $94 per year over the forthcoming regulatory period; and
- Increase by approximately $125 per year over the subsequent regulatory period.

Expenditure adjustment for ongoing efficiency

IPART used data from a Productivity Commission 2015 bulletin to infer that urban water utilities in NSW should be able to achieve a 0.6% to 0.8% annual multi-factor productivity (MFP) improvement.[1] IPART chose a 0.8% efficiency factor to apply an adjustment to both capital and operating expenditure. IPART's approach is additive across the four-year regulatory period, resulting in a substantial reduction to all expenditure in the final year.

IPART's expenditure review consultant, Aither, used the same Productivity Commission bulletin, along with other in-house analysis, to support its recommended efficiency target of 0.4% per annum – applied to controllable operating expenditure only.

Hunter Water challenges IPART's decision to use economy-wide data rather than currently available industry specific data. The Productivity Commission estimate draws on vastly different industries, averaging MFP estimates for all sectors, including those where information technology has had a far bigger impact on efficiency levels.

The Productivity Commission has published water utility specific MFP data. This data shows much lower estimates of productivity growth, including negative rates in some periods.

Hunter Water requests that IPART re-instate Aither's recommendation of a 0.4% continuing efficiency factor applied to operating expenditure.

If IPART is to estimate efficiency adjustments across the water sector, we would welcome a separate review outside the price review process. This would give water utilities and stakeholders the opportunity to examine the full body of MFP literature and factors unique to the water sector.

Demand forecasts

Hunter Water's demand forecast underlying IPART's Draft Report no longer reflects our best estimates due to material developments since September 2019. We propose an update to the baseline demand forecast taking into account learnings from the recent period of drought and water restrictions.

Since making this demand forecast, Hunter Water's storages continue to deplete as drought conditions worsened. The NSW Government introduced water restrictions in the Lower Hunter for the first time since the early 1990s. Level 1 water restrictions were first implemented on 16 September 2019 and progressed to Level 2 restrictions on 20 January 2020. Above average rainfall in February provided a welcome boost to storage levels and allowed a return to Level 1 restrictions on 24 February 2020.

[1] IPART, 2020(a), p160.

Hunter Water's November 2019 demand forecast does not incorporate learnings from this period of restricted demand.

Hunter Water proposes to lower its demand forecast for the next regulatory period, based on the assumption that some of the observed changes in demand will persist once restrictions are lifted. The proposed demand is 4 to 5% lower overall across the price path, compared to the previous forecast.

The proposed reduction is comprised of:

- An approximately 5% reduction in non-residential demand quantified by measured savings from 'water efficiency management plans' and fixing leaks on non-residential customer properties – some of these savings deplete over time. This reduces total demand by approximately 1.5% to 2% (as 40% of total demand is non-residential).
- The remaining observed demand reduction (about 3%) is attributed to residential (and non-residential) behaviour change. The assumptions about the persistence of demand changes post-restrictions are supported by evidence from Sydney's experience following the millennium drought where demand continued at a similar level and did not rebound to the level observed prior to restrictions.

Revenue and cost impacts associated with water restrictions

Hunter Water proposed a modified demand volatility adjustment mechanism in its response to IPART's Issues Paper. The modified mechanism would have provided a degree of protection against water sales volatility within the regulatory period during periods of water restrictions. While IPART did not accept our proposal, the draft decisions on water prices increased our reliance on revenue from water sales.

IPART's Draft Report for Sydney Water included a dynamic water usage price – an uplift to the usage price during periods of water restrictions. The dynamic usage price would enable the recovery of drought-related operating costs and foregone water sales during periods of water restrictions.

This response requests that IPART implement a similar arrangement for Hunter Water. We have provided information on unbudgeted operating costs incurred in responding to drought during 2019-20. We also provide estimates of the likely reduction in water sales, below average levels, when water restrictions apply, as well as an estimate of the likely change in demand in response to a higher usage charge.

Hunter Water proposes a drought water usage charge of $3.00 per kL (2019-20), around $0.55 per kL higher than the standard usage charge. The higher usage price would only apply when water storages fall below 60%, and remain in place until storages exceed 70%.

COVID-19 impacts

The COVID-19 pandemic may affect our forecast demand and new connection numbers. Most immediately, we expect a material reduction in the demand for services by non-residential customers and a sharp increase in the incidence of financial hardship across the entire customer base.

However, it is not possible to accurately forecast the impact at this time given the level of uncertainty. We provide connection and demand forecast scenarios relating to possible social and economic impacts of the viral pandemic. These are high-level scenarios drawing on available published information and Hunter Water's best estimates at the current time. We will work with the Secretariat over the coming weeks to refine these numbers.

Hunter Water expects that COVID-19 pandemic to adversely impact economic activity, employment and household disposable income in the Lower Hunter. This likely to result in a material increase in the number of customers experiencing financial hardship. We provide high-level scenarios that explore possible impacts and explore possible adjustments to our working capital allowance - specifically, an increase in the number of 'days of delay' parameter used to calculate receivables. Again, we intend to work with the Secretariat to refine estimates and assess financial impacts.

Trade wastewater charges

Since our 2019 Pricing Proposal, we have undertaken an extensive sampling, inspection and engagement program with trade wastewater customers. We undertook this program of work for two reasons:

- To confirm that the volume and strength of customer's discharge is representative of their current operations – this will help ensure customers are being charged as accurately as possible.
- To help identify ways that the volume and strength could be lowered, leading to reduced bills and, for some customers, mitigation of potential bill increases from our proposed new charges.

We propose transitioning to our new trade wastewater charges by deferring the start date to 1 July 2021. This will allow more time for mitigation measures to reduce bills and allow businesses the time to adjust and improve on-site practices. While not part of our initial rationale, the COVID-19 pandemic and the forced closure of businesses is impacting specific trade waste customers. Allowing more time is considered appropriate in the circumstances.

Contents

1. Introduction

Hunter Water welcomes the opportunity to respond to the Independent Pricing and Regulatory Tribunal's (IPART) Draft Determination and Draft Report, *Review of prices for Hunter Water Corporation from 1 July 2020* (Draft Report).

IPART's March 2020 Draft Report sets out draft decisions on the prices that Hunter Water can charge. It also provides reasons for these decisions, including IPART's consideration of Hunter Water's proposal, public feedback and certain matters that IPART is required to consider under the *Independent Pricing and Regulatory Tribunal Act 1992*.

Hunter Water's response to the Draft Report focuses on a subset of draft decisions and those issues on which IPART has specifically requested commentary. This response follows the same structure as IPART's draft report, with an additional section describing how the draft decisions affect the financial viability of Hunter Water.

2. Financial position

2.1 Impacts of draft prices on financial sustainability

As part of the draft decisions, IPART assessed whether Hunter Water would be financeable over the regulatory period, under the draft prices it had set.

IPART's analysis indicated that Hunter Water's FFO/debt ratio would fall below the FFO/debt target set by IPART in 2018, when it last reviewed its financeability test framework, in every year of the 2020-24 regulatory period (Table 2.1). The failure occurs in both the benchmark test and the actual test. Despite this finding, IPART concluded that Hunter Water would not face a financeability concern under the regulated prices set by its draft determination.

Table 2.1 Financeability test results based on IPART's draft prices

	2020-21	2022-23	2022-23	2023-24
Interest cover				
Benchmark test	4.4	4.2	4.2	4.3
- Does it meet the target?	✓	✓	✓	✓
Actual test	2.0	1.9	1.9	1.9
- Does it meet the target?	✓	✓	✓	✓
FFO over debt				
Benchmark test	6.8%	6.4%	6.4%	6.7%
- Does it meet the target?	×	×	×	×
Actual test	5.0%	4.7%	4.8%	5.0%
- Does it meet the target?	×	×	×	×
Gearing				
Benchmark test	60%	60%	60%	60%
- Does it meet the target?	✓	✓	✓	✓
Actual test	51%	52%	52%	51%
- Does it meet the target?	✓	✓	✓	✓

Source: IPART, 2020(a), Table 12.4, p. 133.

Hunter Water engaged Frontier Economics to provide expert advice on IPART's stated opinion on the application of the 2018 Financeability Test to Hunter Water's draft prices, as set out in the Draft Report. Specifically, we asked Frontier to:

- review the financeability analysis that IPART has undertaken in its draft determination,
- consider whether IPART's application of its financeability tests is consistent with the financeability test approach established by IPART in 2018, and
- to provide an opinion on the reasonableness of the conclusions reached by IPART on Hunter Water's financeability over the 2020-24 regulatory period.

2.1.1 Key findings

Hunter Water concurs with each of the following key findings in the advice provided by Frontier Economics (see Appendix A):

- IPART's own financeability tests show that, in respect of the FFO/debt ratio, Hunter Water would not be financeable under IPART's draft prices over the 2020-24 regulatory period, but would be financeable under Hunter Water's proposed prices.
- IPART has not followed the decision-making process for identifying a financeability concern that it established in 2018.

  Under its 2018 methodology, IPART committed:

  - To analyse trends in the financial ratios over the regulatory period if the business's financial ratios fell short of the target in any year—with a view to assessing whether the ratios are likely to show sufficient improvement over the regulatory period.

    In Hunter Water's case, under IPART's draft prices:

    - The FFO/debt ratio falls below the target ratios (7.0% under the benchmark test and 6.0% under the actual test) set by IPART in 2018 in every year of the forthcoming regulatory period;
    - The FFO/debt ratio is expected to be lower at the end of the regulatory period (6.7%) than at the start of the regulatory period (6.8%) under the benchmark test;
    - The FFO/debt ratio is expected to be the same at the end of the regulatory period (5.0%) as at the start of the period under the actual test. This is materially below the 6.0% target ratio.

    Hence, under IPART's own analysis, there is no evidence of *any* improving trend in Hunter Water's FFO/debt ratio over the period, under IPART's draft prices. By contrast, under Hunter Water's proposed prices, the FFO/debt ratio would start below the target ratios in the first year of the regulatory period, and then improve in every year thereafter. IPART's draft determination does not set out any trend analysis of this kind.
  - That it would reassess its pricing decision if the trends in the regulated business's financial ratios under the benchmark test do not show sufficient improvement over the regulatory period. IPART has not done this—it has simply concluded that Hunter Water would face no financeability concerns under the benchmark test.
  - That it would engage with the regulated business to identify the source of the financeability problem, if the trends in the regulated business's financial ratios under the actual test do not show sufficient improvement over the regulatory period. IPART would then tailor its response depending on the source of the problem. IPART has not done this either—IPART has simply concluded that Hunter Water would face no financeability concerns under the actual test.
- IPART has exercised judgement that is neither transparent nor replicable by stakeholders. Moreover, the exercise of that judgment is inconsistent with the framework and approach that IPART set out in its 2018 review of its financeability tests. Whereas stakeholders had an opportunity to make submissions into IPART's 2018 review of its financeability tests, there has been no opportunity for stakeholders to make submissions in relations to IPART's proposed departure from the outcomes of that review. This serves to undermine the integrity and predictability of the regulatory regime.

- IPART has suggested that the target FFO/debt ratio would be lower today than the target ratio it established in 2018, because the FFO/debt ratio for a regulated business depends on (amongst other things) the allowed return on equity, and IPART's estimate of the required return on equity has declined since 2018 as interest rates in capital markets have fallen. We agree that, other things being equal, the *computed* FFO/debt ratio for a regulated water business would decline as the allowed return on equity declines – this follows mechanically from the algebra set out in IPART's 2018 final report on its review of its financeability tests. However, we see no reason why the *target* FFO/debt ratio (which represents the cash flow headroom required by businesses in order to meet their existing debt obligations) should fall in line with market rates. IPART has not identified any reason why a reduction in required equity returns would result in businesses requiring less cash flow to maintain the same level of creditworthiness. Further, IPART has presented no evidence that credit rating agencies such as Moody's have, since 2018, lowered the target FFO/debt ratios that they use when determining the financeability of water utilities.
- IPART has also suggested that because the building block approach it used to set the notional revenue requirement for Hunter Water *aims* to allow sufficient cash flows for a business to meet its debt obligations and to pay equity investors, the use of such a building block approach ensures that Hunter Water will be financeable over the period. If that were true, there would seem to be no role at all for financeability tests within the regulatory process, since *any* application of a building block method would guarantee the regulated business's financeability. Clearly, such reasoning is logically flawed. As IPART itself explained during its 2018 review of its financeability tests, the purpose of a financeability test is to check whether the regulatory allowances derived using a building block approach *are* sufficient to ensure the financeability of the business. In Hunter Water's case, IPART seems to have simply assumed away a financeability problem that evidently exists, according to the test that IPART itself devised in 2018.

Given that Hunter Water fails the financeability test in relation to the FFO/debt ratio, the possible solutions to that problem are clear. As IPART identified correctly in the Hunter Water draft determination, for a regulated firm, FFO represents the sum of the depreciation allowance and the after-tax return on equity. Too low an FFO/debt ratio means that:

1. The regulatory depreciation allowance is too low. This problem could be addressed by shortening assumed asset lives, thereby increasing the speed of the return of capital. This matter is discussed further in section 5.2; and/or
2. The real return on equity allowance is too low. This problem could be addressed by either increasing IPART's nominal WACC allowance or reducing the inflation estimate used to deflate the nominal WACC estimate. Lowering IPART's estimate of inflation (perhaps closer to current market expectations of inflation, which are materially lower than IPART's estimate at the present time) would increase the allowed real (cash) return on capital, thus providing Hunter Water with greater free cash flows. This, in turn, would increase the FFO/debt ratio. This matter is discussed further in section 5.1.

The enhancement of transparency, predictability and replicability was an important objective of IPART's 2018 review of its financeability tests. However, IPART's first application of its revised financeability tests has undermined rather than enhanced transparency, predictability and replicability. This does not serve to support the creditworthiness or financeability of the businesses regulated by IPART.

At the conclusion of the 2018 review of IPART's financeability tests, it was widely understood by stakeholders that if a regulated business's forecast credit metrics fell persistently (over the regulatory period) below the target ratios set by IPART, and showed no material improving trend, that would be strong evidence of a financeability concern.

Moreover, stakeholders understood that if a business's forecast metrics under the benchmark test fell consistently below the target ratio over the regulatory period, with no sign of a material improvement in trend, that would be compelling evidence that the proposed regulatory allowances were insufficient to support the financeability of the business. The Hunter Water draft determination has proved stakeholders' understanding to be incorrect on both counts.

If IPART decides to maintain its conclusion that Hunter Water faces no financeability concerns over the 2020-24 regulatory period, despite its own financeability tests providing seemingly clear evidence to the contrary, then for the avoidance of further doubt, it would be helpful if IPART could clarify the precise circumstances in which it would in future conclude that a business faces a financeability concern.

3. Form of regulation

Issue	IPART's decision	Our view	Comment
Length of Determination	4-year determination period	✓	Hunter Water supports this draft decision.
Demand volatility	Apply the demand volatility adjustment mechanism (DVAM) for actual water sales revenue from 2016-2019. Maintain the DVAM for the 2020 determination period. Reject Hunter Water's proposed modified DVAM that was to be triggered by drought restrictions.	?	We support retention of a DVAM. Hunter Water accepts IPART's draft decision to reject our proposed modified DVAM however, considers that it is unable to bear the risk of additional costs and reduced demand during drought given the reduced financeability arising from IPART's other draft decisions. We propose that this risk be addressed through flexible pricing during drought, consistent with IPART's draft decision for Sydney Water (see section 7 for further details).
Drought cost pass- through mechanism	No decision on pass-through mechanism.		
Efficiency carryover mechanism (ECM)	Maintain an ECM for operating expenditure, and not extend it capital expenditure.	✓	Hunter Water supports this draft decision.
Unregulated pricing agreements	Maintain existing ability to enter into unregulated pricing and service level arrangements with large customers, and seek comment on how the term large 'customer' should be applied.	✓	We support extension of the eligibility criteria to include customers whose combined water usage across multiple properties meets the threshold.

3.1 Unregulated pricing agreements

Hunter Water supports retaining the option to enter unregulated pricing agreements with large non-residential customers. Neither Hunter Water nor the non-residential customer is obliged in any way to enter an agreement, but may voluntarily choose to do so if there are net benefits for both parties.

Hunter Water has only entered into one unregulated pricing agreement thus far, with Central Coast Council for the transfer of bulk water between the utilities. The agreement sets a transfer price that is lower than IPART's determined price and more closely reflects the marginal cost to both parties of treating and transferring water. Sharing water in line with the Hunter Water-Central Coast Council 2006 transfer agreement provides significant water security benefits to both regions.

Hunter Water has about 300 connected properties that use more than 7.3 ML per annum. These properties are owned by about 250 different customers, noting that some customers own multiple higher-use properties.

IPART's draft report suggests expanding the eligibility criteria to enter into negotiated service agreements for customers whose combined water usage across multiple properties exceeds 7.3 ML per annum in total. Based on our initial analysis, this change would cover an additional 25 to 30 customers.

We support IPART's proposal to extend the definition. These properties are owned by business entities with an ability to understand and negotiate commercial contracts. The change would modestly expand the number of eligible customers, and increase the likelihood of finding and executing mutually beneficial agreements. The total number of eligible customers would remain at an administratively practical number.

4. Expenditure

Hunter Water participated in a comprehensive and exhaustive expenditure review with IPART's consultants throughout the second half of 2019. Hunter Water devoted considerable time and resources to providing and presenting information, responding to information requests and challenging the consultant's assessments. The expenditure review included opportunities to comment on early draft reports and a final report.

Hunter Water does not intend to re-contest specific matters relating to the consultant's judgement calls on proposed operating expenditure and capital projects. Our response focuses on two key concerns where IPART's draft report goes beyond consultant's recommendations: the application of a higher and broader continuing efficiency factor (section 4.1) and the draft decisions on useful asset lives (discussed in section 5.2).

Issue	IPART's decision	Our assessment	Comment
1. Ongoing efficiency adjustment	Apply a continuing efficiency adjustment of 0.8% per annum.	✗	We consider this adjustment to be excessive and disagree with IPART's application of the multi-factor productivity data. Use of industry-wide data instead of utility-specific data is inappropriate. Productivity growth is likely to slow over the next year and possibly beyond. We suggest that IPART does a review of efficiency adjustments separately outside of a price review, with all metropolitan public water utilities contributing.

4.1 Adjustment for ongoing efficiency improvements

IPART used data from a 2019 Australian Productivity Commission (APC) bulletin to infer that urban water utilities in NSW should be able to achieve a 0.6 to 0.8% annual multi-factor productivity (MFP) improvement.[2] IPART chose a 0.8% efficiency factor to apply an adjustment to both capital and operating expenditure, additive across the four-year regulatory period.

IPART's expenditure review consultant, Aither, used the same APC bulletin, along with other in-house analysis, to support its recommended efficiency target of 0.4% per annum – applied to controllable operating expenditure only.

Productivity measurement is a complex area with significant issues and data limitations.[3] Hunter Water is of the view that the Productivity Commission data in question was misapplied and if it is to be used as the basis for future efficiency adjustments across the water sector, a special review is necessary to examine the full body of MFP literature, ensuring the validity and reliability of inputs are maintained. This review should take place outside of a price review process and allow input from water utilities, other regulated entities and specialists in this field.

[2] IPART, 2020(a), p160.
[3] Productivity Commission, 2015.

We consider the 0.8% per annum efficiency adjustment to be excessive:

- Applying economy-wide multi-factor productivity data to Hunter Water is not appropriate - utility industry or water industry specific data, which demonstrate much poorer productivity performance, would be more appropriate.
- IPART discounts productivity data from 2003 to 2012. It is not justified to remove periods of low productivity growth in this way. There is evidence to suggest the next price period will see similarly low productivity growth. The effect of the ongoing COVID-19 pandemic only adds to this outlook.
- IPART's approach double-counts potential efficiency gains – Hunter Water has already built-in efficiency improvements over the next price period.
- Continuing to apply a 0.8% ongoing efficiency adjustment additively over a series of price reviews would clearly reduce Hunter Water's operating expenditure to unrealistic and unsustainably low levels.

4.1.1 Industry specific data may be more appropriate than economy-wide

Hunter Water considers that it is incorrect to use economy-wide data rather than available, industry-specific data to apply an efficiency adjustment. The economy-wide data includes industries vastly different from Hunter Water's. The applied datasets were also representative of a very long period of time, up to 40 years, and therefore do not reflect the fact that the Australian economy and utilities industry has changed dramatically over that period. Long-term average figures are an inappropriate marker for reasonable future efficiency targets.

The Productivity Commission has published water utility specific MFP data. This data shows that the water sector has not seen high levels of productivity growth in the past and is certainly not represented accurately by the multi-industry or economy-wide data that IPART has relied on to set the 0.8% efficiency factor.

IPART formed the view that the low MFP growth for utility industries is *"probably not reflective of an efficient frontier*" and *"likely reflected the particular issues that have been experienced in Australia over these time frames, especially in the energy sector, which has seen significant restructuring and is not considered to be performing well."*[4]

Hunter Water has not seen evidence that firms behind the efficient frontier (with 'catch-up efficiency' gains to be made) necessarily experience lower MFP growth than firms on the efficiency frontier ('continuing efficiency'). This is an empirical question that could be explored during a special review. We would expect that, similar to national economies, firms that are below their productive potential may experience rapid productivity growth as they catch-up to their potential and can make productivity gains that do not rely on ongoing technological and organisational change.[5]

Further, the economy-wide number IPART has used includes firms that are not on the efficient frontier. It is not obvious why this number would better represent potential *continuing* efficiency gains for Hunter Water.

IPART's statement about performance in the energy sector implied that energy may have been dragging down the utility-wide industry MFP data. A 2012 APC report shows that water utility productivity growth was low over the full period (1974-75 to 2009-10) and clearly did not outperform the energy sector (see Table 4.1).[6]

[4] IPART, 2020(a), p. 162.
[5] Productivity Commission, 2015, p. 2.
[6] Productivity Commission, 2012, p. 20.

Table 4.1 Annual average growth rates in utilities MFP, by subdivision and time period

Sector	Moderate MFP growth phase (1974-75 to 1985-86)	Rapid MFP growth phase (1985-86 to 1997-98)	Negative MFP growth phase (1997-98 to 2009-10)	Full period (1974-75 to 2009-10)
Electricity supply	2.0	4.9	-2.7	1.3
Gas supply	17.5	2.0	-1.5	5.4
Water supply, sewerage and drainage	-0.7	3.0	-4.3	-0.7

Source: Productivity Commission, 2012.

The APC report describes several measurement issues and considerations in interpreting economy-wide and industry MFP data. [7] This further highlights a need to better understand productivity growth (and measurement) in the water sector as part of a special review instead of misapplying economy-wide data which may or may not be at all reflective of the environment that Hunter Water operates within and what can be reasonably expected in terms of future efficiency gains.

4.1.2 Discounting data between 2003 to 2012

IPART discounted the observed low productivity growth from 2003 to 2012 because it may *"reflect turmoil in financial markets rather than the productivity that would be expected in more normal circumstances"*.[8] IPART points out the influence of poor MFP results in the period before and immediately after the GFC. Hunter Water questions whether 'financial markets turmoil' existed for most of the 2003 to 2012 period or just a fraction. We suggest there were further explanatory factors beyond this simple interpretation.

It is important to consider the entire business cycle, including both upturns and downturns, as Hunter Water operates throughout the entirety of a business cycle, not just the upturns. Endeavour Energy, in a presentation to the Australian Energy Regulator in 2018, observed that "*it is asymmetrical to only capture productivity upswings and exclude the downswings that made them possible. This does not lead to a view of net productivity gains… an inaccurate or unrealistic productivity factor will distort a networks incentives and result in poor long term outcomes*".[9]

We agree with IPART's approach to consider growth cycles when estimating productivity improvements over the next four years in the water sector. This is more valid than relying on year-to-year fluctuations or long-term data that may include time periods with materially different conditions including technological and regulatory structure.

The Productivity Commission's 2019 bulletin observes that sluggish annual measured productivity growth "*continues the recent trend of weakening productivity growth since the end of the investment phase of the mining boom in 2012-13*"[10] – suggesting we are in a slower growth cycle. However, it is difficult to know how this data should be applied to Hunter Water as a continuing efficiency adjustment.

[7] Ibid, p. XVI.
[8] IPART, 2020(a), p. 163.
[9] Endeavour Energy, 2018, slides 9, 14.
[10] Productivity Commission, 2019, p. 1.

The Productivity Commission 2011 staff working paper provides guidance on identifying industry-level MFP growth-cycles, pointing out that it is "*potentially misleading to use MFP cycles for the aggregate market sector for analysing industry MFP over time, as the influences affecting deviations from trend vary across industries*".[11]

Given that the advice of the Productivity Commission potentially conflicts with IPART's use of productivity data and decisions to discount the impact of certain periods of the market cycle, it is inappropriate to use such analysis as the basis for a significantly high efficiency target without proper review.

4.1.3 COVID-19 impacts on productivity

Australian goods and services markets and are in a disaster state right now due to the Covid-19 pandemic and associated lockdown restrictions. It seems unreasonable to exclude productivity data from 2003 to 2012 on the basis that it reflects "markets in turmoil" and does not reflect the "*productivity that would be expected in more normal circumstances*".[12] Hunter Water is currently being forced to operate in economic conditions which are very similar to that experienced during the GFC and therefore this exact time period is very appropriate in estimating future efficiency capabilities.

The OECD has highlighted that "*persistent weak productivity growth and investment*"[13] is a very likely outcome of the COVID-19 pandemic. PwC recently estimated negative 0.57% capital productivity and a one-third reduction in labour output as a likely outcome, economy wide.[14]

Hunter Water accepts that these forecasts are highly uncertain, and were not obvious at the time IPART formed its draft decisions on the 0.8 efficiency factor. We contend that productivity can only move one way over the next year and beyond – a downwards shift. The COVID-19 pandemic may support applying a materially lower continuing efficiency factor across the next regulatory period in order to ensure that IPART's decisions accurately reflect the environment that Hunter Water will be operating within and do not unnecessarily jeopardise our ability to deliver high quality services and investment at a time where revenue and cash flows may already be uncertain.

4.1.4 Existing in-built efficiency targets

Hunter Water has identified $49.2 million of capital investment under the umbrella of business efficiency improvement throughout the 2020-24 price period.[15] Efficiency savings from this investment have been included in our projected costs over the next period. For operating expenditure, Hunter Water has already built-in savings of approximately 1.9% across the price path.[16] Applying an additional 0.8% efficiency adjustment to operating and capital costs would double-count productivity gains.

[11] Productivity Commission, 2011, p. XII.
[12] IPART, 2020(a), p. 163.
[13] OECD, 2020, p. 6.
[14] PwC Australia, 2020, p. 5.
[15] Hunter Water, 2019(b), p. 65.
[16] Hunter Water, 2019(a), p. 22.

5. Notional revenue requirement

Issue	IPART's draft decision	Our view	Comment
Return on assets	Set the WACC at 3.2%. (Hunter Water used a WACC of 4.1% in its proposal using our standard methodology).	✗	We support IPART using its standard methodology to calculate the WACC, applying updated market information, with the exception of WACC inflation forecast. We note that the uncertainty index should be triggered under current market conditions.
Regulatory depreciation	Regulatory depreciation allowance over determination period of $269 million. Reduction of $20 million compared to Hunter Water's proposal.	✗	IPART's draft decisions to disaggregate Hunter Water's existing four RABs into 21 smaller RABs is an important first step towards addressing long-standing deficiencies in calculating the regulatory depreciation allowances and ensuring today's customers pay as assets deteriorate. However, IPART has adopted unrealistically high asset lives for both existing and new assets. Adjustments towards more appropriate asset lives cannot wait until 2024-25 and beyond. Hunter Water's financeability is at risk in the near term.
Non-regulated revenue	To allow Hunter Water to retain the revenue from least-cost recycled water schemes where water sales displace potable water sales. Where no potable water is displaced, to share with customers 50% of the revenue. To share with customers 10% of the revenue from the sale of bio-banking credits.	✓	Hunter Water supports IPART's draft decisions.

5.1 'Return on assets': WACC inflation forecast

5.1.1 The role of inflation in IPART's regulatory approach

IPART's approach to the allowed return on assets effectively involves the following steps:

- Estimate the required return on equity and the required return on debt in nominal terms and combine to produce a nominal weighted-average cost of capital (WACC);
- Deduct from the nominal WACC an estimate of **forecasted** inflation to produce an estimate of the real WACC;
- Set the allowed return on assets based on the real WACC. This is the **cash return** that is available to investors and is paid by **current customers**;
- Increase the regulatory asset base (RAB) each year according to observed inflation. This is a **non-cash return** that is paid by **future customers**. The increase in the RAB represents the NPV of higher future payments to be paid by future generations of customers.

5.1.2 The problem with IPART's current regulatory approach in the prevailing market conditions

IPART's current approach to forecasting future inflation produces an estimate close to 2.5% in all market conditions. This is because IPART takes the RBA 1-year inflation forecast and then assumes that inflation will be 2.5% in all remaining years of the regulatory period. By construction, the geometric mean of this series of figures will always be close to 2.5%. In some market conditions, this approach will produce a reasonable forecast of future inflation. However, as demonstrated below, an estimate close to 2.5% is implausibly high in the current market conditions.

When the regulatory inflation forecast is materially higher than any reasonable estimate of future inflation, the result is permanent under-compensation for the regulated entity. For example, the IPART approach currently produces an inflation forecast of 2.3% p.a. over the forthcoming regulatory period. Thus, the estimated nominal WACC is reduced by 2.3% to produce an estimate of the real WACC, which in turn determines the cash return over the forthcoming regulatory period. RAB inflation is then performed using actual realised inflation, which is effectively certain to be materially lower than 2.3% in the prevailing market conditions.

If the reduction for inflation in one step of the process is materially higher than the addition of inflation in the subsequent step, the business will be under-compensated and the NPV=0 Principle will be violated. Moreover, this under-compensation is permanent – there is no feature in IPART's regulatory framework to correct for this under-compensation.

It is important to note that this problem does not arise due to any action of the regulated business, or due to any commercial risk that would be faced by unregulated business. Rather, it arises solely from the regulator adopting a poor forecast of future inflation and the fact that the regulatory model (inconsistently) uses different figures in the two steps where inflation appears.

It is also important to note that, in other market conditions, the IPART forecast will be lower than subsequent observed inflation, in which case regulated businesses would be over-compensated. Thus there will be some periods of under-compensation (and prices below the efficient level) and other periods of over-compensation (and prices above the efficient level). This is inconsistent with the regulatory objective of setting allowed revenues and prices to the efficient level in every regulatory period.

The cycle of inefficient outcomes can be addressed by improving the approach for deriving inflation forecasts or by using the same inflation figure in the two steps where inflation is used in IPART's computation of allowed revenues.

5.1.3 IPART's current inflation forecast is implausibly high in the current market conditions

Whereas IPART's approach may have produced reasonable forecasts in previous market conditions, the current 2.3% figure is not a credible forecast in the prevailing conditions.

Evidence from the RBA

For example, the IPART approach assumes that inflation will immediately and permanently return to 2.5% after one year, the RBA itself has recently indicated that will not occur:

> *Whether or not further monetary easing is needed, it is reasonable to expect an extended period of low interest rates. On current projections, it will be* ***some time before inflation is comfortably back within the target range****. The Board is strongly committed to making sure we get there and continuing to deliver an average rate of inflation of between 2 and 3 per cent. It is highly unlikely that we will be contemplating higher interest rates until we are confident that inflation will return to around the midpoint of the target range.*
>
> ***Low inflation has become the norm in most economies****. This is evident in this next graph, which shows the share of advanced economies with a core inflation rate below 2 per cent and below 1 per cent (Graph 3). Currently, three-quarters of advanced economies have an inflation rate below 2 per cent, and one-third have an inflation rate below 1 per cent.*
>
> *But countries that are operating nearer to full capacity are more likely to have inflation close to target.* ***It also appears that if you have an extended period of very low inflation –as did Japan and the euro area –it is harder to get back to target as a deflationary mindset takes hold.*** [17]

In fact, the RBA has continually pushed out the time at which inflation is expected to return to the 2-3% target range. In August 2019, the RBA noted as follows:

> *Over the year to June, inflation was 1.6 per cent, in both headline and underlying terms, extending the period over which inflation has been below the 2–3 per cent medium-term target range. The Reserve Bank Board remains committed to having inflation return to this range, but* ***it is taking longer than earlier expected.*** *…*
>
> *Looking ahead, inflation is still expected to pick up, but* ***the date at which it is expected to be back at 2 per cent has been pushed out again. Over 2020, inflation is forecast to be a little under 2 per cent and over 2021 it is expected to be a little above 2 per cent.***[18]

[17] Lowe, 25 July 2019 (emphasis added).
[18] RBA, 9 August 2019.

Similar statements were made in November 2019 when the RBA commented that:

> *The central scenario remains for inflation to pick up, but to do so only gradually. In both headline and underlying terms,* ***inflation is expected to be close to 2 per cent in 2020 and 2021.*** *…*
>
> *Given global developments and the evidence of the spare capacity in the Australian economy,* ***it is reasonable to expect that an extended period of low interest rates will be required in Australia*** *to reach full employment and achieve the inflation target.* [19]

More recently, the RBA has noted that it does not target a mechanical return to the target inflation rate, but rather determines interest rates by taking into account broader welfare considerations:

> *Our target is to achieve an average rate of inflation, over time, of between 2 and 3 per cent. This means that there is an acceptable degree of variation in inflation from year to year, and we have been prepared to use this flexibility.* ***Our focus is very much on the medium term – hence 'on average' and 'over time'****. …*
>
> *Importantly, we have always seen the inflation target as nested within the broader objective of welfare maximisation. This means that the question the Reserve Bank Board asks itself when making interest rate decisions is how those decisions can best contribute to the welfare of the Australian people. In particular, we are seeking to achieve the maximum sustainable rate of employment consistent with inflation being at target. And we are seeking to do this in a way that limits the build-up of financial imbalances that can be the source of instability down the track. In doing this, we can make a material contribution to the welfare of the society we serve.*
>
> *I acknowledge there is an element of judgement and discretion in this approach. Certainly, there is more judgement involved than in an approach to monetary policy that* ***mechanically sets interest rates so that forecast inflation is at the target in two years' time.*** [20]

In summary, the suggestion that inflation is expected to return to 2.5% after one year (which is the current IPART approach) is inconsistent with the current evidence from the RBA itself.

Evidence from market data

The IPART inflation forecast of 2.3% p.a. is also materially inconsistent with market data estimates of future inflation. One common market estimate of future inflation is the 'bond breakeven' approach whereby implied inflation is derived from nominal and inflation-indexed government bonds. Figure 5.1 below shows that 4-year bond breakeven inflation estimates have declined materially since IPART last considered its approach to inflation in 2017. The current bond breakeven inflation forecast (40-day trailing average) is 0.65% p.a.

[19] Lowe, 5 November 2019 (emphasis added).
[20] Lowe, 29 October 2019.

Figure 5.1 Bond breakeven 4-year inflation forecasts

Source: RBA. https://www.rba.gov.au/statistics/tables/xls/f16.xls?v=2020-04-09-15-57-34. Yields for nominal and inflation protected bonds are interpolated using bonds with maturities slightly above and slightly below four years. The standard Fisher formula is used to derive expected inflation.

CPI inflation swaps are also commonly used as estimates of future inflation. Figure 5.2 below shows that 4-year estimates from inflation swaps have declined materially since IPART last considered its approach to inflation in 2017. The current 4-year forecast from inflation swaps (40-day trailing average) is 0.89% p.a.

Figure 5.2 4-year inflation forecasts from inflation swaps

Source: Bloomberg, 40-day trailing average <AUD INFL SWAP ZC 4Y Curncy>.

A number of financial institutions have also stated that long run estimates of inflation are generally below the midpoint of the RBA's target inflation band. For instance, a recent research note by ANZ concludes that 2.5% is no longer an appropriate long-run estimate.

> *Worryingly for the RBA,* ***the market now expects inflation to average around 1.5% over the next 10 years and to stay below 2% for around 25 years.***
>
> *Most measures of inflation expectations have been moving in the same direction – down. Less than a year ago, the market in the short term expected inflation to average less than 2%, but it still expected inflation to rise and average 2% within 10 years. Now the market does not see the RBA making much progress on getting inflation to pick up.*
>
> *This suggests that the market is seeing this new low-interest-rate environment continuing for a long time, in part due to structurally lower inflation outcomes. What's more,* ***current implied forward rates indicate that the market is not expecting inflation to return to the target band for another 25 years.*** [21]

5.1.4 Materiality of inflation forecast problems

Hunter Water has modelled the difference between:

- Allowed revenues using the parameters adopted in the draft decision, including forecast inflation of 2.3%; and
- Allowed revenues holding all other parameters fixed but using forecast inflation of 1% (which exceeds the estimates from market data above).

This provides an estimate of the reduction in revenues over the forthcoming caused by the adoption of a 2.3% inflation forecast in circumstances where actual inflation turns out to be 1%.

Hunter Water estimates the difference in revenues to be $49 million in FY21 increasing to $54 million in FY24. The sum over the four-year regulatory period is $206 million. These impacts on revenues are material by any metric.

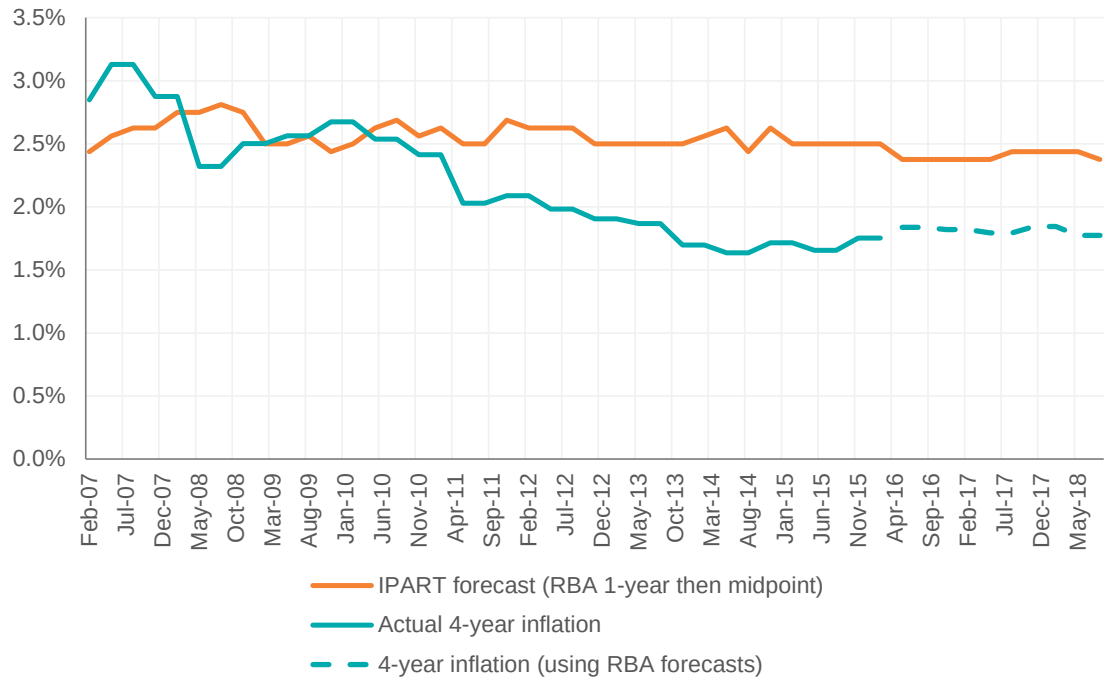
Whereas the IPART forecast is effectively certain to overstate actual inflation outcomes in the current market conditions, there will be other circumstances where the reverse is true and allowed revenues will be over-stated. That is, regulated businesses and consumers both bear the risk that the IPART forecast turns out to be a poor forecast of outturn inflation. In the present market conditions it appears to be a very poor forecast that results in material under-recovery.

5.1.5 An ongoing problem

It is important to note that actual inflation outcomes have been materially below IPART inflation forecasts for the last several years. Figure 5.3 below shows that the IPART approach always produces an inflation forecast close to 2.5% (for a 4-year regulatory period). Consistently for the last 10 years, actual inflation over the subsequent 4-year period has been materially below the IPART forecast. Thus, regulated business have been consistently under-compensated over the last decade.

[21] ANZ Research, 2019 (emphasis added).

Figure 5.3 IPART forecast vs. actual inflation



Source: RBA, IPART.

5.1.6 The impact of the COVID-19 crisis

Prior to the COVID-19 crisis, the probability of inflation returning to 2.5% after one year (in line with the IPART forecast) was remote. That probability is now even lower. On any reasonable view, there is no realistic possibility at all of inflation being 2.5% in years 2 to 4 of the forthcoming regulatory period. Within the last month, the RBA has twice reduced the target cash rate down to new historical lows (now 0.25%) and it has embarked on a government bond purchasing program designed to lower government bond yields.[22]

On 19 March 2020, the Governor of the RBA stated that the COVID-19 crisis would cause even further delays in progress towards restoring inflation to within the 2-3% target band. He noted that inflation is likely to remain below the target for "an extended period":

> *At its meeting yesterday, the Board also agreed that we would not increase the cash rate from its current level until progress was made towards full employment and that we were confident that inflation will be sustainably within the 2–3 per cent range. This means that we are likely to be at this level of interest rates* ***for an extended period****.*

> *Before the coronavirus hit, we were expecting to make progress towards full employment and the inflation target, although that progress was expected to be only very gradual. Recent events have obviously changed the situation and we are now likely to remain short of those objectives for somewhat longer.* [23]

[22] https://www.rba.gov.au/covid-19/.
[23] https://www.rba.gov.au/speeches/2020/sp-gov-2020-03-19.html.

The Governor also announced that the RBA would take steps to drive down government bond yields below open market rates, and that this activity is expected to remain in place for at least three years:

> *Over recent decades, the Reserve Bank's practice has been to target the cash rate, which forms the anchor point for the risk-free term structure. We are now extending and complementing this by also targeting a risk-free interest rate further out along the yield curve.*
>
> *In particular, we are targeting the yield on 3-year Australian Government Securities (AGS) and we have set this target at around 0.25 per cent, the same as the cash rate. Over recent weeks, the yield on 3-year AGS has averaged 0.45 per cent, so this represents a material reduction...*
>
> *We expect to maintain the target for three-year yields until progress is being made towards our goals of full employment and the inflation target. Our expectation, though, is that the yield target will be removed before the cash rate is increased.* [24]

In summary, in the current market conditions, there is simply no prospect of inflation returning to 2.5% p.a. for years 2 to 4 of the forthcoming regulatory period.

It would even be unsafe to rely on the RBA forecast of inflation for the first year of the forthcoming period. The Governor has also recently stated that current market conditions are so uncertain that it is impossible to produce accurate forecasts:

> *I am not able to provide you with an updated set of economic forecasts. The situation is just too fluid.* [25]

5.1.7 The timeframe for solutions

Whereas IPART's approach may have produced reasonable forecasts in previous market conditions, the current 2.3% figure is not a credible forecast in the prevailing conditions. The current conditions in financial markets are unprecedented – government bond yields are at historical lows and inflation has remained consistently below the target band for the first time since that target was introduced. These conditions have now been compounded by the COVID-19 pandemic, which has resulted in a further lowering of government bond yields and inflation forecasts.

These extraordinary financial market conditions have highlighted a problem with IPART's approach to forecasting inflation – the approach does not produce sensible figures in the current financial market conditions. This is akin to the circumstances following the global financial crisis, which led IPART to review in 2013 whether its existing WACC methodology remained fit for purpose. IPART took a responsible, open-minded approach then by conducting a review of its WACC methodology in the face of changing market circumstances that exposed shortcomings in its previous approach.

Hunter Water submits that a review of IPART's approach to forecasting inflation is now required. The current financial market conditions have demonstrated a deficiency with the current approach.

Because IPART's approach to inflation affects all regulated businesses and all stakeholders, it would be appropriate for IPART to conduct a comprehensive review of its approach to inflation. Because such a review cannot be completed prior to the finalisation of the current review process for Hunter Water, an interim solution is required to ensure that Hunter Water is not under-compensated over the forthcoming regulatory period due to the adoption of an implausible inflation forecast.

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[24] https://www.rba.gov.au/speeches/2020/sp-gov-2020-03-19.html.

[25] https://www.rba.gov.au/speeches/2020/sp-gov-2020-03-19.html.

A permanent solution requires a comprehensive review process

This inflation issue is not unique to Hunter Water or to water businesses in general. Rather, inflation is a component of all regulatory building block models and consequently this issue is relevant for all businesses that are subject to economic regulation by IPART. It is also relevant to all stakeholders in these businesses.

Consequently, a permanent solution to the problem requires a comprehensive review process that provides an opportunity for all affected businesses and stakeholders to make informed submissions. IPART has previously undertaken such reviews in relation to their approach to WACC estimation and to financeability tests, for example.

Hunter Water submits that IPART should conduct a formal comprehensive review of its approach to regulatory inflation as soon as is feasible. The review should, at a minimum, consider (a) IPART's approach to forecasting future inflation and (b) IPART's approach of deriving the real WACC using its forecast of inflation while indexing the RAB using observed outturn inflation. Hunter Water looks forward to actively engaging in that review process.

The need for an interim solution

It is clear that there is not sufficient time to conduct a formal review of regulatory inflation prior to finalisation of the regulatory review for Hunter Water. Consequently, Hunter Water submits that an interim solution should be adopted for the current review process on the basis that:

- IPART's current approach produces an inflation forecast that is implausible in the prevailing market conditions. A forecast that inflation will average 2.3% p.a. over the next four years is so far outside the range of reasonable forecasts that its mechanistic adoption would damage the credibility of the regulatory framework. Put another way, IPART must provide an interim solution unless it truly considers that 2.3% is the best possible forecast of inflation given the currently available evidence.
- The problem does not arise due to any action of the regulated business, or due to any commercial risk that would be faced by an unregulated business. Rather, it arises solely from the regulator adopting a poor forecast of future inflation and the fact that the regulatory model (inconsistently) uses different figures in the two steps where inflation appears.
- The implausible forecast of future inflation has a material impact on allowed revenues and on financeability metrics over the forthcoming regulatory period.
- The implausible forecast of future inflation results in under-compensation over the forthcoming regulatory period which will never be recovered. Consequently, it represents a violation of the NPV=0 Principle.
- A permanent solution will have been identified prior to the next Hunter Water review process, so it is only an interim solution for the current review that is required.

5.1.8 A proposed interim solution

Overview

Hunter Water proposes that an interim solution for the current review should have two features:

- An ex-post true-up to restore the value of under-recovery over the forthcoming regulatory period, consistent with the NPV=0 Principle; and
- An acceleration of some of the cash flows from the ex post true-up into the forthcoming regulatory period, performed in an NPV-neutral manner.

The possible features of each of these components is considered below.

Ex-post true-up

The under-recovery caused by the use of an implausible inflation forecast can be quantified, at the completion of the forthcoming regulatory period, by comparing:

- The allowed revenues in each year of the regulatory period, computed using the current IPART inflation forecast of 2.3%; with
- The allowed revenues in each year of the regulatory period, computed using observed outturn inflation.

That is, if a perfect foresight inflation forecast had been adopted, the deduction for inflation (where IPART computes the real WACC) would be exactly offset by the addition of inflation (where IPART applies RAB indexation) and the NPV=0 principle would be preserved.

The accumulated value of the annual under-recovery figures could be computed as at the end of the forthcoming regulatory period. That accumulated value would then be recovered over one or more future regulatory periods. This would ensure that the NPV of net cash flows equals the current value of the RAB.

Acceleration of some cash flows

The ex-post true-up described above ensures that the regulated entity is made whole in an NPV sense. However, it does not provide any additional cash flows during the forthcoming regulatory period as the true-up occurs ex-post. There are three problems with a pure ex-post true-up:

- A pure ex-post true-up does nothing to address any financeability concerns that might arise during the forthcoming regulatory period;
- A pure ex-post true-up would be inconsistent with the regulatory principles of inter-generational equity and setting efficient prices in every regulatory period. That is, each generation of consumers and investors should be treated fairly and efficiently under the regulatory framework. By contrast, a pure ex-post true-up results in cash flows and prices being lower than the efficient level in one regulatory period and then higher than the efficient level in others;
- A pure ex-post true-up could result in a price shock in the subsequent regulatory period if a material amount of under-recovery is added to what is to be recovered over that period. Thus, prices can be smoothed by advancing some of that ex-post true-up into the forthcoming regulatory period.

These problems can all be mitigated by advancing some of the likely quantum of the ex-post true-up into the forthcoming regulatory period in an NPV-neutral way.

For example, suppose that the expected quantum of the true-up is $100. Rather than recover all of that over the subsequent regulatory period, say $50 could be advanced into the forthcoming period, leaving the remaining $50 to be recovered in the subsequent period.

It is important that any such advancing of cash flows must be done in an NPV-neutral manner. The total quantum of the true-up has already been set so as to ensure consistency with the NPV=0 Principle. Thus, the NPV of the true-up payments must be held constant to ensure that the NPV=0 Principle continues to hold.

In summary, the allowed revenues over the forthcoming regulatory period would be set as the sum of:

- The 'base case' allowed revenues computed using the current IPART inflation forecast of 2.3%; plus
- An 'additional' amount of revenue designed to bring forward part of the amount of the ex-post true-up payment. (The potential basis for these additional revenues is discussed below).

The under-recovery would then be quantified, at the completion of the forthcoming regulatory period, by comparing:

- The allowed revenues actually provided in each year of the regulatory period (i.e., the sum of the base case and additional revenues); with
- The allowed revenues in each year of the regulatory period, computed using observed outturn inflation.

The difference between these two figures would then be the amount to be trued-up over subsequent regulatory periods.

That is, some of the under-recovery is recovered during the forthcoming regulatory period and the remainder is recovered via a subsequent ex-post true-up.

Implementation details

The quantum of revenue to be brought forward

The first implementation detail to consider is the quantum of additional revenue to be brought forward into the forthcoming regulatory period. It is important to note at the outset that:

- The quantum of revenue brought forward has no impact on the NPV of cash flows over the life of the assets because whatever is brought forward is deducted from the ex-post true-up (in NPV terms) to ensure NPV neutrality; and
- The sum of the brought-forward revenues and the residual ex-post true-up has the effect of simply correcting the inflation estimation problem. In NPV terms it is exactly equivalent to the case where IPART uses the same inflation figure in both steps of its process (instead of an implausibly high figure for the 'deduction' step and the observed outturn figure for the 'adding back' step).

Under IPART's current approach, the allowed revenues for the forthcoming regulatory period will be based on an inflation forecast of 2.3% p.a. This approach will produce a record low return on capital allowance because:

- The nominal allowed return on capital is at historical lows in line with bond yields being at their historical lows; and
- From the already low nominal return, IPART would deduct an over-stated inflation figure of 2.3%. It is the resulting real figure that then determines the allowed cash return.

One simple method for determining the quantum of additional revenue to be brought forward from the ex-post true-up and into the forthcoming regulatory period is to compute the allowed revenues that would be consistent with a more reasonable inflation forecast. For the reasons set out below, Hunter Water proposes an inflation forecast of 1.7%. Thus, the quantum of revenue brought forward into the forthcoming regulatory period would be the difference between:

- The allowed revenues in each year of the regulatory period, computed using the current IPART inflation forecast of 2.3%; with
- The allowed revenues in each year of the regulatory period, computed using the more reasonable forecast of 1.7%.

The economic effect is that the allowed cash flows would then reflect an inflation forecast of 1.7% rather than 2.3%. The proposed inflation figure of 1.7% is informed by a number of approaches for estimating inflation in the prevailing market conditions, as summarised in Table 5.1 below.

Table 5.1 Current estimates of expected inflation over four years

Method	Current estimate
Bond breakeven (4-year term, 40-day average)	0.65%
Inflation swaps (4-year term, 40-day average)	0.89%
Average of market estimates (Breakeven and swaps)	0.77%
Mid-point between IPART and breakeven figures (2.30% and 0.65%)	1.48%
Current RBA 1-year forecast (Most recent RBA forecast)	1.75%
Bottom of RBA target range	2.00%

Source: RBA https://www.rba.gov.au/statistics/tables/xls/f16.xls?v=2020-04-09-15-57-34 and https://www.rba.gov.au/publications/smp/, Bloomberg <AUD INFL SWAP ZC 4Y Curncy>, IPART, 2020(a), Appendix I.

The two methods that use market data to infer inflation expectations (bond breakeven and inflation swaps) currently produce estimates below 1% p.a. for the next four years. Over the last five years, these approaches have produced forecasts that have been much more accurate than IPART's current approach.

In its 2018 WACC Review, IPART considered the bond breakeven approach to be the primary alternative to its current approach and recognised a number of strengths of that approach. Some other regulators (e.g., the Economic Regulatory Authority of Western Australia) now use the breakeven approach exclusively. Whereas IPART's current approach did produce reasonable estimates in previous market conditions, it produces implausible forecasts in the current market conditions. Thus, continuing to place 100% weight on the current approach has become untenable. Consequently, a mid-point estimate giving equal weight to the IPART estimate and the breakeven estimate might be considered, with that approach current producing a figure of 1.48%.

Another point of reference is the current RBA forecast, together with the RBA's comments that inflation is unlikely to return to within its target zone in the foreseeable future. However, it should be noted that the RBA forecasts have been uniformly optimistic for the last five years. Outturn inflation has been lower than every RBA forecast for the last five years.[26]

A further reference point is the lower end of the RBA's target zone. However, this should be seen as an upper bound rather than a potential point estimate, given the RBA's recent comments about the likelihood of inflation increasing in the future.

Hunter Water considers that the evidence set out in Table 5.1 supports the use of an inflation forecast of 1.7% p.a. for the purpose of accelerating some of the ex-post true-up into the forthcoming regulatory period.

The mechanism for bringing forward revenue

Having determined the quantum of additional revenue to be brought forward into the forthcoming regulatory period, consideration must be given to the mechanism by which this is implemented within IPART's regulatory framework.

[26] https://www.ampcapital.com/au/en/insights-hub/articles/2019/april/inflation-undershoots-in-australia-why-its-a-concern.

Method 1: Adopt a more reasonable inflation forecast

The simplest way to implement the acceleration of cash flows in an NPV-neutral manner is to set the inflation forecast to 1.7% rather than 2.3%. This would have the effect of reducing the deduction for inflation that is applied when computing the real WACC, resulting in higher allowed revenues in the forthcoming regulatory period. It would also have the effect of reducing the size of the ex-post true-up that is required.

Method 2: Allow additional revenue line as part payment of the true-up

If IPART determines that it is unable to change its approach to estimating inflation without a comprehensive review, an alternative method of achieving the required outcome would be for IPART to make an additional revenue allowance. That is, inflation would remain set at 2.3% and an additional line item of revenues would be allowed. The basis for this would be that the additional revenues represent part of the ex-post true-up payment – the same ex-post true-up is simply being spread over the current and subsequent regulatory periods such that any price effect is smoothed and the correction is as close to the event as possible. That is, this would simply be a part payment of the inflation true-up that is required to correct for the fact that the 2.3% figure is implausible.

Method 3: Increase depreciation allowance by temporarily reducing asset lives

Another approach that could be used to accelerate cash flows in an NPV-neutral way would be to set the depreciation allowance for the forthcoming regulatory period on the basis of reduced asset lives. For example, reducing all asset lives by 10% (for the forthcoming regulatory period only, after which time they would be restored to where they would have been without this intervention) would have the effect of increasing the speed of cash flows without affecting their NPV. The amount of the reduction in asset lives (10% in the above example) could be calibrated to achieve the same outcome (in NPV terms) as the above methods.

Hunter Water submits that the simplest approach would be for IPART to adjust its inflation forecast to 1.7%, but recognises that:

- Even if this is done, there would still be a need for an ex-post true-up in the likely event that actual inflation turns out to be less than 1.7%; and
- IPART may be reluctant to deviate from its stated approach to forecasting inflation without conducting a comprehensive review process.

Consequently, Hunter Water submits that an additional line item of revenues should be allowed on the basis that this represents a part payment of the inflation true-up that is required to correct for the fact that the 2.3% figure is now implausible.

Hunter Water notes that it currently has a number of unresolved issues relating to its asset lives that are being considered in the context of this review process and a future review process relating to asset lives. For this reason, Hunter Water does not favour a temporary adjustment to asset lives as a means of addressing the inflation problem.

The mechanism for implementing the ex-post true-up

The final element of the correction is the ex-post true-up.

Method 1: Ex-post true-up of residual under-recovery

The quantum to be trued up, after taking into account the revenues brought forward into the forthcoming regulatory period, is the difference between:

- The allowed revenues in each year of the regulatory period, including any additional revenues brought forward; and
- The allowed revenues in each year of the regulatory period, computed using observed outturn inflation.

The accumulated value of the annual under-recovery figures would be computed as at the end of the forthcoming regulatory period.

Hunter Water submits that the accumulated value would then be recovered in full over the subsequent regulatory period. This approach has the benefits of:

- Ensuring that the correction is as close as possible to the source – the correction would be finalised by the end of the subsequent regulatory period;
- Smoothing prices by spreading recovery over two regulatory periods;
- Addressing financeability concerns for the forthcoming regulatory period; and
- Preserving inter-generational equity by ensuring that future generations of consumers are not still paying for the consequences of an inappropriate inflation forecast in the forthcoming regulatory period.

Method 2: Index RAB at forecast inflation

An alternative approach would be for IPART to index the RAB using the same inflation forecast that it uses when computing the real WACC (2.3% using current figures). This would have the effect of increasing the RAB at the end of the forthcoming regulatory period, relative to the case where the RAB is indexed by observed outturn inflation.

This approach would result in recovery (via higher depreciation allowances) over the remaining life of the assets, rather than over the subsequent regulatory period alone.

Since this approach would result in the full recovery of any under-compensation over the forthcoming regulatory period, the end-of period RAB would have to be reduced to reflect the quantum of any cash flows that were accelerated into the forthcoming regulatory period (in an NPV-neutral manner).

The impact of corporate tax allowances

As set out above, the total quantum of under-recovery for each year is measured as the difference between allowed revenues based on inflation of 2.3% and allowed revenues based on observed out-turn inflation. The difference represents the amount by which allowed revenues would have been greater, in each year, had IPART adopted perfect foresight inflation rather than 2.3% inflation.

Of course, those additional revenues would have been subject to corporate tax. Consequently, the additional revenues must have corporate tax deducted and the after tax cash flows must then be compounded forward at the WACC to produce the total quantum to be trued-up as at the end of the forthcoming regulatory period.

The series of true-up payments (both the brought-forward payments in the forthcoming regulatory period and the residual ex-post true-up payments in the subsequent regulatory period) must have the same total present value as the figure above. This is to ensure that the regulated firm is made economically whole – no more and no less.

The total quantum to be trued-up (above) is computed on an after corporate tax basis. Consequently, when computing the NPV of the annual true-up payments (both the brought-forward payments in the forthcoming regulatory period and the residual ex-post true-up payments in the subsequent regulatory period) after-tax cash flows must also be used.

Therefore, consideration must be given to the tax consequences of the annual true-up payments. In this regard there are two possibilities:

- If the true-up payments do not attract corporate tax (as is the case with some other true-up payments such as under the demand volatility mechanism), the NPV of the raw payments must equal the NPV of the total quantum to be trued-up.
- If the true-up payments do attract corporate tax (as would be the case, for example, if those cash flows were delivered by increasing the allowed return), corporate tax would have to be deducted and then the NPV of the after-tax cash flows must equal the NPV of the total quantum to be trued-up.

In summary, the goal is to ensure that investors in the regulated entity are made whole in NPV terms (no more and no less) after all corporate taxes have been paid.

5.1.9 Impact on customer bills

Hunter Water has modelled the impact on customer bills of the mechanisms proposed above. In this modelling, we have:

- Adopted the parameters from the draft decision, including forecast inflation of 2.3%;
- Assumed outturn inflation to be 1% p.a.; and
- Assumed that all true-up payments are subject to corporate tax.

The first scenario that we consider is a pure true-up whereby the amount of under-recovery is computed as at the end of the forthcoming regulatory period and then trued-up by increasing revenues in each year of the subsequent regulatory period. In this scenario, average residential customer bills would increase by approximately $233 per year over the subsequent regulatory period.

The second scenario that we consider is where some of the true-up payments are brought forward into the forthcoming regulatory period. For this scenario, we assume that revenues in the forthcoming period are increased so as to be consistent with an inflation forecast of 1.7% as proposed above. In this scenario, the average residential customer bill would:

- Increase by approximately $94 per year over the forthcoming regulatory period; and
- Increase by approximately $125 per year over the subsequent regulatory period.

This demonstrates the smoothing effect of bringing forward some of the true-up payments.

Hunter Water has prepared a number of models to demonstrate how the different implementation models would work, and for quantifying the impacts on allowed revenues and customer prices. These models can be made available to IPART on request.

5.2 'Return of assets': asset lives and regulatory depreciation

In preparing for, and undertaking, the current price review it has become apparent that the regulatory depreciation 'building block' lacks the level of guidance afforded to the other components of IPART's building block model.

Regulatory depreciation aims to recover the cost of an asset over its useful life, and in doing so promotes economic efficiency, intergenerational equity and efficient competition. Calculating asset lives is fundamental input to setting an efficient notional revenue requirement.

The depth and breadth of IPART's reviews of public water utility asset lives has varied over price reviews and by regulated entity. We note that in its draft decisions for Hunter Water, IPART refers to its desire for consistency between water utilities. We welcome the opportunity for the affected utilities to collectively examine issues around process and method between price reviews. [27]

5.2.1 Hunter Water's position

Hunter Water does not agree with IPART's draft decision to defer the correction of asset lives for key Hunter Water RAB sub-categories where there is clear evidence to support the adoption of alternative (shorter) asset lives. There are strong efficiency and equity grounds for using accurate economic lives of existing assets and new assets. Furthermore, getting the regulatory depreciation allowance right would substantially improve Hunter Water's financial viability.

[27] IPART, 2020(a), p. 179.

We request that IPART reconsider its draft decision *"not to accept Hunter Water's proposed asset lives, and instead use longer asset lives for new and existing categories".*

Hunter Water's first preference is for IPART to adopt Hunter Water's proposed asset lives for existing and new categories as well as the proposed regulatory treatment of the 'Corporate transition RAB' – as set out in Hunter Water's 2019 pricing proposal.

Should IPART not accept our proposed asset lives, for whatever reason, **Hunter Water's second preference** is for IPART to apply a 5 year life to corporate intangibles – to both the 'Corporate transition RAB' and new corporate intangible assets.

Hunter Water's position is supported by the following:

- There is strong evidence showing Hunter Water's proposed asset lives are reasonable when compared those of other water businesses, and where applicable, other utilities. It is also evidenced through comparison to Hunter Water's accounting and tax asset lives, which are externally reviewed and audited.
- IPART's draft report adopts asset lives for existing assets consistent with the recommendation in the 2016 expenditure review by consultants Jacobs. This analysis has fundamental flaws, including errors in the input data and calculations that led to a weighted average life of 62 years. Hunter Water's re-analysis of Jacobs' work supports a weighted average life of existing assets in the range of 31 to 50 years.
- There are legitimate reasons to apply different asset lives for new assets for Hunter Water and Sydney Water. In addition to different supply chain structures and different levels of financial leases, the utilities have quite different expenditure profiles. This is due to a range of factors including growth profiles, regulatory arrangements, system configurations and local geography.
- There is a substantial body of evidence from the water sector, energy sector and ATO justifying a 5 year life for corporate intangibles.

5.2.2 The asset lives we proposed are reasonable

Comparison with tax depreciation

Hunter Water is of the view that the assets lives used for calculating regulatory depreciation should generally align with the Australian Tax Office's (ATO) asset lives over time. This view is consistent with Atkins Cardno's use of tax assets lives as a 'sense check' for regulatory asset lives.[28]

The ATO carries out industry specific reviews to set the effective life of assets used in the industry for tax depreciation, based on how that industry most commonly uses the assets.[29] The ATO review process is an open, transparent and objective process that involves consultation with key industry stakeholders, including industry associations, major industry participants, manufacturers and suppliers of the assets, industry regulators, and independent third parties.

Hunter Water initially enters asset lives in its Fixed Asset Register (FAR) based on the ATO's asset lives. Updates to these lives are then based on independent valuation and condition-based assessments where appropriate (see section 5.2.3 for further details of the FAR). However, it should be noted that critical assets are often replaced well before their effective asset life, which arguably means their 'economic' asset life (regulatory asset life) should be shorter.

A comparison is made between Hunter Water's proposed asset lives for new assets, ATO's asset lives for tax purposes and IPART's draft decisions for Hunter Water's new assets (see Table 5.2). Hunter Water's proposals would pass Atkin Cardno's 'sense check'.

[28] See for example Atkins Cardno, 2019 and Atkins Cardno 2015.
[29] The ATO's review of the water industry was completed in 2005 and is available on their website. The ATO carries out further reviews where the listing is inconsistent with current industry practice.

Table 5.2 Tax asset lives, compared with Hunter Water's proposed regulatory assets lives and IPART's draft decisions

Asset type	Australian Taxation Office	Hunter Water RAB sub-category	Hunter Water (proposed)[1]	IPART Draft Decision
Reservoirs and tanks	80	Civil (water)	90	140
Pump sets (mechanical and electrical components)	25	Electrical/ mechanical (water and wastewater)	25	35 water 25 wastewater
Chemical dosing pumps	25			
Variable speed drives (pumps and control systems)	15			
Water quality analysers	7		11	15
Wastewater outfalls	100	Civil (wastewater)	90	90
Wastewater sensors	10	Equipment (wastewater)	11	15

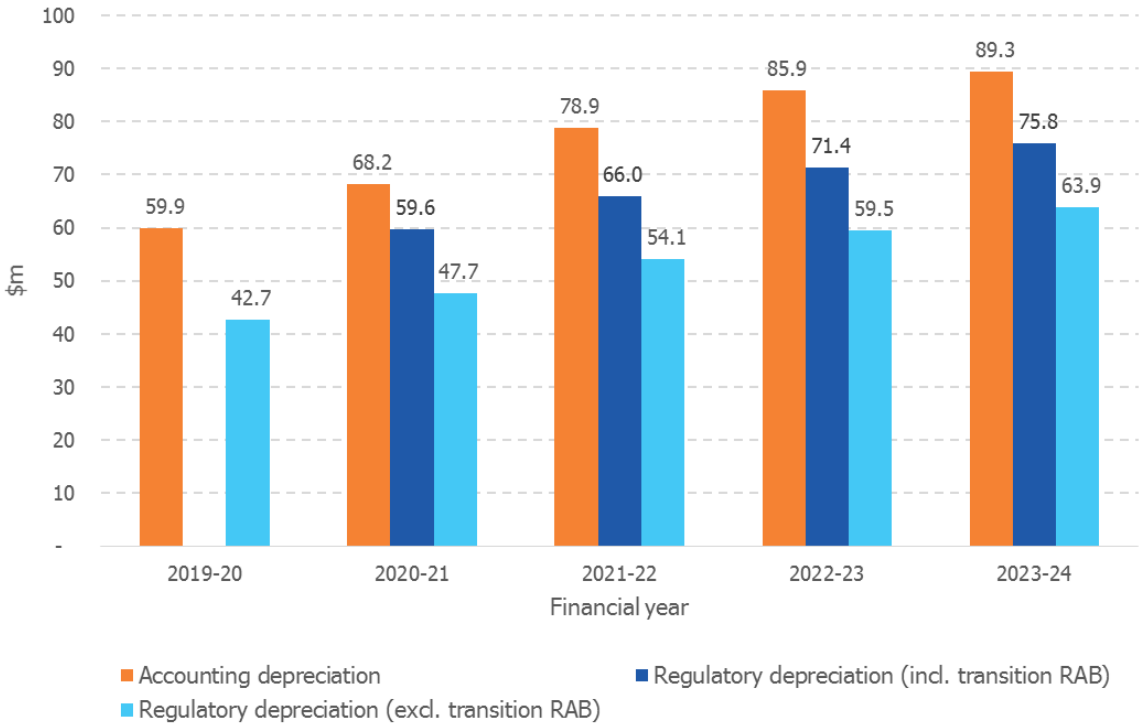
Source: ATO Taxation Ruling TR 2019/5, Water supply (28110) and Sewerage and drainage services (28120)
Notes: 1. It is difficult to compare the life of individual assets with the weighted life of a range of assets within a RAB sub-category. For example, Hunter Water's 90 year weighted asset life for Civil (water) includes a range of assets and lives. Our weighting calculation included Reservoirs and Tanks at 100 years. The WAL was brought down by shorter life assets such as Bore Stations (30 years). Likewise our weighting calculation for Civil (wastewater) included Wastewater Outfalls at 100 years.

Comparison with accounting depreciation

To ensure a fair balance between the prices charged to the customer and the return to the shareholder, it is important to understand the relationship between regulated depreciation and accounting depreciation. Where the regulatory depreciation allowance is significantly lower than accounting depreciation, the shareholder is absorbing the loss as a result as a result of a lower net profit after tax. Adjustments are needed for non-regulated assets, however in Hunter Water's case these are not material.

Figure 5.3 highlights the shortfall in the regulatory depreciation allowance relative to accounting depreciation. To further understand whether the regulated depreciation and associated asset lives are appropriate, a comparison has been made to exclude the 'transition RAB', which relates to short life assets which have been fully depreciated for accounting purposes. This comparison results in a $24 million per annum average shortfall in depreciation recovery across the 4 year price period. This significantly reduces shareholder returns and impacts financial metrics.

Figure 5.4 Comparison of accounting depreciation with regulatory depreciation ($million, $2019-20)



Source: Hunter Water analysis.

Sydney Water appear to use longer asset lives than Hunter Water for both accounting and regulatory purposes. Hunter Water's 'accounting' asset lives appear to be more comparable with those used by WaterNSW and a number of the Victorian water utilities.

Hunter Water's regulatory asset lives need to be modelled on Hunter Water's accounting asset lives to ensure a fair balance between the price charged to the customer and the return to the shareholder. Adopting Sydney Water's asset lives for Hunter Water's regulatory depreciation results in a clear disconnect with Hunter Water's asset profile.

Comparison with other jurisdictions

New South Wales

Hunter Water, Sydney Water and WaterNSW all have, or have proposed as part of their current price reviews, disaggregated RABs and asset lives. We have disaggregated the RAB into slightly different asset classes than Sydney Water and WaterNSW.

This approach more closely reflects the asset classifications within our Fixed Asset Register and our vertical integration across the supply chain. In contrast, the Central Coast only has four RABs - a water RAB, stormwater RAB and two wastewater RABs. Essential Water (Broken Hill) added a new corporate RAB, covering non-system assets such as ICT, buildings, plant and equipment and motor vehicles, during its 2019 price review which increased its total to three.[30]

[30] IPART, 2019(b), p. 86.

A summary of IPART's recent decisions on assets lives for NSW water utilities is provided in Table 5.3. It is difficult to accurately compare asset lives across price-regulated water utilities in New South Wales. There are a range of drivers to account for:

- The scale and scope of the utility (e.g. vertically integrated; bulk water only; treatment, reticulation and retail),
- System configurations (e.g. above ground or below ground assets; centralised or decentralised),
- Asset age,
- Environmental conditions (e.g. the Hunter region has a high concentration of acid sulphate soils, which corrode concrete, iron and steel, impacting the lives of some of our below ground assets)
- Varying regulatory requirements (e.g. Hunter Water and Sydney Water have mandatory system performance standards specified in their Operating Licences whereas Central Coast does not).

IPART's Draft Report states:[31]

> *Under Hunter Water's proposal, there was a significant difference in the weighted average life of new assets between Sydney Water and Hunter Water. We consider that there is no reason that asset lives should differ markedly between Sydney Water and Hunter Water.*

Although we have used different classifications and asset lives from Sydney Water, a high level comparison shows our overall weighted average asset lives (WAL) are closely aligned (see Table 5.3). The same observation holds for the WaterNSW disaggregated RAB proposal. We would expect Water NSW to have a higher WAL than both Hunter Water and Sydney Water as it is a bulk water provider with long life civil assets such as dams.

Table 5.3 Sydney and Hunter proposed weighted average asset lives over the next regulatory period

Weighted average asset life (proposed)	2020-21	2021-22	2022-23	2023-24
Sydney Water	53	50	48	47
Hunter Water	49	45	42	39
WaterNSW	59	54	51	48

Source: Annual WAL for SWC based on data provided by Sydney Water, and Hunter Water analysis. Annual WAL for WaterNSW based on WaterNSW, 2020 and Hunter Water analysis. WAL for WaterNSW have been calculated weighting by depreciation rather than value (consistent with establishing Sydney Water's disaggregated RABs in 2007). This is further explained in section 5.2.3.

Both Sydney Water and Hunter Water have similar WALs at the start of the price period, however Hunter Water's WAL reduces faster than Sydney Water's. The main reason for this is that our forward capital program includes a higher proportion of 'corporate' and ICT spend (i.e. shorter life assets). Sydney Water's forward capital program includes a higher proportion of 'civil' spend (i.e. longer life assets). This may reflect Sydney Water's higher growth rates and funding of growth assets (in the current NSW Government policy position of no developer charges), both of which are likely to increase their civil spend.

Table 5.4 further breaks down Hunter Water's WAL between existing assets and new assets (i.e. forward capital program). This highlights the shorter life assets in Hunter Water's forward capital program.

[31] IPART, 2020(a), p. 61.

Table 5.4 Composition of Hunter Water's proposed weighted average asset lives

Hunter Water WAL	2020-21	2021-22	2022-23	2023-24
Existing Assets WAL	49	48	47	46
New Assets WAL	43	28	26	24

Source: Hunter Water analysis.

IPART recently adopted a 200 year asset life for dams for WaterNSW. NSW Public Works Advisory considers that 150 years is the better estimate for dams in NSW:[32]

> *As a specific commentary on the useful life adopted for dam assets in the current revaluation, it is observed that well designed and constructed dams should have a useful effective life within a range of 100-200 years. There are examples of dams, particularly in Europe and older civilizations that are many centuries old. However, there are examples of dam failures which temper the argument for increasing the above life range. Damage to dams has occurred due to unusual loading conditions (large floods, earthquake, etc.) and effective useful lives have been shortened due to far greater than predicted floods, silting up, etc.*
>
> *On balance, Public Works Advisory is of the opinion 150 years is a reasonable useful life estimate for most well-constructed dams. This life assumes continued effective surveillance, maintenance and occasional remedial maintenance works as necessary. The 150 year effective useful life estimate has been accepted by dam owners in many other valuation projects Public Works Advisory has previously undertaken.*

Victoria

Victorian water utilities appear to set new asset lives consistent with the ATO's effective asset lives. Table 5.5 provides a summary of the main regulatory asset life groupings used by the utilities servicing Melbourne and Geelong. None of these utilities have a weighted asset life class above 100 years and they all have significantly shorter ICT asset lives than Sydney Water, comparable to Hunter Water's intangible asset lives of 5 years.[33]

Table 5.5 Asset lives used by price-regulated Victorian water utilities for new assets

Component	City West Water	Yarra Valley Water	South East Water	Barwon Water	Melbourne Water	IPART
Pipelines/Network	80-90	50-100	80	70	25-140	90 - 140[1]
Treatment	80	50-90	50	70	26-94	[2]
ICT Infrastructure, Software, Billing, Customer Records Management	5	4	7	3.67	3	10[3]
Waterways and drainage	-	-	-	-	25 - 100	95 – 150[4]

Source: Financial models for retailers retrieved from https://www.esc.vic.gov.au/water/water-prices-tariffs-and-special-drainage/water-price-reviews/water-price-review-2018#tabs-container2 . Melbourne Water, 2015.

Notes: 1. IPART, 2020(a), p. 61. Wastewater Civil 90 years, Water Civil 140 years.

2. Difficult to distinguish as this component is comprised of a combination of civil, electronic/mechanical and equipment assets.
3. IPART, 2020(a), p. 61. Corporate intangible.
4. Central Coast 95 years across all Stormwater assets (IPART, 2019(c), p. 212). Hunter Water and Sydney Water 150 years for Stormwater Civil.

[32] NSW Public Works Advisory, 2017, p. 7.

[33] There are a few exceptions where asset lives of specific projects have been extended to manage impacts on affordability.

South Australia

SA Water adopts a weighted average depreciation method for regulatory and tax useful lives. SA Water's regulatory asset lives for the current review are provided in Table 5.6.

Table 5.6 Asset lives used for SA Water

Component	Existing		New	
	Proposed	Draft Decision	Proposed	Draft Decision
Water				
Pipes	57.4	56.9	103	103
Non-pipes	36.2	36.4	64	64
Adelaide desalination plant	48.6	48.6	57	57
Adelaide desalination plant – short-lived	-	-	7	7
Corporate	9.6	10.2	15	15
Zero Cost Energy Future assets	22.4	-	23	-
Wastewater				
Pipes	62.9	61.7	107	107
Non-pipes	28.3	28.5	47	47
Corporate	9.4	7.4	15	15
Zero Cost Energy Future assets	22.4	-	23	-

Source: Proposed, SA Water, 2019, table D.7. Draft Decision, ESCOSA, 2020, p. 166.

5.2.3 Weighted average life of existing assets

Weighted average asset life calculation errors for existing assets

IPART engaged Jacobs to review the expenditure proposals in Hunter Water's 2016 price submission. As part of the review IPART asked Jacobs to estimate the average life of Hunter Water's existing assets.

We are of the opinion that Jacobs miscalculated the weighted average asset life for existing assets, on which IPART has based its draft decisions.

Whilst we had the opportunity to critique Jacob's analysis during the 2016 Price Review, our focus at the time was that regulatory asset lives were reducing to become more reflective of the underlying economic life of assets. That is, regulatory depreciation was increasing and IPART was transitioning the reduction in asset lives to mitigate bill impacts. At the time Hunter Water noted that we would undertake more work to support further improvement to asset lives during the 2019-20 price review.

IPART has dismissed Aither's specific advice for this price review and instead reverted to the previous advice from Jacob's review. Consequently, we gone back and reviewed the Jacobs' work. We have identified material methodological issues that demonstrate a 62 year weighted average life of existing assets is a significant overstatement.

Weighting process

In determining asset lives by asset class, the weighting methodology applied to the asset lives is fundamental to the outcome. Weighting asset lives by 'depreciation' is mathematically correct. Weighting assets by 'value' is mathematically flawed and results in a perverse outcome, giving higher weight to high value assets which tend to be the longer life assets in the water industry.

Weighting by depreciation is consistent with the disaggregation of Sydney Water's RAB in 2007, as described in Halcrow's report:[34]

> *"...average remaining life has been calculated by dividing the net depreciated replacement cost at the end of the year by the depreciation expense for the year."*

Unfortunately, Jacob's weighted the asset lives by 'values', which resulted in an overstated weighted asset life. Hunter Water calculates that Jacob's weighted average life of existing assets of 62 years would reduce to around 50 years if this conceptual error was corrected.[35]

Aither concurred with Hunter Water's view, observing in its review of Jacobs approach:

> *"Jacobs used project value as its weighting whereas weighting by depreciation (as proposed by Hunter Water) appears more correct.*
>
> *Jacobs review was based on valuations from the fixed assets register which Hunter Water has subsequently identified as overstated (and has since corrected)...*
>
> *... Given the concerns regarding the Jacobs assessment we consider it reasonable that Hunter Water's assessment would result in a different outcome."*[36]

IPART relied on Aither's assessment of asset lives in its 2019 Review of prices for Essential Water (Broken Hill). It is unclear why IPART has disregarded Aither's assessment of asset lives for Hunter Water.

Partial consideration of non-depreciating assets and no consideration of intangible assets

Jacobs undertook a high level review of Hunter Water's asset lives. The analysis relied on data contained in Hunter Water's 2015 AIR&SIR, which separately listed the depreciated replacement cost of land but did not provide details of other non-depreciating assets such as sewer cavities (the 'hole'). Jacobs' weighted average asset life of existing asset of 62 years removed the effects of land. However, it did not take into account the significant impact of sewer cavities, which artificially raised the weighted average asset life.

Hunter Water's practice has been not to include intangibles (such as software) in the AIR&SIR Asset lives worksheet. Intangibles are not part of our external revaluation process and there has been a lack of clarity in how IPART uses the data. Since Jacobs' analysis was based only on data contained in our 2015 AIR&SIR, the weighted average asset life of existing asset of 62 years excluded these short-lived assets.

Accounting for (removing) sewer cavity non-depreciating assets and (adding) intangible assets, would materially lower the weighted average asset life of existing assets.

Input data was subsequently found to be misstated

After the 2016 Price Determination, Hunter Water identified and rectified a material overstatement of the underlying GRC/DRC valuations on which Jacobs based its analysis. The GRC/DRC values were corrected for 2017-18, however Jacobs based its calculation on Hunter Water's September 2015 AIR&SIR (i.e. 2014-15) and prior year data has not been restated in subsequent AIR&SIRs.

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[34] Halcrow Pacific, 2007, p. 49.

[35] As a comparison, WaterNSW's price submission cited an existing asset life of 61 years weighted by 'asset value', which is misaligned with their accounting asset lives (average of under 50 years). Their proposed capital expenditure for the next price period results in a weighted average life of 61 years weighted by 'asset value' or 32.7 years if weighted by depreciation.

[36] Aither, 2019, p. 75.

Hunter Water has replicated Jacobs' methodology using data from Hunter Water's September 2019 AIR&SIR (using the reported DRC values for 2017-18 and 2018-19). The outcome of this results in a weighted average asset life of 31 years – exactly half the asset life that IPART has used its draft decision.[37]

Comparison with other jurisdictions

Hunter Water's proposed weighted average asset life for existing assets is consistent with those used by other Australian economic regulators for pricing purposes (see Table 5.7).

Table 5.7 Weighted average life of existing assets across the Australian water sector (years)

Utility	Hunter Water (IPART draft decision)	Yarra Valley Water	Barwon Water	Western Water	South East Water	SA Water[1]	Icon Water[2]	Tas Water
State	NSW	Vic	Vic	Vic	Vic	SA	ACT	Tas
Weighted average life	62	58.7	35.2	51.7	60.8	9.4 – 62.9	41.3 - 51.4	52

Source: All information is based on the most recent price reviews with details available on the internet and is weighted by value.
Notes:
1. Range, based on highest and lowest individual asset classes across water and wastewater. The weighted average is likely to be materially lower than 62.9 years.
2. Wastewater and water, respectively.

Condition assessments inform the expected lives

Fixed asset register and asset revaluation process

IPART's draft decision to set longer lives for existing assets than proposed by Hunter Water, but shorter than historical, was partially based on Aither's concerns about the integrity of Hunter Water's Fixed Asset Register (FAR) and Aither's recommendation that:[38]

> *…the FAR should include regular updates to reduce and extend asset lives based on current knowledge of the asset's condition, performance and latest expected replacement date.*

In light of this finding, IPART formed the following view:

> *Given the magnitude of the proposed change in asset lives, we consider that condition assessments should inform the expected lives of different assets and asset classes.*

It appears that Aither has overlooked the details of several of the revaluation reports that Hunter Water provided in response to a request for information during the expenditure review.

[37] Due to restructuring of the AIR, contributed assets are no longer reported by asset type (e.g. dams, treatment plants, pipes) therefore the reported DRC attributed to contributed assets was apportioned to each asset type in the same proportions as in Jacob's 2015 analysis. Asset lives are also reported in a different manner, therefore remaining asset lives by asset type as at 2015 were used in the analysis.
[38] Aither, 2019, p. xvi.

Hunter Water uses condition assessment information in setting remaining asset lives for accounting revaluation purposes for:

- Wastewater treatment assets
- Sewer network assets
- Dams, weirs, canals, water treatment plants, water pumping stations, borefields and raw water pipelines.

In particular, the assessment of remaining asset lives of water treatment plants and wastewater treatment plants in the 2015-16 revaluation were based on extensive asset condition assessment through visual inspection of the civil, mechanical and electrical components in 2014. The condition rating classification is similar to that described by Halcrow in 2007 in its review of RAB disaggregation for Sydney Water.[39] As part of the 2015-16 revaluations, the condition adjusted remaining lives for asset components having less than three years remaining life in the FAR (including zero) were upwardly revised to three years.

In the case of linear assets, where Hunter Water owns thousands of kilometres of varying types of pipes, it is not cost effective to undertake condition assessments for every asset. For example, the sewer network assets are constructed of various materials, there are rising mains (pumped) and gravity mains, some below and some above ground, and mains of different ages.

Hunter Water has focussed condition assessment on high priority critical assets being sewer rising mains and large sewer carrier mains. Even then, it is necessary to prioritise condition assessments and employ technologies such as visual inspections, using closed circuit television, to identify commencement of pipe fractures and using the Linear Polarisation Resistance (LPR) technique on older cast iron mains to infer the corrosion rate and thereby provide an indication of the likelihood of failure.

Hunter Water uses condition monitoring to determine whether the remaining sewer assets are, on average, consistently performing within their asset life expectations. Hunter Water:

- Assesses the failure history across locations and asset classes.
- Participates in both national and international studies in comparing asset performance and nominal asset lives.
- Are involved in both the development of analysis tools and asset condition research.

These activities indicate that there are occasional unique site specific failures which are inconsistent with the nominal asset lives; however the vast majority of our network assets are within the expected performance levels which indicate the adopted asset lives are currently appropriate.

Furthermore, we note that we provided IPART with details of the condition and performance of our assets as part of the 2016 State of the Assets Report, which was a regulatory requirement within our 2012-2017 Operating Licence refer to the summary in Table 5.8).

[39] Halcrow Pacific, 2007.

Table 5.8 Summary asset condition and performance assessment from 2016 State of the Assets Report to IPART

Asset type	Asset condition and performance rating
Water assets	
Raw water	Good
Water treatment	Good
Water network	Fair
Wastewater assets	
Wastewater network	Fair
Wastewater treatment	Good
Stormwater assets	
Stormwater network	Fair
Electrical and telemetry assets	Fair
Mechanical assets	Fair

Source: Hunter Water, 2016.

Fixed Asset Register governance arrangements

One of the reasons IPART gave for its preliminary decision to reject the lives we proposed for existing assets was concerns expressed by its consultants, Aither, regarding the current and ongoing accuracy of the FAR.[40]

IPART appears to have overlooked Aither's observation that Hunter Water had provided evidence demonstrating that the perceived 'error' does not result in a material impact on asset lives.[41]

IPART should be further reassured that the FAR (including asset lives) is included within Hunter Water's financial accounting governance arrangements. The Auditor General of NSW has responsibility for performing an annual financial audit that provides an independent opinion on Hunter Water's financial statements.[42] It identifies whether Hunter Water complies with accounting standards and relevant laws, regulations and government directions.

Our policy on accounting for fixed assets requires us to revalue all classes of property, plant and equipment at least every five years. Valuations of land and buildings are completed at least every three years (by NSW Public Works Advisory in recent years).

We competitively tender the valuation work following State Government and Hunter Water procurement policies and procedures. We engage qualified and independent external asset consultants to undertake these valuations and each asset class is revalued separately in a systematic manner. These valuations are carried out in accordance with the latest MEERA (Modern Engineering Equivalent Replacement Asset) Guidelines, the NSW Treasury Accounting Policy TPP14-01 Valuation of Physical Non-current Assets at Fair Value, The Australian Accounting Standards AASB13 – Fair Value Measurement and the Australian Accounting Standards AASB116 - Property Plant and Equipment.

Further, the Audit Office of NSW externally audits the valuation reports (provided by Public Works Advisory in recent years). The Audit Office also audits the transfer of this information to Hunter Water's fixed assets register. The process completed by the Audit Office of NSW is done annually with fixed asset valuations a key focus of the audit.

There Audit Office of NSW has not made any external audit findings in relation to the information used from the FAR that would compromise the regulated depreciation calculations used in the submission.

[40] IPART, 2020(a), p.178.
[41] Aither, 2019, p. xv and 78.
[42] The NSW Audit Office contracted out the audit of Hunter Water's financial statements for 2018-19 to Ernst and Young.

5.2.4 IPART has overestimated asset lives for equipment and intangibles RAB sub-categories

In addition to our concerns with the overstatement of the weighted average life of existing assets, we consider that IPART draft decisions materially overstate the asset lives (new and existing) for the equipment and intangibles RAB sub-categories. This is particularly evident for the Corporate RAB.

IPART's own expert reviewer, Aither, cited evidence supporting Hunter Water's proposed 5 year asset life for intangibles:[43]

> *Intangible assets in this context largely refer to (but not solely) software-related assets. This is a growing asset class within Hunter Water and has a relatively low asset life of 5 years. In reviewing the recommended asset lives for software assets from the Australian Tax Office, it appears that most software assets are assigned a life between 4 and 7 years. Given this, the proposed 5 years for new assets is not unreasonable.*

Jacobs' review of Hunter Water's asset lives did not consider this matter.

The Corporate intangibles RAB sub-category contains assets such as IT software, information resources, intellectual property and the quality management system required under Hunter Water's 2017-2022 Operating Licence. The Corporate equipment RAB sub-categories includes cars and office equipment.

Under IPART's 2016 Determination, these items were being depreciated over 66 years – down from the pre-2016 approach of depreciating these items over 100 years and then 70 years.

The regulatory treatment of intangibles starkly highlights the reason for disaggregating the RABs and calculating remaining useful lives by category. It is difficult to comprehend the rationale for asking customers to contribute to the cost of laptops from 2010 (per IPART's draft decision) let alone Hunter Water customers paying for the same laptops in the year 2080.

Hunter Water argues that it would be reasonable to expect the lives of these assets would be consistent across the water sector and even more broadly, generally consistent with the energy sector. Atkins Cardno's 2015 review of Sydney Water's expenditure for IPART compared regulatory asset lives with tax asset lives as a 'sense check'. We repeat and extend this comparison to a wider set of utilities in Table 5.9 for equipment and intangibles. This analysis demonstrates the misalignment of assets lives in IPART's draft decision.

[43] Aither, 2019, p. 76.

Table 5.9 Asset lives for equipment and intangibles in the utilities sector and ATO

Utility	New assets
Hunter Water	
Equipment (proposed)	11
Intangibles (proposed)	5
IPART draft decision	10 water 15 water, wastewater, stormwater
Sydney Water	
2007 Electronic (proposed)[1]	5[2]
2008 IPART decision[3]	6[4]
2011 Electronic (proposed)[5]	10
2012 IPART decision[6]	8
2016 IPART decision	10 corporate 15 water, wastewater, stormwater
2020 IPART draft decision	10 corporate 15 water, wastewater, stormwater
Water NSW	
2020 Systems, controls and other equipment (proposed)	10.6[7]
IPART draft decision[10]	10 Systems/controls 12 plant & machinery
2020 Corporate Assets (proposed)	5.9[8]
IPART draft decision[10]	5 vehicles 12 IT systems
2020 Condition assessments (proposed)	5[9]
IPART draft decision[10]	5
Victorian water utilities (IT infrastructure, software, security, billing, customer records management, asset management)	
City West Water 2018	5
Yarra Valley Water 2018	4
South East Water 2018	7
Barwon Water 2018	3.7
Melbourne Water 2016[11]	3 - 11
Australian Tax Office	
Cars	8

Utility	New assets
Mobile phones	3
Telephone systems	7
Office machines and equipment	5 - 6
Laptops	2
Desktop computers and monitors, servers	4
Mainframe computers and network equipment	5
Energy Sector	
Ausgrid[12] – IT systems and in-house software	5
Ausgrid[12] - Motor vehicles	10
Endeavour Energy[13] – information & communication technology and in-house software	5
Endeavour Energy[13] – motor vehicles	8
Endeavour Energy[13] – communication	8.4
Essential Energy[14] – IT systems	5
Essential Energy[14] – Motor vehicles	8
Essential Energy[14] – in-house software	5
Essential Energy[14] – communications	7

Notes:

1. Sydney Water, 2007, p. 56, D3, D4 and D6.
2. IT assets
3. IPART, 2008, p. 68 and 69.
4. IPART engaged consultants Halcrow to review Sydney Water's asset lives however, as Halcrow did not review Corporate Electronic assets the basis of IPART's decision is unclear. See Halcrow Pacific, 2007 and IPART, 2008.
5. Aktins Cardno, 2011, p. 150. Aktins/Cardno found that there was no robust evidence to support Sydney Water's proposed extension in the life of electronic assets from 6 years to 10 years.
6. IPART, 2012, rationale not stated.
7. Water NSW, 2020. Systems/controls, plant and machinery. This is similar to Hunter Water's equipment category.
8. Water NSW, 2020. IT Systems and vehicles. This is similar to Hunter Water's intangibles category.
9. Water NSW, 2020. Listed as 5-yearly inspections.
10. IPART, 2020(c), p. 131
11. IT 3 years, Corporate Support 11 years.
12. AER, 2019(a). Ranges reflect different asset lives for distribution and transmission assets.
13. AER, 2019(b). Ranges reflect different asset lives for distribution and transmission assets. Ranges reflect the regulatory period of asset creation, with lower values for existing assets being from 2013-14 and higher values from 2014-15 to 2018-19.
14. AER, 2019(c).

5.3 Adjusting the working capital allowance

The impact of the COVID-19 pandemic is being felt across Hunter Water's customer-base. Due to government restrictions on activities and work, residential customers may be experiencing increased financial difficulty. Many non-residential customers have been required to alter or discontinue their normal business activity, creating financial pressures. Australian Bureau of Statistics survey data released on 7 April 2020 indicates that 66% of surveyed businesses have experienced reduced turnover and cash flow and 64% experienced a reduction in demand for products or services.[44]

[44] Australian Bureau of Statistics. Business Indicators, Business Impacts of COVID-19, Week Commencing 30 March 2020. March 2020.

Hunter Water expects that these financial pressures may lead to a material increase in the number of customers experiencing hardship and not paying their bills on time. Although there is a high-level of uncertainty about how the situation will develop, we believe a reasonable adjustment to our working capital allowance may be appropriate - specifically, an increase in the number of 'days of delay' parameter used to calculate receivables.

IPART's working capital allowance enables businesses to recover the costs they incur due to delays between them delivering regulated goods or services and receiving payment for those goods or services.

Hunter Water currently estimates that 20% to 30% of customers will not make bill payments on time, for at least the upcoming billing cycle (March-June 2020). We are currently providing customers who are experiencing financial hardship an extension of 90 days to pay their bills. Section 5.3 of Hunter Water's Operating Licence (2017-2022), requires us to assist customers in financial difficulty and provide payment plans and other assistance schemes. We have stopped proactive bill collection work at this time and customers with outstanding account balances will not accrue interest or late payment fees.

Assuming 20% of customers are unable to pay their bills on time over the next few months, we estimate that there is likely to be a cash flow shortfall of just over $17 million. Any shortfall will be made up for by increased debt - thereby increasing borrowing costs.

We anticipate that increased customer hardship may continue in 2020-21 and potentially 2021-22. This outlook may change rapidly given high level of uncertainty about COVID-19 and the impact on customers.

IPART's Draft Report sets the number of days of delay used in the receivables component of the working capital allowance at 23 days (21 days to pay plus 2 days to read the meter). This 23 day period is intended to be the 'efficient number of days of delay' under normal operating circumstances. The current social and economic climate is not normal.

Under a working assumption of 20% of customers not paying their bills on time in 2020-21, this would be offset by an increase in the days of delay input from 23 to 26.95 to apply across the next price period. This estimate is based on providing customers experiencing hardship an average of 90 days to pay. We use a weighted average of the assumed proportion of customers provided an extension to calculate an average number of days of delay of 34.8 in 2020-21.[45] Because 2020-21 is only one year of a four year price path, we then weight that number by 25% to calculate a days of delay to apply across the price path.[46]

Using this method, there would be an increase to receivables in the working capital allowance, presented in Table 1. We also present a sensitivity analysis for 28.175 days of delay, assuming 20% of customers are unable to pay on time in 2020-21 and that 10% of customers remain in hardship and unable to pay on time in 2021-22.

As the impact of the COVID-19 restrictions unfolds, we will have better information on the materiality of outstanding bill amounts. We would welcome the opportunity to continue to work with IPART on the likely extent and duration of this matter as well as potential remedies.

Table 10 Increase in working capital allowance to reflect increased days of delay ($'000, $2019-20)

Days of delay	2021	2022	2023	2024	Total
26.95 days	178	191	196	199	**764**
28.175 days - sensitivity	267	287	294	299	**1,146**

[45] Weighted average of 34.8 days = (80% * 21 days) + (20% * 90 days) + 2 days to read the meter
[46] Weighted average of 26.95 days = (75% * 21 days) + (25% * 34.8 days) + 2 days to read the meter

6. Demand forecast and connections

Hunter Water's demand forecast underlying IPART's Draft Report no longer reflects our best estimates due to material developments since September 2019. We propose an update to the baseline demand forecast taking into account learnings from the recent period of drought and water restrictions.

We use this updated demand forecast to inform a proposed uplift in the water usage price during drought/water restriction periods, presented in section 7.1.

The COVID-19 pandemic may affect our demand and connection numbers, however, it is not possible to accurately forecast the impact, given the level of uncertainty at this time. We provide connection and demand forecast scenarios relating to possible social and economic impacts of the viral pandemic in Appendix B.

6.1 Revised demand forecast to reflect learnings from the recent drought period

Hunter Water's demand forecast that underlies IPART's Draft Report is based on an updated and peer-reviewed demand model that includes a more informed view of the influence of climate on average demand. A detailed description of this model is available in our response to IPART's Issues Paper.

Since making this demand forecast, Hunter Water's storages continue to deplete as drought conditions worsened. The NSW Government introduced water restrictions in the Lower Hunter for the first time since the early 1990s. Level 1 water restrictions were first implemented on 16 September 2019 and progressed to Level 2 restrictions on 20 January 2020. Above average rainfall in February provided a welcome boost to storage levels and allowed a return to Level 1 restrictions on 24 February 2020. Hunter Water's November 2019 demand forecast does not incorporate learnings from this period of restricted demand.

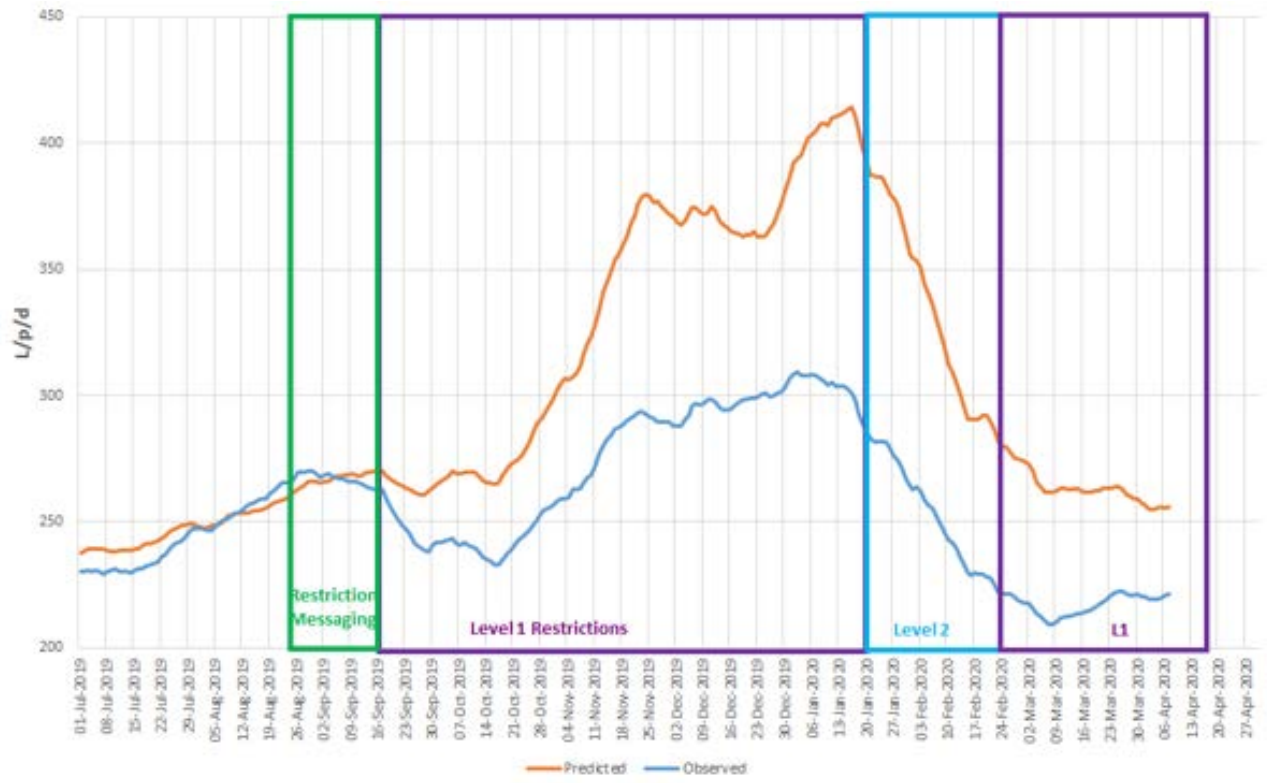
6.1.1 Observed demand during restrictions

Hunter Water's observed demand since September 2019 is shown in Figure 6.1. Demand has been lower than predicted using customer behaviour in 2016-18; the period that the demand model was calibrated to. Hunter Water attributes the high short-term deviation between observed and predicted to the influence of water restrictions.

Longer term water savings from May 2018 to March 2020 are highlighted in Figure 6.2. It is not possible determine statistical significance or separately quantify the drivers for the observed changes in water demand during this time. The factors that are likely to have contributed to a 3% saving prior to restrictions include:

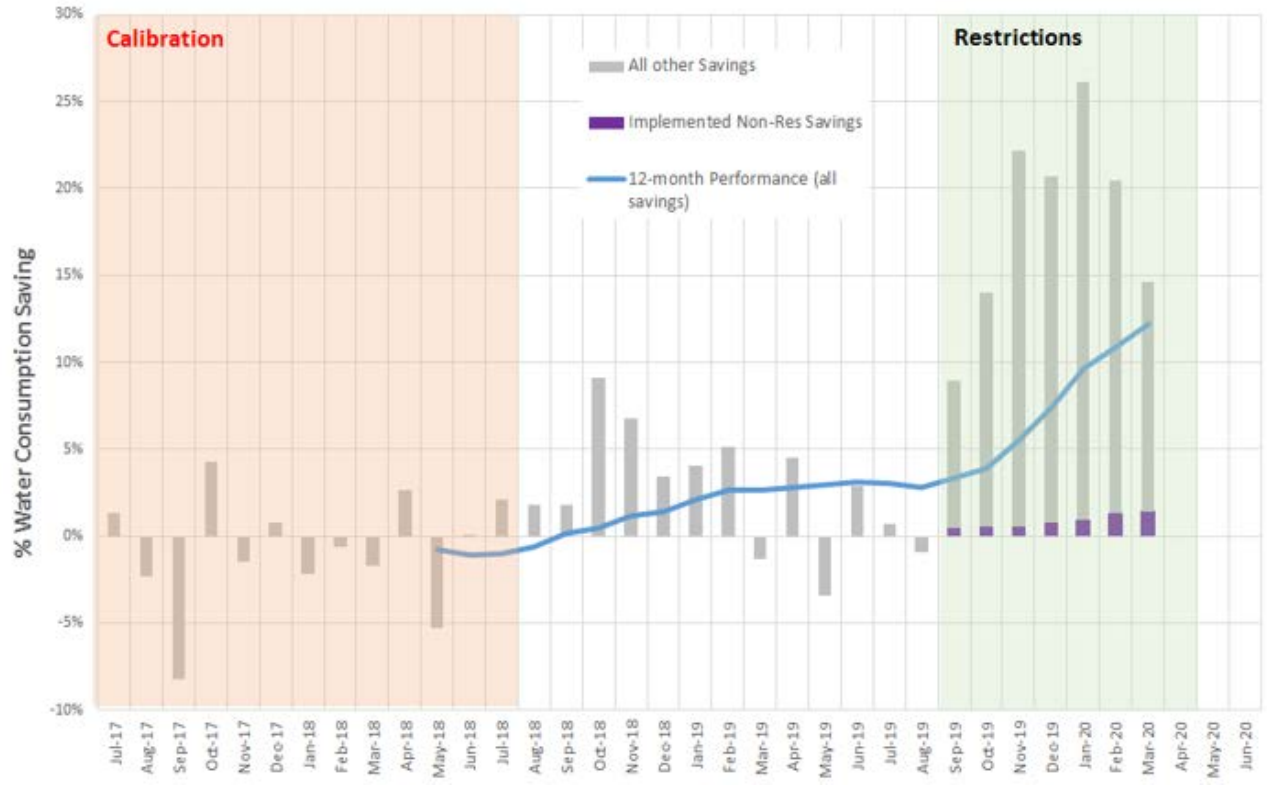
- The progressive uptake of water efficient devices in the market place,
- The influence of BASIX by growing alternate water sources at the household scale (rainwater tanks), and
- The effect on customer behaviour of messaging and advertising about water conservation (e.g. LoveWater campaign) – this messaging began in February 2018.

Figure 6.1 Observed and predicted per capita demand during water restrictions



Source: Hunter Water analysis.

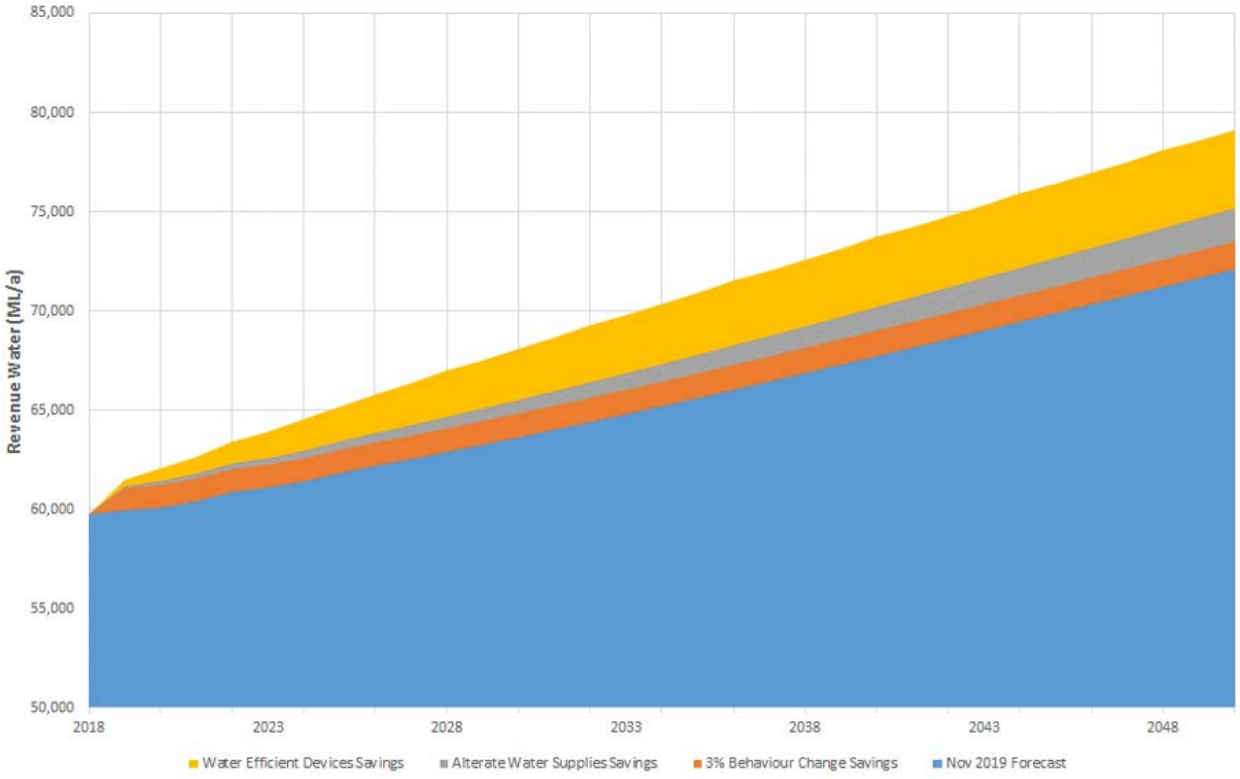
Figure 6.2 Monthly and 12-month water savings relative to the prediction model



Source: Hunter Water analysis.

Hunter Water incorporated an estimate of these individual saving components applied to the average year forecast over time in the November 2019 demand forecast. Figure 6.3 shows how these savings were allocated over the long-term forecast.

Figure 6.3 Components of water savings applied to the residential sector in the November 2019 forecast



Source: Hunter Water analysis.

Following the introduction of water restrictions, the following additional factors are likely to have influenced additional water savings, in addition to those outlined above:

- Adherence by the community to restrictions placed on specific end-uses.
- Behavioural change in response to additional messaging regarding water restrictions.
- Behavioural change in response to broader conditions prevailing at the time including the bushfire crisis and other reported effects of widespread drought across NSW and Australia.
- The implementation of savings in the non-residential sector through water efficiency management plans (WEMP). The estimate of the implemented savings are shown in Figure 6.2.

6.1.2 Non-residential water savings

Hunter Water works directly with our large non-residential customers to realise water savings by providing real time monitoring for leakage/irregular usage detection ('find and fix program') and to co-develop water efficiency management plans (WEMPs). Small to medium-sized businesses are also encouraged to develop and implement WEMPs. As at 31 March 2020, we had completed 161 WEMPs, across our non-residential customer base. In addition to WEMPs, we helped over 30 customers find and fix leaks on their properties.

These programs help to manage water resources through drought periods and contribute to deferring our next major water source augmentation. The programs can help customers save money on water and sewer usage charges and energy costs.

During the last 6 months while water restrictions were in place, WEMP actions generated water savings of 805 ML. By the end of June 2020, we forecast further savings of 772 ML by implementing scheduled actions in completed WEMPs. Hunter Water's November 2019 demand forecast does not include these savings (summarised in Table 6.1).

We also have more than 100 WEMPs currently in-development and planned for the remainder of the financial year. We expect these WEMPs to yield meaningful water savings, however, we have not forecast expected savings because the magnitude of savings is uncertain.

Table 6.1 Identified non-residential water savings (ML), 2019-20

Identified non-residential water savings (ML)	Short-run	Medium to long-run	Total
Realised savings from implemented WEMP actions and fixed customer leaks	530	275	805
Plus: Scheduled savings from completed WEMPs (not yet implemented)	63	709	772
Plus: Expected savings from partially completed and planned WEMPs	Not forecast	Not forecast	Not forecast
Total expected savings	**594**	**984**	**1,578**
Minus: 50% of scheduled savings from completed WEMPs (not yet implemented)	32	354	386
Total reduction proposed to demand forecast	**562**	**630**	**1,192**

We made the following assumptions about reductions in our revised forecast of water sales volumes (Table 6.2) and wastewater discharge volumes (Table 6.3):

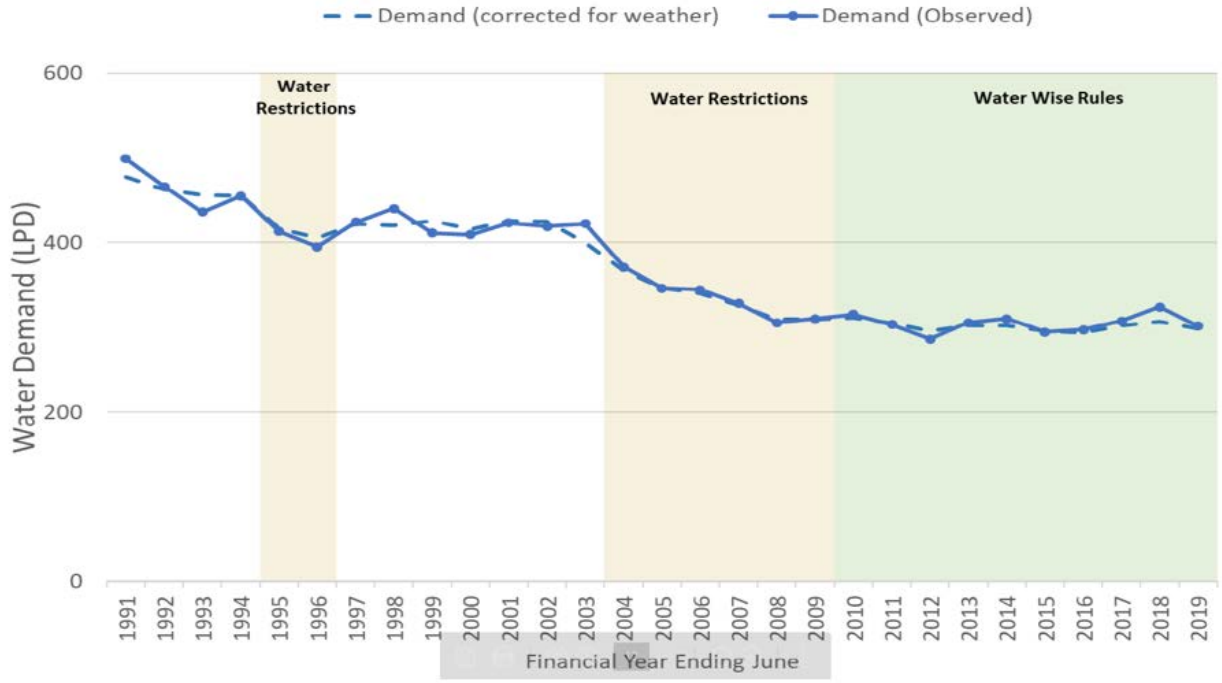
- All short-run savings deteriorate linearly over the price path – although in reality some savings will persist longer and others will be shorter-lived.
- Only half of the scheduled savings from completed WEMPs are realised. We consider that these actions are likely to proceed and the assumption is conservative. However, assuming only half of the savings are achieved appropriately reflects uncertainty relating to:
  - The scheduled actions not having been implemented or proven as yet.
  - The effect of the COVID-19 pandemic on non-residential customer's willingness to pursue water efficiency measures in the months ahead.

6.1.3 Behavioural change

There is ample evidence from other Australian water utilities during the millennium drought of a step change in customer behaviour following a period of water restrictions. The concept of 'bounce back' suggests possible deterioration of this step change in behaviour over time. The concepts of both the step change and bounce back in Australia following the Millennium Drought are discussed in Chong et al (2009).[47]

Investigations with other utilities have confirmed that the identified concepts have been realised. For example, Sydney Water reported a 28% reduction in customer behaviour pre- and post-restrictions (over a 5-year period) during the mid to late 2000s (see Figure 6.4).[48]

Figure 6.4 Step-change in per capita consumption for Sydney Water



Source: Sydney Water

'Bounce-back' has been described in various studies (for example, Beal *et al.,* 2013).[49] Sydney Water reported a 1 to 2% bounce back post-restrictions lifting in 2009.

Hunter Water has not included a value for bounce back in our updated forecast as we are focussed on maintaining our communication strategy to encourage customers to conserve water. We are confident that the lessons we have learnt regarding influencing our customer segments during restrictions can be replicated to achieve sufficient success post restrictions to avoid the bounce back phenomena.

[47] Chong *et al.*, 2009.
[48] Sydney Water, 2019.
[49] Beal *et al.* 2013.

6.1.4 Revised forecast water sales and wastewater discharge volumes

Hunter Water proposes to lower its demand forecast for the next regulatory period, based on the assumption that some of the observed changes in demand will persist once restrictions are lifted. The proposed demand is 4 to 5% lower overall across the price path, compared to the previous forecast (see Table 6.2).

Our proposed demand reduction is based on 'average conditions' and is therefore not as large as was observed over the previous seven months - which were hotter and drier than average (with the exception of March 2020).

The proposed reduction is comprised of:

- An approximately 5% reduction in non-residential demand quantified by measured savings from WEMPs and fixing leaks on non-residential customer's properties – some of these savings deplete over time. This reduces total demand by approximately 1.5% to 2% (as 40% of total demand is non-residential).
- The remaining observed demand reduction (approximately 3%) is attributed to residential (and non-residential) behaviour change. The assumptions about the persistence of demand changes post-restrictions are supported by evidence from Sydney's experience following the millennium drought where demand continued at a similar level and did not rebound to the level observed prior to restrictions.

Table 6.2 Forecast water sales volumes (ML), 2020-21 to 2023-24

Property type	2020-21	2021-22	2022-23	2023-24
Proposed revised water sales volumes forecast – April 2020				
Residential	36,700	36,833	36,952	37,097
Non-residential	19,515	19,912	20,032	20,207
Bulk water sales	1,385	1,426	1,518	1,611
Net inter-region transfers with Central Coast Council	0	0	0	0
Total	**57,599**	**58,171**	**58,502**	**58,915**
November 2019 forecast – reflected in IPART's Draft Report				
Residential	38,439	38,579	38,705	38,859
Non-residential	20,594	20,879	20,887	20,949
Bulk water sales	1,385	1,426	1,518	1,611
Net inter-region transfers with Central Coast Council	-	-	-	-
Total	**60,417**	**60,884**	**61,110**	**61,419**
Variance				
Residential	(1,739)	(1,746)	(1,754)	(1,762)
Non-residential	(1,079)	(967)	(854)	(742)
Bulk water sales	-	-	-	-
Net inter-region transfers with Central Coast Council	-	-	-	-
Total variance (ML)	**(2,818)**	**(2,713)**	**(2,608)**	**(2,504)**
Total variance (%)	**(4.7%)**	**(4.5%)**	**(4.3%)**	**(4.1%)**

Notes: 1. Totals may not add due to rounding.
Source: Hunter Water.

The wastewater demand forecast is lowered in line with the proposed reduction in water demand (see Table 6.3).

Table 6.3 Forecast wastewater discharge volumes (ML), 2020-21 to 2023-24

Discharge volume forecast (ML)	2020-21	2021-22	2022-23	2023-24
Proposed revised wastewater discharge volume forecast (ML) – April 2020	5,816	6,054	6,196	6,342
Wastewater discharge volume forecast (ML) reflected in IPART's Draft Report – November 2019	7,029	7,111	7,191	7,277
Total variance (ML)	**(1,213)**	**(1,057)**	**(996)**	**(935)**
Total variance (%)	**(19.6%)**	**(16.9%)**	**(15.7%)**	**(14.6%)**

Source: Hunter Water.

7. Water, wastewater and stormwater prices

Issue	IPART's draft decision	Our view	Comment
Water prices	Adopt Hunter Water's proposed usage price of $2.41 in 2020-21 ($2019-20) for residential/ non-residential customers with annual 1% real increases over the determination period. Set a water service charge of $4.18 ($2019-20) for residential/ non-residential customers on 20mm meters.	✓	Hunter Water supports IPART's draft decisions, which will incentivise water conservation and enable customers to have more control of their bills. However, we request a slight modification in the final decision - introduction of price flexibility, through an 'average weather' water usage price and a new 'drought' water usage price, consistent with IPART's draft decisions for Sydney Water.
Wastewater prices	Adopt Hunter Water's proposed usage price of $0.67 in 2020-21 ($2019-20) for non-residential customers, but hold constant in real terms (not nominal terms) over the determination period. Remove previous discharge allowance component from service charge for non-residential customers.	✓	We support the draft decisions, the majority of which are consistent with our proposal and customer preferences. We have some concerns with IPART's preference, in future price reviews, to set the wastewater usage price with reference to the system-wide long-run marginal cost (LRMC) of supply. In our opinion, it is premature to form this preference prior the planned review of LRMC methodologies and consideration of potential unintended consequences of adopting this pricing preference.
Stormwater prices	Maintain the current constrained area-based price structure such that the charge for each property category is set as a multiple of the 'base' charge for a freestanding house. Both residential and non-residential customers may apply for a 'low impact' charge.	✓	Hunter Water supports IPART's draft decisions.

7.1 A dynamic water usage price in response to drought

IPART's Draft Report for Sydney Water implements a dynamic water usage price that would apply under drought conditions. The drought usage price serves the dual function of helping to:

- protect the financial standing of the regulated utility from the impact of higher expenditures and lower water sales revenue during periods of drought conditions and water restrictions, and
- promote reductions in water use across the customer base in response to a higher usage price.

Like Sydney, Hunter Water and its customers have been severely affected by drought during the current price period, with significant adverse impacts on our costs and revenue.

Hunter Water's overall water storage levels were at 68% as at 9 April 2020. The NSW Government's level 1 water restrictions remain in place.

In our supplementary submission to IPART's Issues Paper, we proposed a modified demand volatility adjustment mechanism (DVAM). This mechanism would be activated in response to a significant fall in revenues associated with water restrictions, and allow recovery of lost revenues in the following financial year (water sales more than 5% below average levels).

IPART's Draft Report did not to adopt the proposed modified DVAM:

> *'The purpose of the mechanism is to safeguard Hunter Water's financial health in the event of a sustained and severe reduction in water sales. We have assessed Hunter Water's financeability … and consider that our draft prices, including the retrospective application of the DVAM, do not negatively affect Hunter Water's ability to raise capital efficiently.*
>
> *A modified DVAM and the proposed annual adjustments, if triggered, would lead to volatility in the water service charge. The existing DVAM – which assesses water sales in aggregate over a determination period – does not create the same annual fluctuations but still mitigates revenue risk to Hunter Water.* [50]

Hunter Water's internal credit metric analysis indicates that the current demand volatility adjustment mechanism would not be sufficient to protect Hunter Water's financial position - and credit rating – in the face of an extended drought. Analysis provided to IPART indicates that if not supplemented by additional revenue measures, Hunter Water's credit rating would be likely to deteriorate from BBB- to BB+, a fall to below 'investment grade' (if Level 2 or Level 3 drought restrictions applied for a full year).[51]

We note Sydney Water proposed a similar modified DVAM proposal in response to IPART's Issues Paper on the basis of concerns about the financial impact of drought and water restrictions on the business. IPART's draft decisions for Sydney Water implement a remedy in the form of a dynamic water usage price.

A return to drought conditions and a prolonged period of water restrictions into the next regulatory period would have material consequences for Hunter Water's financial position. A dynamic water usage price would provide an intra-period protection in those circumstances.

[50] IPART (2020a), p.31-32.

[51] Refer memorandum from Hunter Water to IPART, dated 21 January 2020.

7.1.1 Drought-induced losses

As enshrined in the current Lower Hunter Water Plan (LHWP), Hunter Water begins formal drought preparations as its water storage levels fall below 70%. These preparations ramp up if storages continue to fall, with water restrictions and other measures being progressively implemented when storage levels fall below 60%.

Costs incurred by Hunter Water in actioning its drought response plan over the course of 2019-20 are shown in Table 7.1. These include actuals for the period July 2019 to March 2020, and three months of estimates (i.e. April, May, June - which reflect prior months recurring expenditures and programmed spending) for the remainder of the 2019-20 financial year.

Responding to the drought is estimated to add about $14.4 million to Hunter Water operating costs for 2019-20. This includes expenditures associated with:

- water conservation measures totalling nearly $2.4 million
- the cost of implementing drought restrictions ($0.5 million)
- information and community engagement activities ($1.6 million)
- increased operational costs ($3.1 million), and
- environmental approvals, concept design and preparation for a proposed water desalination plant on our site at Belmont ($4.3 million).

Many of our program drought response activities and their associated costs would recur if drought conditions impacted our operations again during the next regulatory period. The nature and level of some expenditures may differ at the time. It may be possible to 'trim' some of the expenditures that have been incurred to date. At the same time, we would expect to incur new and additional expenses as we learn from the experience of other Australian water utilities over the past 12 months.

Hunter Water emphasises that we are reporting actual costs incurred under drought conditions over 2019-20. We made decisions to allocate expenditure to implement and enforce water restrictions, raise awareness and understanding of the impact of drought, and pursue various water conservation measures. These additional, unbudgeted operating costs were incurred with no expectation of cost recovery from regulated customers. They are revealed costs during an actual drought event and provide a robust guide to similar costs under similar circumstances in the near future.

Table 7.1 Hunter Water's drought-related expenditure during 2019-20

Program and key elements	Expenditure (est) $'000s	% of total response spending
Non-Residential conservation measures	1,487.6	10.3%
Residential conservation measures	897.1	6.2%
Water conservation measures total	**2,384.8**	**16.5%**
Restrictions implementation total	**547.8**	**3.8%**
Engagement and advertising	631.2	4.4%
Engaging with schools	101.0	0.7%
TV commercials	954.3	6.6%
Community engagement total	**1,686.5**	**11.7%**
Non-revenue water total	**-**	**0.0%**
Tomago borefields operating and maintenance	885.0	6.1%
Operational response	1,916.9	13.3%
Misc. operational response (e.g. fire management)	371.9	2.6%
Operational impacts total	**3,173.8**	**22.0%**
Belmont desalination operating expenses total	**554.2**	**3.8%**
Belmont desalination - concept design	1,409.9	9.8%
Belmont desalination – detailed design	2,900.4	20.1%
Belmont desalination plant total	**4,310.3**	**29.9%**
Belmont desalination pipelines total	**201.3**	**1.4%**
Misc. response project investigation	414.3	2.9%
Tomago scheme investigations	693.6	4.8%
Drought response option development total	**1,107.9**	**7.7%**
Program support total	**443.9**	**3.1%**
2019-20 Program total	**14,410.5**	**100%**

Non-repeating and additional operating costs if drought impacts again

Examination of the detailed measures captured in the programs above reveals some costs that Hunter Water would be unlikely to incur again (at comparable levels) if drought affected the Lower Hunter in the next regulatory period. These mainly relate to planning, approval and development activities – many of which are likely to have a shelf life of at least four years and hence would not need to be undertaken again. Key activities in this list include:

- Preliminary planning and development of the proposed Belmont desalination plant ($5.1m in 2019-20)
- Development of Water Efficiency Management Plans (WEMPS) for large customers ($1.0m)
- Development of various apps, web-based resources and tools ($0.14m)

Operating costs associated with the transfer of water to the Central Coast to help ease water scarcity there ($0.8m in 2019-20) were excluded. Hunter Water has entered into an unregulated pricing agreement that reduces the cost of bulk water transfers for both parties. Adjusting costs for all these factors gives an overall estimate for 'base' drought costs of around $$7.1 million per annum.

However, against this, there are additional costs and activities that should also be taken into account. These include:

- Next stage detailed design work on the Belmont desalination plant - now triggered by Hunter Water storages falling below 60% (previously 55%). This has an estimated total cost of around $14.5 million. Under severe drought conditions, the planned program of works would see this spent within a period of around 9 months. Under 'reasonable' drought condition expectations (where a worst case progression does not eventuate and design work can be suspended in response to improved water supply conditions) we estimate this activity would typically add around $2.5 million per year to drought-related expenditure.
- Further drought would see expansion of the 'water efficiency management plans' program to include the next tier of non-residential customers. Though smaller facilities (and water consumers) than their first tier WEMPS counterparts, they are more numerous. We estimate that further drought during the period 2021-24 would see a continuation of WEMPS expenditure at around 50% of its 2019-20 level ($1.0m x 50% = $0.5m).

With these inclusions and exclusions, we estimate that a representative (and ongoing) response to drought in the Lower Hunter would add around **$10.3 million per annum** to our operating costs.

Impact of lower water sales under restrictions

On current estimates, Hunter Water expects water consumption over the next regulatory period to be **227.2 GL**. This is broken down by year and user group in Table 7.2. IPART proposed usage charges for potable water sales and expected revenues are also shown. This combination of potable water consumption and prices gives a projected revenue estimate of $556.8 million over the next four years (in 2019-20 prices).

These revenues stand to be adversely impacted by restricted water consumption during drought.

Table 7.2 Forecast potable water consumption and revenue, 2020-21 to 2023-24

Consumer group	2020-21	2021-22	2022-23	2023-24	Total
Total residential ML	36,700	36,833	36,952	37,097	**147,581**
Non-residential (Tier 1) ML	19,515	19,912	20,032	20,207	**79,666**
Total potable consumption (Tier 1) ML	**56,214**	**56,745**	**56,984**	**57,304**	**227,247**
IPART proposed potable water usage charge ($2019-20) $ per kL	$2.41	$2.44	$2.46	$2.49	**Weighted average $2.4502**
Estimated revenue from potable water sales ($2019-20) $ million	$135.5	$138.5	$140.2	$142.7	**$556.8**

We note that in examining drought revenue impacts for Sydney Water, IPART based its calculations on the potential duration of water restrictions over the price period and likely consumption outcomes at each restriction level. This approach yielded a potential reduction in potable water consumption and associated revenues over the period of 17%.[52]

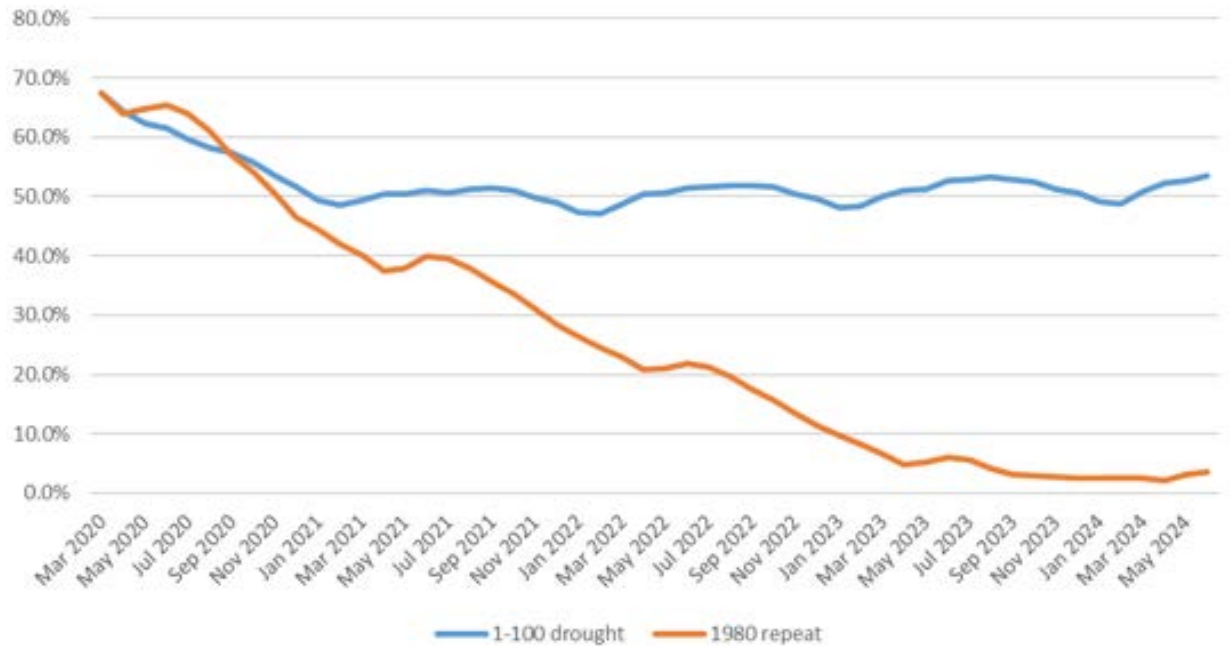
There is inherent uncertainty associated with predicting the probability, timing, severity and duration of future drought conditions. Nevertheless, Hunter Water applies best practice techniques to assign probabilities to repeat future drought sequences and conducts contingency planning around those. In modelling future drought impacts we have examined the financial impact of a '1 in 100 year' drought sequence and a 'repeat of 1980' drought sequence occurring over the next four years. The implication of these potential drought sequences for Hunter Water storage levels is shown in Figure 7.1.

Demand modelling for these drought sequences, and associated water restrictions efforts, suggests that for the 1 in 100 drought, potable water consumption would fall by about 9.9% from expected levels over the price period. For the '1980 repeated' drought sequence, it would fall by 20.4%.

Applying the water usage prices that IPART proposes in its draft decisions for Hunter Water, reductions in water sales of this magnitude (in combination with higher costs of around $10.3m per year) would imply revenue shortfalls of **$96.5 million** and **$155.3 million** respectively (at 2019-20 prices).

[52] IPART, 2020(b), p. 57.

Figure 7.1 Impact of potential drought sequences on Hunter Water storage levels



Source: Hunter Water analysis

7.1.2 A drought price to restore our financial position

Hunter Water's financial losses could be recouped through an increase in the potable water price. Different groups will adjust their consumption by different amounts in response to a water price increase. The estimated share of drought impacted water consumption across key user groups and their assumed price elasticities of demand (mirroring those applied by IPART to determine a drought price for Sydney Water) are shown in Table 3.

We note that IPART has applied a 50% reduction to the price elasticities that would apply when water availability is not affected by drought.

Table 7.3 Drought affected potable water consumption over determination period

Consumer group	Potable consumption share	'1 in 100' drought outcome (ML)	'Repeat of 1980' drought outcome (ML)	Price elasticity of demand
Houses	65%	133,075	117,528	-0.109
Apartments	5%	10,237	9,041	-0.0315
Non–residential (Tier 1)	30%	61,419	54,244	-0.132

Note: Consumption shares reflect the distribution for the FY2017-20 price period.

The elasticities imply how much consumption will change (in percentage terms) in response to a percentage price increase. They can be used to determine the drought price that must be applied in order to recoup estimated losses and the new consumption volumes that would be induced by that price.

Applying these elasticities to estimated levels of water consumption implies water usage prices of:

- $3.00 per kL in response to a '1 in 100 year' drought (and a revenue shortfall of $96.5 million), and
- $3.47 per kL in response to a 'repeat of 1980' drought (covering a revenue shortfall of $155.3 million, all in 2019-20 prices).53

Notably, this price would apply to potable water only and would not affect the price of recycled water to customers – which would continue to be set at 90% of the non-drought water usage price. In effect, the drought price would substantially increase the cost advantage enjoyed by users of recycled water and improve the economics of this alternative source of supply.

Although a 'repeat of 1980' drought is feasible it is also very unlikely. We see this is an extreme case and do not propose that a dynamic drought water price (to be applied in response to storages falling below 60%) for the next regulatory period should be based on that scenario. We consider that a price based on a '1 in 100' drought scenario would be prudent and provide a reasonable level of protection to our financial position.[54] However, this is a complex and subjective area, and we would be pleased to engage with IPART further on the merits of this and other options, and their implementation.

On balance, and based on current analysis, we propose that IPART approves a dynamic usage price for potable water of $3.00 per kilolitre (in 2019-20 prices) to be applied in response to Hunter Water's storage levels dropping below 60%, and remain in place until storage levels rise above 70%. This would not impact the recycled water price determined for mandatory schemes.

The forecast drought water sales impacts associated with drought and our proposed dynamic price response are summarised in Table 7.5.

Table 7.4 Components of water sales forecast (ML), 1 in 100 year drought scenario

	2020-21	2021-22	2022-23	2023-24
Non-drought forecast	56,214	56,745	56,984	57,304
Less restrictions impact	(3,442)	(6,717)	(6,524)	(5,832)
Less price elasticity response at $3.00 per kL	(1,317)	(1,249)	(1,259)	(1,285)
Revised drought forecast	51,454	48,780	49,200	50,187

[53] These are rounded estimates. At a greater level of accuracy, the drought usage prices indicated are $2.9961 per kilolitre and $3.4709 per kilolitre.

[54] We have also tested the impact of a 17% fall in consumption due to drought (mirroring the overall impact modelled for Sydney Water). At this level of sales reduction, Hunter Water would require a drought price of around $3.30 per kL to re-balance our revenues.

7.1.3 Customer engagement on water pricing and water conservation

Hunter Water's customer engagement activities, conducted over the past two years, indicates support by a substantial share of our customers for using water prices as a signal to conserve water.

Hunter Water's 2018 price structures survey for the price review reported 41% of customers preferring usage charges over fixed charges because it gave them greater control over their water bill (by reducing their consumption). A third of respondents listed 'providing the right incentive for water usage' for favouring a higher share of usage charges in the make up their bill.[55]

Hunter Water has tested the customer perceptions about various supply and demand options as part of early phases of the Lower Hunter Water Plan (see Figure 7.2). LHWP customer deliberative forum showed that 42 of the 100 participants supported price increases as part of a drought response, with a majority of those in favour also supporting its early introduction and use (see Table 7.4).

That the majority were against any sort of water price increase is not a surprising result. It is a consistent theme of customer surveys, and a message that we take to heart. However, that 42% of participants saw merit in pricing as a drought response is encouraging. It can be interpreted as a substantial share of customers recognising the relationship between supply costs, prices and their possible use as a demand management tool.

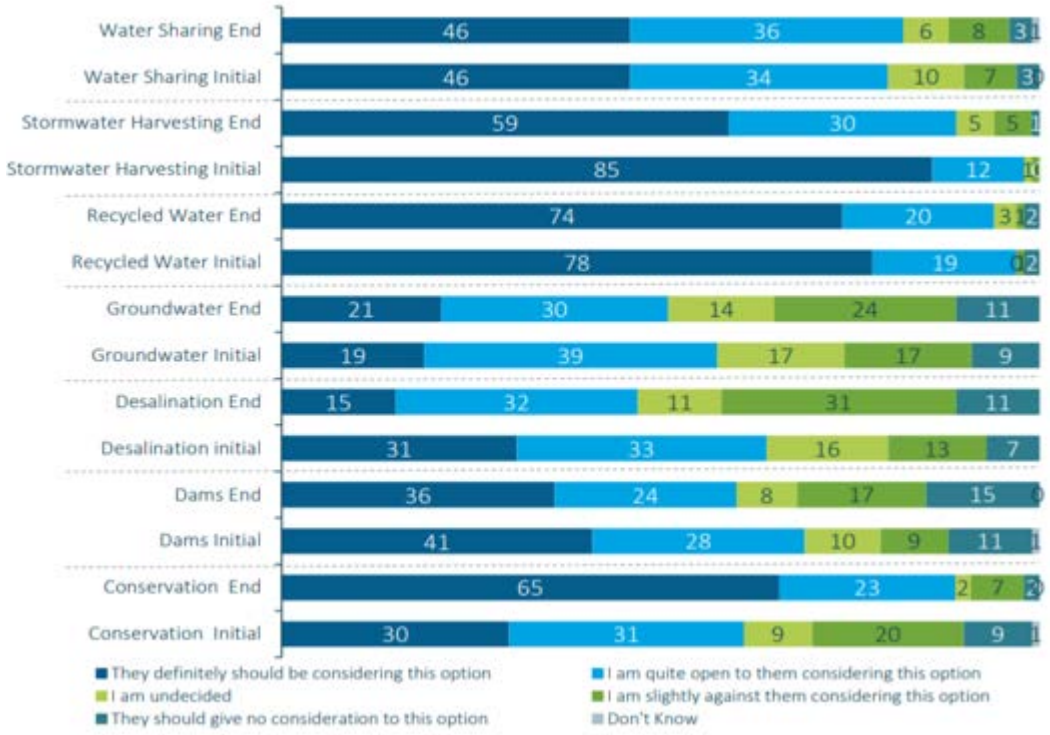
Table 7.5 Consumer feedback on the use of scarcity pricing during drought – Proportion (%) of participants in favour

Restrictions/regulation option	At all times	Early drought	Late drought	Never acceptable
Increase the price of water as storages fall to encourage water saving and pay for additional water efficiency programs	7%	24%	11%	58%

Source: Hunter Water, 2018.

[55] See Centre for International Economics (CIE), 2019, Final Report Water and wastewater pricing structure, Customer Survey, March, 2019.

Figure 7.2 Customer preferences over options for servicing future water needs



Source: Woolcott (July 2019), Lower Hunter Water Plan, Phase 2: Water Supply and Demand Options – Community Deliberative Forum Report, p. 70 (Figure 34).

7.1.4 Implementing a drought water usage price

IPART's drought water usage price for Sydney Water has a 60% water storage trigger level and turns off when water storages exceed 70%. A key feature of the dynamic price is the alignment with the billing cycle. In Sydney Water's case, this occurs on a quarterly basis.

Hunter Water currently bills customers on a 4-monthly cycle. Hunter Water's 2019 response to IPART's Issues Paper noted a one-year delay in the move to quarterly billing given the timing of our new billing system. A quarterly billing cycle must commence on the first day of a full financial year. Hunter Water noted a revised start for quarterly billing of 1 July 2021.

Hunter Water notes that IPART could defer the start of the any dynamic water usage price until such time that Hunter Water implements the quarterly billing cycle.

7.2 Wastewater prices

7.2.1 Wastewater usage charges

Wastewater usage charges are charges that vary with the volume of wastewater discharged to Hunter Water's system.

- For residential customers, it is deemed that 120 kilolitres of wastewater is discharged and associated the associated costs are incorporated into the wastewater service charge (fixed charge).
- Non-residential customers pay explicit wastewater usage charges, which are separately listed on their Hunter Water bills. For most businesses the volume of wastewater discharged is calculated as a percentage of the volume of water used.

From 2012 to late 2018 IPART preferred setting wastewater usage charges with reference to the short-run marginal cost (SRMC) of wastewater supply.[56],[57]

During the concurrent price reviews for Hunter Water and Sydney Water that are currently underway, IPART has indicated a policy change, preferring to set the wastewater usage price with reference to the LRMC in the future.[58] IPART has formed this view despite the absence of an agreed methodology for calculating the LRMC for wastewater and, in Hunter Water's case, an estimate of the quantum or range of wastewater service by area.

Calculation of the LRMC of providing wastewater services is more nuanced than calculation of the LRMC of water supply. Wastewater capital expenditure is driven my many factors - volumes play only a minor role (approximately 25%) – therefore the methodological considerations are likely to result in material variations in estimates.[59]

In our opinion, it is premature to form a tariff structure preference prior to the planned review of LRMC methodologies and consideration of potential unintended consequences.

As stated in our response to IPART's Issues Paper, it is unclear how IPART intends to use the LRMC for wastewater to inform wastewater usage charges, within the NSW Government policy context of postage-stamp pricing.[60,61] We assume that IPART would have regard for the system-wide average LRMC rather than using catchment-based LRMCs to set a different wastewater usage charge based on the customers' location.[62] Based on this assumption, we have outlined some of the advantages and disadvantages of marginal cost pricing approaches in Table 7.6.

Hunter Water is of the view that the IPART's draft decision to maintain the current wastewater usage charge in real terms for the next price period is a practical approach whilst the relationship between wastewater usage charges, SRMC and LRMC are further addressed between price reviews.

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[56] IPART, 2018(a). IPART, 2012(a).
[57] The SRMC of wastewater is taken to be the change in short-run total cost for a small change in output – effectively a one megalitre increase or decrease – with no changes in capital infrastructure. We use an average cost methodology as a proxy for SRMC, calculated by aggregating the total direct variable costs of wastewater and dividing those costs by the volume of wastewater discharged. In our July 2019 Pricing Proposal we estimated the SRMC of water to be $0.20 per kL ($2019-20).
[58] The LRMC wastewater reflects the long-term costs of wastewater transport, treatment and disposal for one additional unit volume of wastewater discharged. The long-term costs include operations, maintenance and capital investment.
[59] Hunter Water, 2019(a), p. 40.
[60] Hunter Water, 2019(a), p. 41.
[61] Postage-stamp pricing refers to a situation in which the price of a product or service does not vary based on location even if the cost of servicing each location differs.
62 IPART, 2019(a), p. 90, IPART's response to Frontier Economics' recommendation #24 in the report for Infrastructure NSW on Economic regulatory barriers to cost-effective water recycling *"LRMC estimates should ideally be specific to each relevant catchment, but we note that under the Government's policy of postage stamp retail prices, such different LRMC estimates could not be reflected in retail prices."*

Table 7.6 Advantages and disadvantages of marginal cost pricing approaches

Advantages	Disadvantages
Reference to a system-wide average LRMC	
• Potential to signal the cost of service and thereby influence either the most efficient discharge volumes for existing customers and/or the most efficient location for new customers to establish. However, it is unclear the extent to which the wastewater LRMCs calculated using different methodologies are affected by each (i.e. increases in volumes from existing customers compared with new customer connections.	• Much of the investment made in wastewater infrastructure is due to the need to meet environmental standards, rather than seeking to increase capacity and therefore is not influenced significantly by changes in flows. • The wastewater system is not interconnected so changes in demand in one wastewater system do not free up capacity in another system. Therefore customers reacting to an LRMC-based price signal in a wastewater system that is not capacity constrained will be of no benefit. This situation is in contrast with the water system, which is largely interconnected. • Applying the LRMC of one catchment across the whole network would be distortionary.[2] • Assumes that customers are able to respond to the price signal by increasing or decreasing their discharge. Residential customer discharges are likely to be price inelastic. • The range of LRMC estimates and system-wide weighted average have not yet been calculated. In our view, in the absence of LRMC estimates and consideration of the distribution of customers, there is no evidentiary basis for views such as *"the losses in economic efficiency of charging too much for customers in wastewater catchments where the LRMC is low are likely to be outweighed by the efficiency costs of charging too little for those catchments that are becoming increasingly constrained"*.[4]
Reference to SRMC	
• Avoids confusion in the types of prices used to signal the cost of growth (i.e. leaves this to developer charges).[1] • Does not preclude the opportunity to estimate and publish catchment-specific wastewater LRMCs for use in signalling the locations where wastewater recycling is most likely to be efficient and calculating the avoided costs of recycled water. • Does not preclude using the LRMC based on variations in the quality of discharges being used to inform trade waste high strength charges ($/kg of pollutant).	• Does not signal the long term consequences of increases in the volumes discharged. • *Effectively assumes there are no constraints anywhere at any time.*[3]

Notes:
1. The prevailing NSW government policy is that developer charges are set to zero. However, IPART has an established methodology that is readily activated if the policy changes.
2. IPART, 2012(a), p. 120.
3. Sydney Water, 2015.
4. Frontier Economics, 2018, p. 77.

7.3 Implementation of prices

7.3.1 Non-residential minimum sewerage services charge

2020 Draft Determination

Schedule 2 clause 1 (c)

It has been confirmed with IPART that the calculation and use of the minimum sewerage services charge for non-residential properties is at a per meter level. This is not being questioned by Hunter Water.

The issue is with the methodology to calculate the minimum charge, indicated in the draft determination and confirmed by IPART since its release. The draft determination states that the minimum charge applies to each meter that services a non-residential property in the following circumstances:

(Adjusted sewerage service charge + sewerage usage charge*)*

is less than

Adjusted residential house service charge (excluding deemed usage)

Where 'adjusted' refers to that a discharge factor has been applied to the unadjusted sewerage service charge.

The inclusion of the non-residential sewerage usage charge in this calculation is significantly different to the current 2016 calculation method. This adds a high degree of complexity and cost from a billing system perspective.

2016 Final Determination

Schedule 2 clauses 5 and 6

The minimum sewerage service charge for each meter that services a non-residential property applies where:

Sewerage service charge ((meter connection charge * discharge factor) + deemed usage charge)

is less than

Residential house service charge ((meter connection charge* 75%) + deemed usage charge)

Under the 2016 Determination, a deemed usage charge (determined by a deemed wastewater discharge allowance in kilolitres), is included implicitly in the fixed sewerage service charge. As well as this deemed usage charge, non-residential customers pay a sewerage usage charge on discharge volumes above the deemed discharge allowance. This volumetric sewerage usage charge is not part of the minimum sewerage service charge calculation above.

Impacts

There are a number of billing system complexities with the proposed change to include the variable sewerage usage charge:

- In both our current Oracle billing system and new Velocity billing system, the calculation of the sewage discharged is made during the bill production process. Under the 2020 determination calculation method, this data would have to be captured in a table to be included in the calculation. This in itself is a major change and would also require the order of bill creation to be modified so that sewerage usage is always calculated first to be available for use for the fixed charge.
- The periods that the charges apply for are different. Fixed service charges apply in advance for the full bill cycle period e.g. 1 March to 30 June, whereas usage charges vary from property to property dependent on the meter reading schedule. Reading schedules are not static and are impacted by weather and property site conditions. These are uncontrollable factors that impact the length of the meter read period. These factors would affect the calculation of the minimum charge and could find it varies significantly from bill cycle to bill cycle.
- Operationally a change to a meter read to correct an already generated bill is a common occurrence for many reasons. This adjustment would result in a re-calculation of the service charges which would be highly complex to re-calculate and difficult to explain to the impacted customer.
- This proposed change would mean that a fixed service charge is effectively becoming a variable charge which seems to be inconsistent with its intent. Fixed service charges and variable usage charges have completely different logic in billing systems and do not easily align.
- To changeover billing system from one calculation method to the other and to pro-rate the associated charges from 1 July would be difficult programmatically and expensive. Given its complexity there is doubt that it could be achieved and implemented successfully by 1 July. Where there is complexity there is also risk that billing issues could be introduced which may have a detrimental impact on the customer.

Hunter Water is not able to identify any material benefit to the proposed change in the minimum charge calculation which would justify the expense, the added complexity to the billing system, and potential risk to the customer. We consider it more equitable for the non-residential sewerage service charge to be considered against the residential sewerage service charge in isolation. This would result in non-residential customers paying an appropriate service charge to contribute to the largely fixed costs of the wastewater system costs, and a separate sewerage usage charge based on estimates of their actual wastewater discharge.

Recommendation

That IPART:

- adjust the 2020 final determination to include a minimum sewerage service charge (as is current practice from the 2016 Determination), rather than a minimum sewerage services charge.
- remove the sewerage usage component from its calculation of the minimum sewerage service charge by using the following calculation method:

Adjusted sewerage service charge

is less than

Adjusted residential house service charge

7.3.2 Common meter charge for non-residential joint services

2020 Draft Determination

Schedule 1 clause 2.3 (d) and Schedule 2 clause 2.3 (d)

Clause 2.3 in schedules 1 and 2 of the 2020 draft determination deals with the apportionment of common meter service charges between non-residential properties serviced by the common meter. Under clause 2.3, where there is a non-residential shared service that contains a common meter with downstream individual meters, the service charge applicable to a property for each common meter is a portion of the service charge for the common meter size. The service charge applied to the property connected to the common meter account shall not be greater than the meter based service charge applicable to the meter size less the sum of the service charges for any individual meters that are downstream of the common meter. If a negative value, then the property with the common meter would pay $0.00.

Issues

The majority of Hunter Water's non-residential shared service connections are multi-premise strata or community title developments. The common meter account for these types of developments do not attract fixed service charges as they are not a 'Property' in accordance with the definition in schedule 7 of the draft determination. These accounts exist as a mechanism to monitor and charge any residual water consumption registered after deducting individual downstream metered water consumption.

There are 53 historical joint service arrangements where there are non-residential properties that have a common meter and downstream individual meters. The common meter account in these developments attract a fixed service charge as they are connected to a specific property (the parent property). Of these, there are 38 properties that would calculate a service charge to either be less than a 20mm meter equivalent or be negative. This would result in a $0 service charge under the 2020 determination.

For these 38 parent properties we consider it is more appropriate that the equivalent of a 20 mm residential standalone service charge for water and sewerage service be applied (as compared to $0). Our reasons include:

- In these historical arrangements the sizing of the water service for the parent property (which has subsequently become the common meter) is not reflective of the development type or use. At the time of the original connection, service sizing would have been specific to the parent property and not have considered any downstream arrangements.
- These properties are typically either remote or on the outskirts of water and sewerage supply systems. The parent property would have connected to the services in the first instance for their own private purpose. At some point, by private arrangement and agreement with Hunter Water, neighbouring properties would have connected downstream creating a shared service simply because it would not have been economic to extend water or sewer supply networks to these properties. We have not allowed this shared service arrangement since the early 1990's so the remaining properties mentioned are all legacy historical arrangements.
- Under the 2020 determination, customers downstream of the common meter would be paying more than the parent property. As these customers are further from the connection point, it could be argued that they are provided a lesser water supply service to the customer directly connected to the common meter. This doesn't seem equitable. We consider that the payment of a minimum by the parent property is more cost reflective of the service delivered to this customer's property. From a wastewater perspective, these properties would all receive an equal service offering. Retaining the minimum 20mm is fair and reasonable.

- The parent property account in an all residential or mixed residential / non-residential joint service arrangement currently pay the single 20mm charge. Under the 2020 determination, they would pay more than an equivalent property in a non-residential arrangement, simply because their pricing is not meter based.
- This represents a change to our billing systems. We consider that the cost of implementing this change for only 38 properties does not provide any material benefit to our wider customer base.

Recommendation

That IPART adjust the 2020 final determination to apply a minimum charge (rather than $0) to the common meter property in a non-residential joint service arrangement. This minimum charge should equal the single 20mm meter charge for water and sewerage services.

8. Discretionary expenditure

IPART has taken a step forward by allowing water utilities to be more responsive to their customers, particularly in relation to expenditure that enables utilities to deliver services and outcomes that exceed those mandated through regulations (i.e. discretionary expenditure).

It is clear that IPART and water businesses' understanding and experience in willingness to pay is evolving. This is the first time that NSW water businesses have proposed, and IPART has assessed, discretionary expenditure proposals informed by robust willingness to pay studies. Practical application of willingness to pay techniques presents challenges and opportunities, which we describe in this section.

We look forward to working further with IPART and other stakeholders to finalise the draft discretionary expenditure framework. Hunter Water considers the framework should be finalised outside of the current price review.

Issue	IPART's draft decision	Our view	Comment
Discretionary expenditure framework	Establish a discretionary expenditure framework, to apply to current and future discretionary proposals.		IPART is seeking to set a more comprehensive framework for the assessment of discretionary expenditure proposals. Whilst this is a positive step, Hunter Water has concerns regarding the draft framework and the process used to develop it. The draft framework has been created from an academic perspective that fails to recognise real world application issues. The draft framework contains advice that is potentially internally inconsistent, that falls short of best practice willingness to pay study principles, and / or where clarity could be improved. Our preference is for this type of 'form of regulation' type review take place between price reviews as it allows better opportunities for water utilities and stakeholders to provide constructive input. We therefore request that IPART defer finalisation of the discretionary expenditure framework, instead initiating a separate review following completion of the current price reviews of Hunter Water, Sydney Water and WaterNSW.
5. Proposed discretionary expenditure	Allow Hunter Water to recover the costs of its proposed projects from residential customers.		We agree that it is appropriate for IPART to exercise a level of discretion in allowing Hunter Water to recover the costs of discretionary expenditures from 2020, particularly given the limited guidance available on the assessment framework prior to the submission date for our Pricing Proposal.

				We are disappointed with the Gillespie Economics (GE) report assessing our willingness to pay study. If read in isolation, the GE report could be misinterpreted. If IPART had followed its typical process, whereby utilities are asked to provide written evidence to IPART's consultants and attend interviews, the errors, misunderstandings, internal inconsistencies, and misrepresentations evident in the report would have been raised and addressed.
6.	Output measures	To apply three output measures in relation to Hunter Water's discretionary expenditure.		It is appropriate to hold us accountable for delivering the outputs of discretionary projects where customers are contributing to the costs. In our willingness to pay study we said we would deliver the outputs if there was sufficient evidence of customer support. It is important for our credibility, and to preserve the integrity (realism and consequentiality) of responses in future willingness to pay studies, that we follow through on our commitments.

Notes: 1. IPART, 2020(a), p. 10 and 93.

8.1 Discretionary expenditure framework

IPART is seeking to set a more comprehensive framework for the assessment of discretionary expenditure proposals and has proposed a draft for comment.

The draft framework builds on comments as part of previous price reviews, such as:

- A reference in mid-2016 that IPART "would require clear evidence that the utility's customers have the capacity and willingness to pay for the discretionary expenditure". [63] This statement was reiterated in mid-2017.[64]
- Listing of five customer engagement principles in the *Guidelines for Water Agency Pricing Submissions* as the standard against which utilities engagement activities would be judged. The principles are *"relevant, representative, proportionate, objective, and clearly communicated and accurate"*.[65]
- Provision of guidance on best practice principles for measuring willingness to pay on 1 July 2019 (the date that Pricing Proposals for Hunter Water and Sydney Water retail water, wastewater and stormwater services were due).[66] This was coupled with a decision to use the *Guidelines for Water Agency Pricing Submissions* as the key reference document for guidance on the evidentiary requirements for customer willingness to pay studies.[67]

Hunter Water considers IPART's move to establish more comprehensive guidance on willingness to pay is a positive first step. There are some areas of the guidance that could be improved so that it does not present undue barriers to robust customer engagement, particularly in the field of stated preference surveys. We present here some preliminary observations on the draft framework, as an indication of the types of issues that could be better addressed if finalisation of the framework was deferred to a separate review.

The draft framework consists of two stages and five phases, however it is unclear how the stages and phases interrelate and the role of IPART, IPART's expert consultants, utilities and other stakeholders in each. Observations are provided for each phase.

8.1.1 Phase 1: Project definition

IPART will consider whether the project is discretionary. It implies that there is always a clear distinction between mandatory obligations and discretionary projects. It is worthwhile considering whether this axiom remains valid under the complexity of regulations faced by water utilities. Some regulations require utilities to implement management systems and risk management frameworks, which suggests that the distinction is more nuanced. Furthermore, IPART sets prices to recover the efficient level of costs incurred by a monopoly service provider to meet mandatory standards. There may be circumstance in which customers prefer, and are willing to pay for, the standards to be meet through a means that is not 'least cost'.

IPART will consider whether a proposed project "is sufficiently related to a utility's monopoly service provision".68 This statement is ambiguous, as is IPART's action if it assesses a utility's proposed project as insufficiently related. The ambiguity is evident in IPART's application of the draft framework to Hunter Water's stormwater amenity improvement proposal, it which it states "This proposal fits within the utility's responsibilities however there is some overlap with local council stormwater responsibilities" – not a clear yes or no. We acknowledge and support the need for flexibility, however it is preferable that we do not raise customer expectations if certain types of projects are unlikely to ever be acceptable.

[63] IPART, 2016, p. 37.
[64] IPART, 2017, p. 15, 24, and 25.
[65] IPART, 2018(b), p. 24.
[66] IPART, 2019(a), p. 60-62
[67] Ibid. p. 6.
[68] IPART, 2020(a), p.95.

8.1.2 Phase 2: Willingness to pay

We agree in principle that bill impacts should be shown in the context of the broader bill impact. However, there are practical impediments in doing so, such as the timing of customer engagement to feed into modelling and assurance activities (at least 12 to 18 months in advance lodging a pricing proposal) and the many factors that can affect bills. The latter is evident in the impact of the change in WACC in less than 12 months between Hunter Water lodging its Pricing Proposal (4.1%) and IPART's draft decisions (3.2%) – accounting for 72% of the change in notional revenue requirement.

Proportionality between proposed expenditure and required evidence of willingness to pay is important. IPART describes two approaches as being economic willingness to pay studies and market research (financial) willingness to pay studies.

- IPART comments that a market research may be acceptable for small projects or as an early step in multi-phase customer engagement. The characteristics of 'small' projects are not defined. In practice, this means that IPART's draft framework will result in water utilities only ever undertaking economic WTP studies.[69]
- Fundamentally economic WTP and market research WTP approaches are almost identical, and have largely the same best practice principles. We request that IPART clarifies what it sees as being the distinguishing characteristics of each approach.

Elements of IPART's draft framework are internally inconsistent. As an example, IPART's preference for economic WTP studies seems to be contradicted within the detailed appendix where IPART states that *"the dollar amounts presented in the survey correspond with the actual estimated cost of the project or outcomes"*.[70] IPART is describing a market research WTP method, consistent with Hunter Water's 2018 WTP study.

Hunter Water believes some suggested elements of WTP studies are also impractical, such as presenting the bill impacts in not only the context of future changes to water utility bills but also, in the Gillespie Report proposed best practice principles *"…the broader context of expected or proposed changes in prices for other service (both marketed and non-marketed)"*.[71] This would require water utilities to project future energy unit prices and consumption levels, rental payment, home loan interest rates and *"non-marketed"* costs such as pollution. IPART has adapted the Gillespie Report recommendations to be *"…the broader context of expected or proposed changes in prices for other services…"* however it is unclear whether these other services are limited to those provided by the public water utility or economy-wide products and services.[72]

As IPART's best practice principles relate to the contingent valuation method of eliciting customer WTP, Gillespie Economics has recommended that IPART also develop best practice principles for choice modelling.

Best practice guidelines have already been developed by the NSW government and a recent peer-review journal article published by renowned experts with recent practical experience in WTP studies provides guidance for all types of state preference studies.[73] These could readily be adapted for use in price regulation of public water utilities. This would preferably happen through a collaborative approach between IPART, water utilities and other stakeholders.

[69] IPART, 2020(a), p. 97.
[70] IPART, 2020(a), p. 231.
[71] Gillespie Economics, 2020, p. 24.
[72] IPART, 2020(a), p. 232, Box O.1
[73] Johnston *et al.,* 2017.

We acknowledge IPART's draft decision not to allow us to collect a contribution from non-residential customers towards the discretionary projects that we have proposed on the basis that we did not ask their willingness to pay. However, we think IPART's draft framework locks us out of ever being able to seek funding from non-residential customers towards future discretionary projects due to the difficulties we face in achieving representative samples of an appropriate size.[74]

We draw IPART's attention to our previous comments on the substantial efforts that we undertook to engage with non-residential customers in preparing our Pricing Proposal, only to achieve a sample size of around 50 customers due to non-capital city coverage.[75] This draft decision is inconsistent with IPART's general preference for consistency between water utilities, and arises simply because Sydney is able achieve larger sample sizes. It also serves to drive up the discretionary charges for residential customers (because the same cost is spread over fewer customers).

We also note that willingness to pay studies should form part of understanding customers' preferences and willingness and ability to pay for discretionary services. Economic regulators in other jurisdictions, including Victoria and South Australia, agree with this view. They encourage regulated water utilities to use multiple methods to demonstrate customer willingness and ability to pay including more deliberative approaches. IPART's draft framework should be extended to explicitly support mixed method approaches.

8.1.3 Phases 3 to 5: Efficiency test, delivery and accountability

It is conceptually sound to consider an ex-post adjustment based on the actual cost of delivery and extent of outcomes delivered. Our preference would be for IPART to more explicitly acknowledge that the adjustment would be symmetrical – a return of excess funds to customers or a upward adjustment to charges – provided that these remain substantiated by the WTP study.

On a practical note, it is unclear how the concept of a funding envelope (or cap of prices) relates to elements of IPART's best practice principles, such as reporting of confidence intervals, making uncertainties clear in the survey instrument and changes to the underlying context of customers' decisions (e.g. changes to other bills levels).[76] Moreover, IPART opines an "*expectation that the charge remains equal to or below the demonstrated willingness to pay amount over the long term"*, which requires a spurious level of accuracy and over 30 years of foresight into regulatory parameters such as future WACC methodologies, WACC levels and asset lives – none of which could reasonably be expected from a regulated water utility.

8.1.4 Invitation to progress the draft discretionary expenditure framework after this price review

Whilst we have indicated a number of concerns and practical barriers within IPART's draft discretionary expenditure framework, we do recognise that additional clarity would add value. Our preference would be for IPART to initiate a separate review, between June 2020 and Dec 2022, during which IPART, all price regulated water utilities (Sydney Water, Hunter Water, WaterNSW, Central Coast Council and Essential Energy (Broken Hill), and other stakeholders are able to participate in a transparent and collaborate process to finalise the discretionary expenditure framework.

[74] Representativeness is one of IPART's five principles for customer engagement contained in the Guidelines for Water Agency Pricing Submissions.
[75] Refer to Hunter Water, 2019(a) and the Public Hearing transcript for further details.
[76] IPART, 2020(a), p. 232, Box O.1.

8.2 Communicating progress on discretionary projects

IPART has requested that, as part of this response to the Draft Report, we outline how we propose ensuring progress on discretionary projects is communicated effectively to its customers. We note that IPART's first preference is for us to list the associated cost through a separate, single charge on each residential customer bill.[77]

As this is the first time IPART has allowed discretionary expenditure to be recovered through prices, we propose taking an approach that balances customer communication channel preferences with the cost of implementation, and being flexible to adapt our approach in response to feedback.

Our intention is to initially use our newsletter to all Lower Hunter households (The Fountain) as the primary means of communication, supplemented by media, social media and website content as appropriate. The distribution of The Fountain, issued biannually, exceeds that of our Making Waves newsletters distributed to customers with their bills.

As IPART is aware, Hunter Water is transitioning to a new billing system however, in the short term we need to make changes to our existing billing system to enable us to implement the new Price Determination from 1 July 2020. It is prudent and efficient for us to minimise changes to our existing billing system, as the costs are sunk and the benefits will only accrue for a limited period. We therefore prefer not to list the cost associated with customer-supported discretionary projects through a separate, single charge on each residential customer bill.

As we move to the new billing system, and receive feedback on communicating progress on discretionary projects via our other channels, we intend to reassess the merits of separately listing a charge of around $0.50 per household per four-monthly billing cycle (or $0.35 per quarter).

[77] IPART, 2020(a), p. 236.

9. Other prices

Issue	IPART's draft decision	Our view	Comment
Recycled water	Continue to defer setting prices for the recycled water schemes that service recent residential developments in Gillieston Heights and Chisholm schemes.	✓	IPART has assessed our proposed prices and found our proposed prices to be consistent with the pricing principles established in IPART's 2019 recycled water review. We will remove the recycled water service charge and set the recycled water usage charge to 90% of the 'average weather' water usage price. This should improve equity and encourage use of recycled water.
Trade waste	Accept Hunter Water's restructured trade waste prices, except the price uplift from $5.95 to $9.20 in 2023-24 for tankered customers.	?	We propose transitioning to our new trade wastewater charges by deferring their introduction until 1 July 2021. This will provide customers whose bills would increase (the minority) time to adjust their practices. A transition period is also appropriate given the uncertainty and possible business impacts of the COVID-19 pandemic.
Miscellaneous and ancillary services	Accept restructuring of most miscellaneous charges with reduction of dishonoured and declined payment fee to $27.85.	✓	Hunter Water supports IPART's draft decisions.
Raw water	Replace 'unfiltered water' charge (that includes a service charge and discounted usage charge) with a 'raw water' usage charge of $0.38 per kL.	✓	Hunter Water supports IPART's draft decision.

9.1 Trade waste prices

Hunter Water provides trade wastewater services to commercial and industrial customers whose discharge to our wastewater system is more contaminated that regular domestic wastewater. We only provide these services where there is available capacity and capability at the receiving wastewater treatment plant.

We have two main types of trade wastewater, distinguished by the method customers use to deliver wastewater:

1. Sewered trade wastewater - from customers via property connections to the sewer network
2. Tankered trade wastewater -from tankers that deliver wastewater directly to wastewater treatment plants.

9.1.1 Costs attributable to trade waste services

3 Should Hunter Water include a share of wastewater capital costs in trade waste prices?

IPART's question on sharing of capital costs by trade waste customers is more complex than is immediately apparent. We considered the following matters when preparing our 2019 pricing proposal:

- Whether there is a causal link between additional wastewater flows (volumes) or quality (concentration and/or load) from trade wastewater and capital expenditure in the wastewater system.
- Whether any relationship between trade wastewater flows or trade wastewater quality and capital expenditure can be accurately and reliably quantified.
- Whether the trade wastewater customer is already contributing to wastewater capital costs in other prices.

We upgrade wastewater treatment plants to accommodate reticulated growth over a long-term design horizon. Our acceptance of tankered waste loads relies upon utilising existing spare plant capacity. Conversely, sewered trade wastewater customers are contributing to system-wide average capital costs in the wastewater network and at wastewater treatment plant via their payment of wastewater service charges and wastewater usage charges).

These considerations reflect guidance provided in IPART's trade waste pricing principles.[78]

Our judgement for the next price period is to maintain our current practice whereby high strength charges only reflect variable operating costs and an allocation of corporate overheads

We see merit in further considering this issue over the next price period to inform our proposal for prices to apply from 1 July 2024. There may be a role for IPART to provide guidance on its view around materiality when assessing the causal link between trade waste and wastewater treatment plant upgrades.

4 Would setting differential prices between wastewater catchments, based on the LRMC of supply, be a more appropriate basis for setting high strength prices than the current approach, which is based on operating costs only?

There is merit in setting trade wastewater high strength charges (for sewered customers) with reference to the catchment-specific quality-based LRMC estimates. To our knowledge, the LRMC of wastewater quality (load) has only been estimated in two Australian Jurisdictions covering three treatment plants – Melbourne Water (two wastewater treatment plants for biological oxygen demand, suspended solids, total kjeldahl nitrogen)[79] and SA Water (one wastewater treatment plant) – far less than Hunter Water's 19 wastewater treatment plants.

As noted in our 2019 pricing proposal, we do not specifically design facilitates for trade waste loads given the balance between the investment required and the risk of customers ceasing operations or initiating onsite treatment.[80] Under this working assumption, we would expect the LRMC and SRMC wastewater estimates to converge.

[78] IPART, 2020(a), p. 115, Box 11.1.
[79] Melbourne Water, 2015, p. 65-66. Essential Services Commission, 2016, p. 71.
[80] Hunter Water, 2019(c), p. 10.

9.1.2 Receival stations for trade waste delivered by tanker

5 Is Hunter Water's proposed $5.7 million capital program to upgrade receiving stations at wastewater treatment plants for tankered customers efficient?

Hunter Water currently accepts tankered wastewater at five (out of nineteen) of our wastewater treatment plants. In our 2019 pricing proposal, we proposed $5.7 million capital expenditure to improve digital controls and construct tanker receival infrastructure to better manage the risks of receiving tankered wastewater. The project will help our tankered wastewater customers do business with us. In accordance with IPART's trade waste pricing principles, we proposed to recover this cost directly from the beneficiaries of the service – tankered wastewater customers – in the year following planned commissioning of the infrastructure.

IPART's draft decision did not accept our proposed expenditure and cost recovery method for this project. We accept IPART's draft decision. However, we want to provide clarity to stakeholders in response to IPART's stated reasoning:[81]

"The project is at a very early stage and while Hunter Water has explored some options, a robust business case for the preferred options has not yet been developed."

In 2018, we prepared a detailed tanker servicing strategy with the assistance of engineering consulting firm Hunter H2O. This strategy involved undertaking value management workshops, technical engineering work, first-principles cost estimates, present value analysis (including scenario testing), and a multi-criteria analysis to assess a long-list of options for managing the risks of receiving tankered wastewater. Ten diverse options were evaluated, including non-capital solutions.

The preferred option, increased digital controls in combination with modified receival facilities, passed through the first formal gate (Gateway 1) of our Gateway Approval Process following review and approval by our Management Investment Committee. We consider that this strategy and business case process is certainly robust, albeit less robust than for a project at a later stage of the gateway process. The level of evidence and analysis underpinning the proposed expenditure is equivalent to, or exceeds, that of a typical project of similar risk and value at the Gateway 1 stage. The tanker servicing strategy and the G1 business case were provided to IPART for review in December 2019.

"... At this point in time there is a degree of uncertainty that the project would go ahead in 2022-23."

We are eager to address the risks posed by receiving tankered wastewater and are confident that the infrastructure could be delivered by the committed date. Our project delivery performance and capability was assessed by Aither as part of IPART's expenditure review, with no adverse findings made. The COVID-19 pandemic has introduced additional risks to delivery timing. The costing methodology is consistent with our approach for other projects and contains standard uncertainties that would be expected for a project prior to detailed design of the infrastructure.

Because the expenditure is proposed to be recovered separately through the volumetric tankered waste charge, we understand and accept that IPART's required level of project certainty might be higher than when assessing typical capital expenditures recovered via tariffs from the broader customer base.

"Hunter Water's consultation with tankered customers (i.e. the 2018 survey) explored issues around satisfaction with the service, but not costs of the service"

[81] IPART, 2020(a), p. 116.

We see merit in IPART's implied view that additional consultation with tankered wastewater customers about the costs/price impacts of the service may be beneficial. However, the primary driver of the capital expenditure is to reduce risks relating to the provision of our services. The potential benefit to customers (e.g. of increased operating hours) is a secondary benefit of the project that could help us improve our service offering to customers in line with findings from our customer engagement.

Our decision to offer increased operating hours is subject to assessment of security and other considerations throughout the gateway process.

Hunter Water intends to progress the business case for receival stations for tankered wastewater customers. We would look to commission these works in 2023-24 and seek cost recovery via charges applied directly to tankered wastewater customers from 1 July 2024.

9.1.3 Bill impacts

6 What strategies could Hunter Water adopt to mitigate bill shocks for some trade waste customers?

7 Should any trade waste price increases be transitioned to avoid negative effects?

Recap of our proposed changes to trade wastewater charges

Hunter Water completed a comprehensive review of our trade wastewater pricing in 2018. As a result, we proposed new trade wastewater prices in our 2019 pricing proposal. We consider that these charges better reflect the costs we incur in delivering services to sewered and tanker trade waste customers. The most significant changes that we proposed are:

- Introducing high-strength charges for Moderate agreement trade wastewater customers based on the actual strength of their discharges. Moderate customers currently pay an 'average' strength charge included in their annual agreement fee.
- Charging separately for BOD and TSS loads, rather than using only the higher of either parameter.
- Reducing the domestic-strength equivalent concentration threshold for BOD and TSS, above which high-strength charges would apply.
- Resetting the catchment-specific high strength charges (BOD and TSS) to reflect updated costs to transport and treat wastewater in each of our nineteen wastewater treatment plant catchments.
- Simplifying the charging structure for tankered wastewater customers by charging a single volumetric fee for all types of tankered wastewater.

Based on our new charges, the total increase in revenue we expect to receive from trade wastewater customers is modest. However, individual customer bills will be affected differently:

- Some customers will pay less – for example, moderate customers with high quality wastewater discharge (i.e. below the assumed 'average' strength).
- Some customers will pay more – for example, moderate customers with poorer quality discharge and major customers who operate in a catchment where our costs to treat the wastewater have increased.

IPART's Draft Report supports our proposed new charges, pointing out that they are more cost-reflective – meaning that what customer's pay more closely reflects the costs they impose on our system.

IPART's Draft Report notes that the bill impacts for some customers would be significant and poses two inter-related questions for stakeholders:

"What strategies could Hunter Water adopt to mitigate bill shocks for some trade waste customers?"

"Should any trade waste price increases be transitioned to avoid negative effects?"

We address the first question by describing the mitigation strategies that we are undertaking in section 9.1.3.2. We address the second question by proposing transitioning the proposed new charges by deferring their introduction, by one year, until 1 July 2021 in section 9.1.3.3.

Engaging with our customers to help mitigate bill impacts

In September 2019, we sent letters to all our trade wastewater customers informing them of proposed new charges and inviting each customer to participate in IPART's price review, or to contact Hunter Water to discuss what actions could be undertaken to mitigate any potential bill increases.

Since our 2019 pricing proposal, we have undertaken an extensive sampling, inspection and engagement program. We undertook this work for two reasons:

- To confirm that the volume and strength of customer's discharge is representative of their current operations – this will help ensure customers are being charged as accurately as possible.
- To help identify ways that the volume and strength could be lowered, leading to reduced bills and, for some customers, mitigation of potential bill increases from our proposed new charges.

Following confirmation of customer's strength and volume, we are working with the customers to understand their operations and providing recommendations about how the customer may be able to reduce the volume and strength of their trade wastewater discharge.

Reducing volume has involved actions such as:

- Reviewing and ensuring that each customer's assumed sewer discharge factor and trade waste discharge factor are accurate. These factors are used to estimate the volume used in calculating both trade wastewater high-strength charges and also sewer usage charges.
- Recommending water efficiency improvements. Some examples include changes to customer's production and business processes, repairing of leaks, and increasing onsite water reuse.
- Consideration of third-party alternatives, such as discharging trade wastewater to a party who may be able to reuse it onsite or perform further pre-treatment prior to discharging it to Hunter Water's wastewater network.

Reducing the strength has involved actions such as:

- Undertaking housekeeping-type activities and changes to operational processes that can improve trade wastewater quality. For example, frequency of reviews and cleaning maintenance.
- Recommending onsite options to pre-treat the trade wastewater prior to discharge. These may require upfront capital investment, but over time can have a net positive return for the customer through lower ongoing high-strength charges/bills.
- Suggesting changes to production methods and processes. For example, installation of grease traps in the production process.

We have learnt a lot through this sampling, inspection and engagement program. Relevant observations include:

- Moderate agreement customer understanding is generally low about trade wastewater strength and volume.
- We underestimated the time required to build knowledge of customer's operations and provide effective recommendations that improve quality and/or volume of discharge.
- The lead times and costs for customers to implement pre-treatment solutions are longer and higher than we previously thought. The solutions may be capital-intensive and require considerable time and cost to design and construct.
- Setting site-specific discharge factors (using information gained via temporary sewer meters) is helping to mitigate bill impacts for certain customers. However, this process has required more work than expected.

Improving Hunter Water's understanding of moderate trade wastewater customers and helping them to better understand their own operations and bills is leading to improved outcomes. The more time we spend engaging with customers about trade wastewater and water efficiency, the better outcomes are achieved – for Hunter Water, for the customers, and ultimately environmental impacts.

Our program initially focused on 'moderate agreement' customers, as we had not previously charged these businesses using actual discharge quality. We are also focusing our efforts on the most adversely affected customers; those facing the largest potential bill increases or those who could be under financial stress.

Proposed transition of trade wastewater charges

We propose transitioning to our new trade wastewater charges by deferring the start date to 1 July 2021. There are two main reasons for this:

- It will allow more time for mitigation measures to reduce bills, as described above. Customers will have more time to respond to the proposed price increases by adjusting their practices.
- The poor timing of proposed bill increases for trade wastewater customers, given the uncertainty and possible business impacts of the COVID-19 pandemic.

For some customers, COVID-19 is adding to the impacts of ongoing drought over the last year or more. Hundreds of our customers, for example pubs and clubs, have been forced to close and their revenue has ceased. Others are exposed to broader economic factors, such as reduced consumption and investment spending. We only have an early outstanding of the impacts, but are likely to persist for some time.[82]

Data published by the ABS from a mid-March survey indicated that approximately half of businesses surveyed had experienced an adverse impact as a result of COVID-19 and 86% expected to be impacted in future months.[83] Importantly, this data was collected prior to the Australian Government announcing Stage 1 Restrictions on social gatherings, therefore, it may underestimate the impact.

Bills for many of our trade wastewater customers would not increase under our proposed charging structure. Nonetheless, we are of the view that the most equitable, transparent and administratively simple way to transition is for all proposed new charges to be deferred until July 2021.

The proposed transition covers agreement fees, high-strength charges and tankered wastewater charges. Due to the relative complexity of the charging structure and calculation of high-strength charges, it is not possible to only transition customers who would experience bill increases.

For 2020-21, we propose that all trade wastewater customers continue to pay the IPART-determined trade wastewater charges (Schedule 4) that apply for 2019-20, and that these charges be indexed by the March-March CPI as occurs for regular annual pricing updates within a determination period.

[82] Hunter Research Foundation Centre, 2020.
[83] Australian Bureau of Statistics (ABS), 2020.

If we adopt this approach, the revenue we expect to receive from trade wastewater customers in 2020-21 would be $293,000 lower than we would have received under our proposed new charges (see Table 9.1).

For administrative simplicity, we propose that this difference in revenue is recovered via the broader wastewater customer base during 2020-21 as part of the net wastewater revenue requirement.

Table 9.1 Revised trade waste revenue forecast ($'000, $2019-20)

Revenue from trade wastewater	2020-21	2021-22	2022-23	2023-24
Total forecast revenue ($'000) – as per our submission to IPART's Issues Paper	2,557	2,557	2,557	3,017
Total forecast revenue ($'000) – as per this submission to IPART's Draft Report	2,264 [1]	2,557	2,557	2,557 [2]

1. Based on deferring introduction of all proposed trade wastewater charges until 1 July 2021.
2. Excludes recovery of revenue from tanker receival facilities

10. Abbreviations

Acronym	Term
ABS	Australian Bureau of Statistics
AIR	Annual information return
ATO	Australian Taxation Office
BASIX	Building Sustainability Index requirements apply to all residential dwelling types and are part of the development application process in NSW
COVID-19	The disease arising from the virus called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), previously known as “2019 novel coronavirus”
CPI	Consumer price index
DRC	Depreciated replacement cost
DVAM	Demand volatility adjustment mechanism
ECM	Efficiency carryover mechanism
FAR	Fixed Asset Register
FFO	Funds from operations
GL	Gigalitres (ie. 1,000,000,000 litres)
GRC	Gross replacement cost
ICT	Information and communications technology
IPART	Independent Pricing and Regulatory Tribunal (NSW)
kL	Kilolitre (ie. 1,000 litres)
LRMC	Long-run marginal cost
MFP	Multi-factor productivity
ML	Megalitres (ie. 1,000,000 litres)
NPV	Net present value
OECD	Organisation for Economic Co-operation and Development
PC	Productivity Commission (Australia)
RAB	Regulatory asset base
RBA	Reserve Bank of Australia
SIR	Special information return
SRMC	Short-run marginal cost
WACC	Weighted average cost of capital
WAL	Weighted average asset lives
WEMP	Water efficiency management plan

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APPENDIX A

frontier economics

7 APRIL 2020

IPART'S APPLICATION OF FINANCEABILITY TESTS

REPORT PREPARED FOR HUNTER WATER CORPORATION

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1 EXECUTIVE SUMMARY

1.1 Background

On 10 March 2020, IPART published its draft determination on Hunter Water Corporation's (Hunter Water's) regulated prices for the 2020-24 regulatory period. As part of that draft determination, IPART assessed whether Hunter Water would be financeable over the regulatory period, under the draft prices it had set.

IPART's analysis indicated that Hunter Water's FFO/debt ratio would (under IPART's draft prices) fall below the FFO/debt target set by IPART in 2018, when it last reviewed its financeability test framework, in every year of the 2020-24 regulatory period. Despite this finding, IPART concluded that Hunter Water would not face a financeability concern under the regulated prices set by its draft determination.

We have been asked by Hunter Water to review the financeability analysis that IPART has undertaken in its draft determination, consider whether IPART's application of its financeability tests is consistent with the financeability test approach established by IPART in 2018, and to provide an opinion on the reasonableness of the conclusions reached by IPART on Hunter Water's financeability over the 2020-24 regulatory period.

1.2 Key findings

Our key findings, which are set out in more detail in the remainder of this report, are the following:

- IPART's own financeability tests show that, in respect of the FFO/debt ratio, Hunter Water would not be financeable under IPART's draft prices over the 2020-24 regulatory period, but would be financeable under Hunter Water's proposed prices.
- IPART has not followed the decision-making process for identifying a financeability concern that it established in 2018. Under its 2018 methodology, IPART committed:
  - To analyse trends in the financial ratios over the regulatory period if the business's financial ratios fell short of the target in any year—with a view to assessing whether the ratios are likely to show sufficient improvement over the regulatory period. In Hunter Water's case, under IPART's draft prices:
    - The FFO/debt ratio falls below the target ratios (7.0% under the benchmark test and 6.0% under the actual test) set by IPART in 2018 in every year of the forthcoming regulatory period;
    - The FFO/debt ratio is expected to be lower at the end of the regulatory period (6.7%) than at the start of the regulatory period (6.8%) under the benchmark test;
    - The FFO/debt ratio is expected to be the same at the end of the regulatory period (5.0%) as at the start of the period under the actual test. This is materially below the 6.0% target ratio.

    Hence, under IPART's own analysis, there is no evidence of *any* improving trend in Hunter Water's FFO/debt ratio over the period, under IPART's draft prices. By contrast, under Hunter Water's proposed prices, the FFO/debt ratio would start below the target ratios in the first year of the regulatory period, and then improve in every year thereafter. IPART's draft determination does not set out any trend analysis of this kind.
  - That it would reassess its pricing decision if the trends in the regulated business's financial ratios under the benchmark test do not show sufficient improvement over the regulatory period. IPART

has not done this—it has simply concluded that Hunter Water would face no financeability concerns under the benchmark test.

  - That it would engage with the regulated business to identify the source of the financeability problem, if the trends in the regulated business's financial ratios under the actual test do not show sufficient improvement over the regulatory period. IPART would then tailor its response depending on the source of the problem. We understand from Hunter Water that IPART has not done this either—IPART has simply concluded that Hunter Water would face no financeability concerns under the actual test.

- IPART has exercised judgement that is neither transparent nor replicable by stakeholders. Moreover, the exercise of that judgment is inconsistent with the framework and approach that IPART set out in its 2018 review of its financeability tests. Whereas stakeholders had an opportunity to make submissions into IPART's 2018 review of its financeability tests, there has been no opportunity for stakeholders to make submissions in relations to IPART's proposed departure from the outcomes of that review. This serves to undermine the integrity and predictability of the regulatory regime.
- IPART has suggested that the target FFO/debt ratio would be lower today than the target ratio it established in 2018, because the FFO/debt ratio for a regulated business depends on (amongst other things) the allowed return on equity, and IPART's estimate of the required return on equity has declined since 2018 as interest rates in capital markets have fallen. We agree that, other things being equal, the *computed* FFO/debt ratio for a regulated water business would decline as the allowed return on equity declines – this follows mechanically from the algebra set out in IPART's 2018 final report on its review of its financeability tests. However, we see no reason why the *target* FFO/debt ratio (which represents the cash flow headroom required by businesses in order to meet their existing debt obligations) should fall in line with market rates. IPART has not identified any reason why a reduction in required equity returns would result in businesses requiring less cash flow to maintain the same level of creditworthiness. Further, IPART has presented no evidence that credit rating agencies such as Moody's have, since 2018, lowered the target FFO/debt ratios that they use when determining the financeability of water utilities.
- IPART has also suggested that because the building block approach it used to set the notional revenue requirement for Hunter Water *aims* to allow sufficient cash flows for a business to meet its debt obligations and to pay equity investors, the use of such a building block approach *ensures* that Hunter Water will be financeable over the period. If that were true, there would seem to be no role at all for financeability tests within the regulatory process, since *any* application of a building block method would guarantee the regulated business's financeability. Clearly, such reasoning is logically flawed. As IPART itself explained during its 2018 review of its financeability tests, the purpose of a financeability test is to check whether the regulatory allowances derived using a building block approach *are* sufficient to ensure the financeability of the business. In Hunter Water's case, IPART seems to have simply assumed away a financeability problem that evidently exists, according to the test that IPART itself devised in 2018.
- Given that Hunter Water fails the financeability test in relation to the FFO/debt ratio, the possible solutions to that problem are clear. As IPART identified correctly in the Hunter Water draft determination, for a regulated firm, FFO represents the sum of the depreciation allowance and the after-tax return on equity. Too low an FFO/debt ratio means that:
  - The regulatory depreciation allowance is too low. This problem could be addressed by shortening assumed asset lives, thereby increasing the speed of the return of capital; and/or
  - The real return on equity allowance is too low. This problem could be addressed by either increasing IPART's nominal WACC allowance or reducing the inflation estimate used to deflate the nominal WACC estimate. Lowering IPART's estimate of inflation (perhaps closer to current market expectations of inflation, which are materially lower than IPART's estimate at the present time) would increase the allowed real (cash) return on capital, thus providing Hunter Water with greater free cash flows. This, in turn, would increase the FFO/debt ratio.

The enhancement of transparency, predictability and replicability was an important objective of IPART's 2018 review of its financeability tests. However, IPART's first application of its revised financeability tests has undermined rather than enhanced transparency, predictability and replicability. This does not serve to support the creditworthiness or financeability of the businesses regulated by IPART.

At the conclusion of the 2018 review of IPART's financeability tests, it was widely understood by stakeholders that if a regulated business's forecast credit metrics fell persistently (over the regulatory period) below the target ratios set by IPART, and showed no material improving trend, that would be strong evidence of a financeability concern. Moreover, stakeholders understood that if a business's forecast metrics under the benchmark test fell consistently below the target ratio over the regulatory period, with no sign of a material improvement in trend, that would be compelling evidence that the proposed regulatory allowances were insufficient to support the financeability of the business. The Hunter Water draft determination has proved stakeholders' understanding to be incorrect on both counts.

If IPART decides to maintain its conclusion that Hunter Water faces no financeability concerns over the 2020-24 regulatory period, despite its own financeability tests providing seemingly clear evidence to the contrary, then for the avoidance of further doubt, it would be helpful if IPART could clarify the precise circumstances in which it would in future conclude that a business faces a financeability concern.

1.3 Structure of this report

The remainder of this report is organised as follows:

- Section 2 summarises the financeability analysis and reasoning relied on by IPART in the Hunter Water draft determination; and
- Section 3 presents our detailed assessment of IPART's financeability analysis.

2 IPART'S FINANCEABILITY ANALYSIS

2.1 IPART's conclusions on financeability for Hunter Water

IPART undertook a financeability test to assess how its draft price decision for Hunter Water would affect the financial sustainability of the business and its ability to raise funds over the forthcoming regulatory period. In doing so, IPART applied the financeability framework that it published after a comprehensive review process in 2018.[1] This framework involved computing three financial metrics using a set of benchmark assumptions and actual data on the cost of debt and gearing of the regulated business (i.e., the benchmark and actual tests, respectively), and then comparing those computed ratios to target ratios established by IPART in 2018. The three financial metrics considered by IPART were:

- The interest coverage ratio;
- The FFO/debt ratio; and
- Gearing.

The target ratios considered by IPART for each of these metrics are presented below in **Table 1**.

Table 1: Target ratios for IPART's benchmark and actual tests

	Benchmark test (real cost of debt)	**Actual test** (actual cost of debt)
Interest cover	>2.2x	>1.8x
FFO over debt	>7.0%	>6.0%
Gearing	<70%	<70%

Source: IPART Draft Report for Hunter Water, Table 12.2, p. 132.

Table 2, which presents the financeability test results based on the draft prices set by IPART, indicates that Hunter Water fails both the benchmark and actual tests in respect of the FFO/debt ratio in every year of the regulatory period. Notwithstanding this outcome, IPART concluded that it was unlikely that Hunter Water would face a financeability concern under its draft prices:[2]

> *The Real FFO over debt is forecast to slightly underperform against the benchmark target during the regulatory period. However, we do not consider this constitutes a financeability concern.*

[1] IPART, Review of our financeability test, Final Report, November 2018.

[2] IPART, Draft Report for Hunter Water, p. 134.

Table 2: Financeability test results based on IPART's draft prices

	2020-21	2022-23	2022-23	2023-24
Interest cover				
Benchmark test	4.4	4.2	4.2	4.3
- Does it meet the target?	✓	✓	✓	✓
Actual test	2.0	1.9	1.9	1.9
- Does it meet the target?	✓	✓	✓	✓
FFO over debt				
Benchmark test	6.8%	6.4%	6.4%	6.7%
- Does it meet the target?	×	×	×	×
Actual test	5.0%	4.7%	4.8%	5.0%
- Does it meet the target?	×	×	×	×
Gearing				
Benchmark test	60%	60%	60%	60%
- Does it meet the target?	✓	✓	✓	✓
Actual test	51%	52%	52%	51%
- Does it meet the target?	✓	✓	✓	✓

Source: IPART Draft Report for Hunter Water, Table 12.4, p. 133.

2.2 IPART's reasoning

In reaching this conclusion, IPART noted that the computed FFO/debt metric for a regulated utility depends on (amongst other things) the after tax real return on equity allowance:[3]

> *The financeability metric FFO over debt is designed to test whether a firm generates sufficient free cash flow to repay its debt over the economic life of its assets. For a regulated firm, FFO represents the sum of the depreciation allowance and the after-tax return on equity. Thus it can be influenced by changes to the regulatory asset lives and the permitted return on equity.*

IPART explains that its real return on equity allowance has declined since 2018, and that this has reduced the real FFO/debt ratio by approximately 0.67% between 2018 and 2020.[4]

IPART then notes that it has not updated the target ratios to reflect the decline in the real return on equity since 2018, and that the "standard underlying assumptions" embedded in the target ratios established following IPART's 2018 review of its financeability tests clearly no longer apply:[5]

[3] IPART, Draft Report for Hunter Water, p. 134.

[4] IPART, Draft Report for Hunter Water, p. 134.

[5] IPART, Draft Report for Hunter Water, p. 134.

We did not update our financeability target ratios to reflect this change because our targets are general financial market standards and were the subject of consultation during our financeability review. The target ratios make standard underlying assumptions on asset lives and return on equity. Clearly some of those assumptions do not strictly apply to the present water utility price reviews. However, we see value in retaining the standard targets because they are widely used in financial markets and by ratings agencies. When we next review our financeability test we may consider this issue in more detail.

That is, IPART states that it has retained the target FFO/debt ratios established during its 2018 review of its financeability tests, because these are general financial market standards that were consulted on with stakeholders. The computed FFO/debt ratios for Hunter Water under the IPART draft determination fall below these targets for both the benchmark and actual tests for every year of the forthcoming regulatory control period. Yet, IPART has concluded that Hunter Water would face no financeability concerns over the forthcoming regulatory period. In section 3 we comment on the reasonableness of this conclusion, given IPART's claim that it has maintained the target ratios it established in 2018.

IPART goes on to state that its building block approach for setting regulated prices is designed to ensure that Hunter Water meet its debt obligations while providing equity investors their required return—and therefore it is self-evident that Hunter Water faces no financeability problem in the next period, despite IPART's own financeability test indicating otherwise.[6]

Our building block method of establishing prices ensures that Hunter Water will be able to finance and repay its debt while providing its owners with a market return on equity. The building block method accounts for all cashflows in a more precise and detailed way than the FFO over net debt ratio test does. Therefore, we consider that the FFO over net debt metric does not indicate a problem with Hunter Water's financial sustainability at our draft prices.

Section 3 also comments on the soundness of such reasoning and implications for the role of financeability tests within IPART's regulatory framework.

2.3 Financeability outcomes under Hunter Water's proposal

Finally, we note that IPART's draft report shows that Hunter Water would be financeable, except in 2020-21 under the FFO/debt ratio—as indicated in **Table 3** below.

[6] IPART, Draft Report for Hunter Water, p. 134.

Table 3: Financeability test results based on Hunter Water's proposed prices

	2020-21	2022-23	2022-23	2023-24
Interest cover				
Benchmark test	3.2	3.3	3.3	3.5
- Does it meet the target?	✓	✓	✓	✓
Actual test	2.2	2.2	2.2	2.2
- Does it meet the target?	✓	✓	✓	✓
FFO over debt				
Benchmark test	6.7%	7.0%	7.2%	7.6%
- Does it meet the target?	×	✓	✓	✓
Actual test	5.9%	6.1%	6.3%	6.6%
- Does it meet the target?	×	✓	✓	✓
Gearing				
Benchmark test	60%	60%	60%	60%
- Does it meet the target?	✓	✓	✓	✓
Actual test	54%	54%	54%	54%
- Does it meet the target?	✓	✓	✓	✓

Source: IPART Draft Report for Hunter Water, Table 12.3, p. 133.

3 ASSESSMENT OF IPART'S FINANCEABILITY ANALYSIS

3.1 No evidence that target ratios have changed since 2018

IPART explains in its draft report that the computed FFO for a regulated utility represents the sum of the regulatory depreciation allowance and the after-tax return on equity allowance. Thus, the computed FFO can be influenced by changes to the allowed regulatory asset lives and the allowed return on equity.

We agree with this – it is simply a matter of algebra. In its final report on 2018 financeability review, IPART demonstrated algebraically that:[7]

$$FFO = Depreciation\ allowance + Return\ on\ equity\ allowance,$$

and that: [8]

$$\frac{FFO}{Debt} = \frac{\frac{1}{Average\ asset\ life} + (1 - Gearing) \times Real\ cost\ of\ equity\ allowance}{Gearing}$$

These relationships, which are derived correctly by IPART, show that the FFO/debt ratio would increase, other things being equal, if:

- the allowed average asset life is reduced (because that would deliver a higher regulatory depreciation allowance);
- the real cost of equity allowance were increased (because that would deliver higher cash flows from operations); or
- the allowed gearing is reduced (because the business would have smaller debt obligations to meet).

The decline in the risk-free rate in particular since 2018 therefore explains why Hunter Water's FFO/debt ratio today is lower than it would have been two years ago—because the lower risk-free rate has resulted in a lower return on equity allowance.

However, IPART then appears to extrapolate this logic to conclude that the *target ratios* that would be applicable when conducting its financeability tests (as opposed to the forecast FFO/debt ratios for Hunter Water) have also declined since 2018 as market rates have fallen. For example, IPART states that:[9]

> *The target ratios make standard underlying assumptions on asset lives and return on equity. Clearly some of those assumptions do not strictly apply to the present water utility price reviews.*

[7] IPART, Review of our financeability test, Final Report, November 2018, p. 74.

[8] IPART, Review of our financeability test, Final Report, November 2018, p. 74.

[9] IPART, Draft Report for Hunter Water, p. 134.

We make several observations about this claim by IPART:

- Firstly, it is not at all evident that the target ratios make standard underlying assumptions on asset lives and return on equity. The target ratios define the cash flow headroom that a business requires in order to meet its debt obligations – this is a measure of the cash flow, per dollar of debt, that a business requires in order to achieve a particular level of credit worthiness. It is not apparent to us why the amount of cash flow headroom needed by a business in order to meet its fixed debt obligations should fall as interest rates fall. IPART has provided no reasoning to explain this.
- Secondly, IPART has presented no evidence that the target ratios have in fact changed since 2018—IPART simply speculates that this may have occurred or that it should have occurred. In 2018, IPART set the target ratios by considering the target ratios used by a range of rating agencies (see **Table 4** below), and then exercising its judgement to select an appropriate target ratio based on that available evidence. IPART's choice of target ratio for the FFO/debt metric was informed particularly by the target ratio range used by Moody's for Ba-rated regulated water utilities—as set out in Moody's June 2018 rating methodology for regulated water utilities:[10]

> *The FFO over Debt ratio varies quite widely across credit rating agencies, with Moody's adopting a more conservative benchmark of 10-15% for its Baa range. Given the advice from Incenta, we believe that Moody's Ba range of 6-10% is more relevant to our application and comparable to S&P Global's range of 6-13% or Fitch Ratings' single threshold of 5.5%.*
>
> *Again, based on the principles and considering the factors outlined above, we consider a target ratio towards the lower end of this range, of 6%, is appropriate. Incenta supported this target.*

We note that Moody's does not appear to have updated its rating methodology for regulated water utilities since June 2018. Therefore, there is no evidence that the target ratios that apply to regulated water utilities *have* been revised to reflect changes in market conditions since 2018. IPART appears to recognise this in the draft report, when it notes that:[11]

> *We did not update our financeability target ratios to reflect this change because our targets are general financial market standards and were the subject of consultation during our financeability review…we see value in retaining the standard targets because they are widely used in financial markets and by ratings agencies. When we next review our financeability test we may consider this issue in more detail.*

[10] IPART, Review of our financeability test, Final Report, November 2018, pp. 53-54.

[11] Draft Report for Hunter Water, p. 134.

Table 4: Target ratios used by rating agencies that informed IPART's choice of target ratios in 2018

	ICR	FFO over Debt	Gearing
	Higher is better	*Higher is better*	*Lower is better*
IPART (final decision)	**>1.8x**	**>6%**	**<70%**
IPART (2013)[a]	1.4-2.9x	5-10%	60-100%
Moody's (Baa) – Water[b]	2.5-4.5x	10-15%	55-70%
Moody's (Ba) – Water[b]	1.8-2.5x	6-10%	70-85%
Moody's (Baa) – Energy networks[c]	2.8-4x	11-18%	60-75%
S&P Global (Significant)[d]	2-3x	9-13%	NA
S&P Global (Aggressive)[d]	1.5-2x	6-9%	NA
Fitch Ratings (BBB) [e]	1.5x	5.5%	70%

a IPART, *Financeability tests in price regulation – Final Decision*, December 2013, p 10.

b Moody's Investors Service, *Rating methodology – Regulated Water Utilities*, June 2018, p 21.

c Moody's Investors Service, *Rating methodology – Regulated Electric and Gas Networks*, March 2017, p 19.

d S&P Global Ratings RatingsDirect, *Corporate Methodology*, November 2013, p 35. The credit rating that S&P Global Ratings assigns a business is dependent on their financial metrics and their risk profile. The 'Significant' and 'Aggressive' ratios in this table correspond to a BBB benchmark.

e FitchRatings Australian *Regulated Network Utilities: Ratings Navigator Companion* April 2018, pp 9 & 11.

Source: IPART, Review of our financeability test, Final Report, November 2018, Table 5.3, p. 53.

- Thirdly, it was never made clear to stakeholders consulted during IPART's 2018 review of its financeability tests that the *target ratios* could or would shift as market conditions. Consequently, the reasoning that IPART has now applied in the draft determination for Hunter Water was never foreshadowed as a possibility when IPART consulted on how it would apply its financeability tests, and no stakeholder had an opportunity to submit on the validity of such reasoning. Indeed, IPART appears to recognise this in the draft determination, when it notes that it did not update its target ratios because they "were the subject of consultation during our financeability review."[12]
- Finally, if IPART is correct that the target ratios would decline as interest rates fall, then it follows logically that the target ratios would increase as interest rates rise. That would mean that in a rising interest rate environment, it would be easier than at present for regulated businesses to fail IPART's financeability test. In our view, IPART should explain whether it intends to apply its financeability tests symmetrically under different market conditions. This would require IPART to conclude, in a rising interest rate scenario, that regulated businesses have a financeability problem, even in circumstances where its financeability tests do not identify any such problem—because the target ratios would have increased in line with interest rates. It is not clear to us that this is a sensible way to apply financeability tests for regulatory purposes.

In summary, in contrast to IPART's suggestion, there is no reason to presume that the *target* FFO/debt ratios used to assess the financeability of regulated water businesses ought to decline as interest rates fall. Nor is there any evidence that the target ratios used by credit rating agencies used to assess the financeability of regulated water businesses has declined since 2018.

[12] Draft Report for Hunter Water, p. 134.

3.2 IPART has interpreted the results of its tests in a way that is neither transparent nor predictable

IPART has concluded that Hunter Water would not face a financeability concern over the forthcoming regulatory period, notwithstanding that the computed FFO/debt ratios for Hunter Water fall short of the target ratios (for the benchmark and actual tests) in every year of the regulatory period for both the benchmark and actual tests. IPART also states that it has not applied lower target FFO/debt ratios, when conducting its financeability assessment for Hunter Water, than the target ratios it adopted in 2018.

The only way these two statements can be reconciled is if IPART has exercised some qualitative judgement when interpreting its financeability test results that is neither transparent nor replicable. This seems to undermine an important feature of the financeability framework developed by IPART in 2018, which was supported widely by stakeholders, and acknowledged by IPART. For example, IPART's final report on its review of its financeability tests stated that its 2018 test can be replicated by stakeholders, thus contributing to the transparency of the regulatory regime:[13]

> *We consider that our 2018 test can be replicated by stakeholders, which contributes to the transparency of our regime for regulated businesses and other stakeholders. We also consider that our 2018 test supports efficient and prudent financing decisions by regulated businesses.*

During IPART's 2018 review of its financeability tests, IPART noted that nearly all stakeholders had asked IPART to provide a transparent process for identifying a financeability concern. In response, IPART developed a decision-making process, which is summarised below in **Figure 1**. It seems that IPART has not followed its own decision-making process when assessing Hunter Water's financeability over the forthcoming regulatory period.

- The first step in IPART's decision-making process is to compute each of the financeability metrics (both using benchmark assumptions and actual data on the business) and compare them to the relevant target ratios for each metric. IPART stated that if the businesses meet all the target ratios in all years of the regulatory period, it would conclude that the business does not face any financeability concerns.[14] In Hunter Water's case, the business fails to meet the target FFO/debt ratio in every year of the regulatory period, under both the benchmark and actual tests. IPART noted this in the Hunter Water draft determination.[15]
- The second step in IPART's decision-making process is to assess the financial ratios more carefully, if the business does not meet the target ratios in all years of the regulatory period.[16] IPART explained that it would:
  - First rank the ratios placing more weight on the interest coverage and FFO/debt ratios. That is, the measure on which Hunter Water failed consistently to meet the target ratios was one of the ratios that IPART stated that it would give most priority to. This was not acknowledged in the Hunter Water draft determination.

[13] IPART, Review of our financeability test, Final Report, November 2018, p. 1.

[14] IPART, Review of our financeability test, Final Report, November 2018, p. 58.

[15] Draft Report for Hunter Water, p. 134.

[16] IPART, Review of our financeability test, Final Report, November 2018, p. 58.

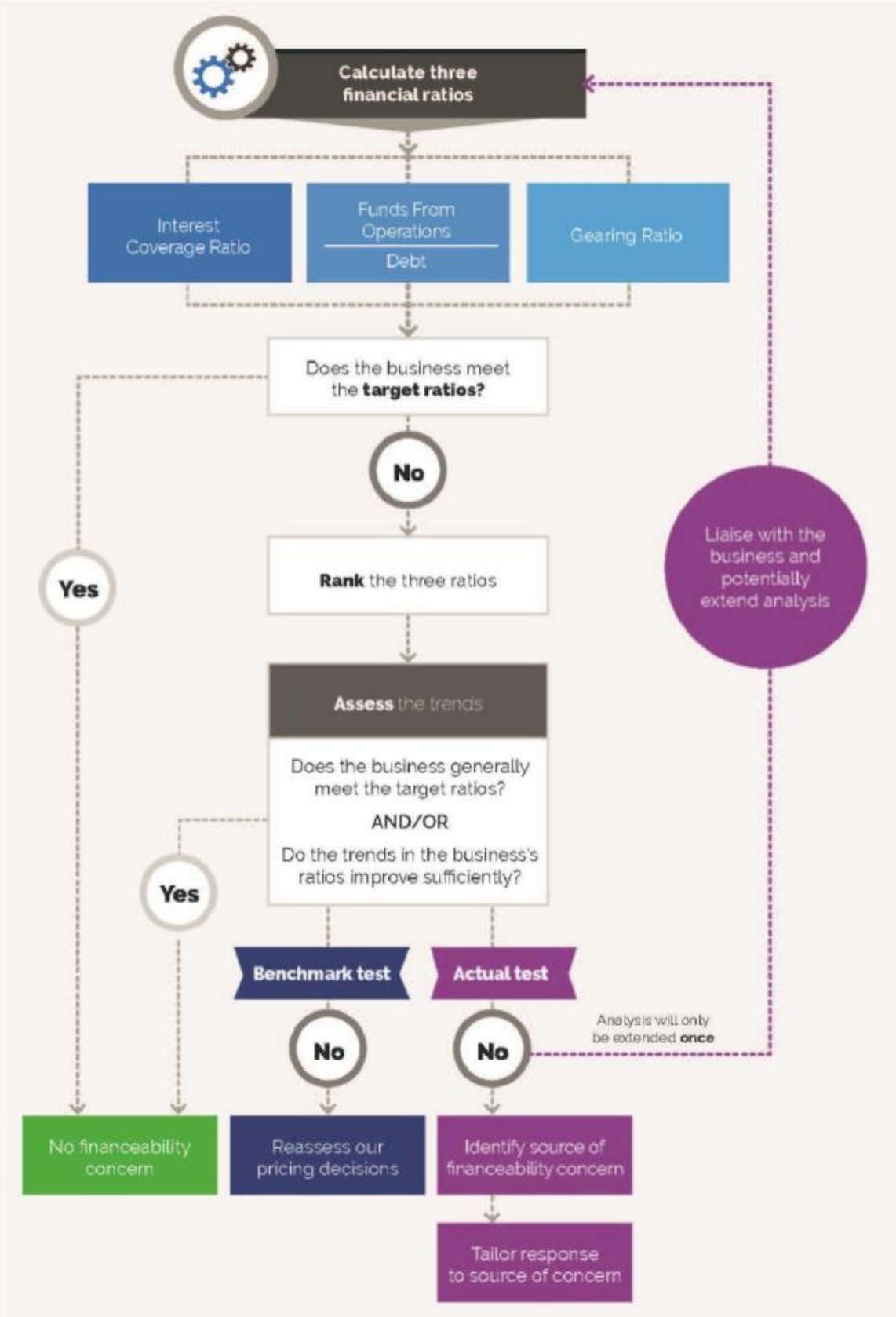
- Then assess the trends in the financial ratios over the regulatory period. IPART did not provide detail about how it would assess trends in the ratios over time. However, the key consideration IPART seems to have had in mind was whether the ratios showed sufficient improvement over the regulatory period. For example, if the key metrics fell short of the target ratio at the start of the period, but improved materially thereafter such that by the end of the period they were at or above the target ratio, then a case might be made that the business would not face a financeability concern. In Hunter Water's case, under IPART's draft prices:
  - The FFO/debt ratio is forecast to fall short of the target ratio in every year of the 2020-24 regulatory period (see **Table 2**) for both the benchmark and actual test.
  - Under the benchmark test, the FFO/debt ratio is expected to be 6.8% (compared to a target ratio of 7.0%) in the first year of the regulatory period, deteriorate to 6.4% in the second and third years, and then recover somewhat to 6.7% in the final year of the period. Importantly, the FFO/debt ratio at the end of the period is expected to be lower at the end of the period than at the start of the period. There is no indication of an improving trend in Hunter Water's FFO/debt ratio.
  - Under the actual test, the FFO/debt ratio is expected to be 5.0% (compared to a target ratio of 6.0%) in the first year of the regulatory period, deteriorate during the second and third years of the period, and then rise back to 5.0% in the final year of the period. Once again, there is no evidence of an improving trend in the FFO/debt ratio.
  - By contrast, under Hunter Water's proposed prices, the FFO/debt ratio (under both the benchmark and actual tests) would be expected to fall below the target ratios in the first year of the regulatory period, exceed the target ratio in the second year and improve further in every year thereafter. The FFO/debt ratios under Hunter Water's pricing proposal display an unmistakable improving trend over the regulatory period, and it is clear that Hunter Water would face no financeability concerns under its proposed prices.

  In short, IPART has presented no analysis of trends in the FFO/debt ratio, as set out in its 2018 decision-making process.
- Then reassess its pricing decision if the trends in the business's financial ratios under the benchmark test do not improve sufficiently. As explained above, Hunter Water's FFO/debt ratios under IPART's draft prices showed no improving trend over the regulatory period. Indeed, under the benchmark test, the FFO/debt ratio is expected to be lower at the end of the period than at the start of the period. However, IPART has undertaken no reassessment of its pricing decision.
- Liaise with Hunter Water to identify the reasons why the business's financial ratios under the actual test fall short of the target ratio. Our understanding is that IPART has not liaised with Hunter Water on this issue—IPART has simply concluded that Hunter Water faces no financeability concern.

We conclude from the above that IPART has not followed the decision-making process it established in 2018. Instead, IPART has exercised its judgement in a way that is neither transparent nor replicable stakeholders to conclude that Hunter Water would face no financeability concern over the forthcoming regulatory period. In our view, this undermines the integrity of the regulatory process because no stakeholder could in future have confidence that:

- IPART would apply consistently and faithfully the process it established in 2018 for identifying financeability concerns; or
- IPART's financeability framework provides the intended checks and balances on its decisions.

Figure 1: Process adopted by IPART in 2018 for identifying a financeability problem



Source: IPART, Review of our financeability test, Final Report, November 2018, Figure 5.3, p. 57.

In IPART's 2018 final report on its review of its WACC methodology, IPART emphasised the importance of predictability, transparency and replicability of IPART's regulatory approach by stakeholders. IPART explained that:[17]

> *… regulatory stability is an important influence on the credit ratings of Australian water utilities. Moody's rating agency's 'Regulated Water Utilities' methodology assigns a 15% weight to 'stability and predictability of regulatory environment'.*

In order to demonstrate this point, IPART went on to cite several instances in which Moody's had cited the predictability and transparency of IPART's regulatory framework as an important factor in supporting the credit ratings of water businesses regulated by IPART. Those examples included:[18]

- An upgrading of Sydney Water's credit rating by Moody's from A1 to Aa3 in March 2015 following changes to IPART's WACC methodology in 2013;
- A Moody's rating opinion in March 2015 for Hunter Water, which stated that IPART has a "stable and mature regulatory framework" and that consistency in IPART's decision-making would translate into "increased stability in revenue outcomes for Hunter Water"; and
- A Moody's rating opinion in October 2016, which changed its outlook for Sydney Water to 'stable' on the grounds that the transparency of IPART's regulatory framework would help Sydney Water "protect its credit profile."

It is clear from IPART's own analysis during its 2018 review of its WACC methodology that considerations such as the transparency, predictability and replicability of the regulatory of the regulatory framework are important in supporting the creditworthiness of the businesses regulated by IPART. This, in turn, allows the businesses to raise finance on reasonable terms to deliver efficient, welfare-enhancing investments to consumers. It was for that reason that IPART was explicit in its WACC methodology review that:[19]

> *In making our decisions for this review, we sought to maintain or improve our current transparency, predictability and replicability.*

The enhancement of transparency, predictability and replicability was also an objective of IPART's 2018 review of its financeability tests. However, IPART's first application of its revised financeability tests has undermined rather than enhanced transparency, predictability and replicability. This does not serve to support the creditworthiness or financeability of the businesses regulated by IPART.

At the conclusion of the 2018 review of IPART's financeability tests, it was widely understood by stakeholders that if a regulated business's forecast credit metrics fell persistently (over the regulatory period) below the target ratios set by IPART, and showed no material improving trend, that would be strong evidence of a financeability concern. Moreover, stakeholders understood that if a business's

[17] IPART, Review of our WACC method, Final report, February 2018, p. 15.

[18] IPART, Review of our WACC method, Final report, February 2018, pp. 15-16.

[19] IPART, Review of our WACC method, Final report, February 2018, p. 17.

forecast metrics under the benchmark test fell consistently below the target ratio over the regulatory period, with no sign of a material improvement in trend, that would be compelling evidence that the proposed regulatory allowances were insufficient to support the financeability of the business. The Hunter Water draft determination has proved stakeholders' understanding to be incorrect on both counts.

If IPART decides to maintain its conclusion that Hunter Water faces no financeability concerns over the 2020-24 regulatory period, despite its own financeability tests providing seemingly clear evidence to the contrary, then for the avoidance of further doubt, it would be helpful if IPART could clarify the precise circumstances in which it would in future conclude that a business faces a financeability concern.

3.3 IPART's reasoning negates any role for financeability tests

IPART argues in its draft determination for Hunter Water that:[20]

> *Our building block method of establishing prices ensures that Hunter Water will be able to finance and repay its debt while providing its owners with a market return on equity. The building block method accounts for all cashflows in a more precise and detailed way than the FFO over net debt ratio test does. Therefore, we consider that the FFO over net debt metric does not indicate a problem with Hunter Water's financial sustainability at our draft prices.*

IPART appears to be suggesting that because the building block approach to setting prices *intends* to allow sufficient revenues for a regulated business to meet its debt obligations and pay equity investors their required return, it must follow that the building block method *ensures* that the regulated business will remain financeable. If that is true, then why conduct financeability tests at all?

The obvious answer to that question is that the building block method, *per se*, does not guarantee that a regulated business will remain financeable. The building block method has the *capacity* to ensure that regulated businesses have sufficient cash flows to pay the returns required by debt and equity investors. However, regulatory errors that result in revenue allowances being set too low (i.e., to meet efficient debt obligations and pay required equity returns) are possible—because regulators must set allowances using imperfect information. It is to provide checks and balances against such regulatory errors that financeability tests are necessary.

IPART recognised this during its 2018 review of its financeability tests. For example, IPART explained that an explicit role of the benchmark test is to assess whether the regulatory allowances set using IPART's building block method would give rise to any financeability concerns:[21]

[20] Draft Report for Hunter Water, p. 134.

[21] IPART, Review of our financeability test, Final Report, November 2018, p. 16.

> *…conducting the test on the benchmark business would identify any estimation and cash flow impacts arising from our building block approach*

By contrast, the position adopted by IPART in the Hunter Water draft determination appears to be that an application of its building block method for setting prices will necessarily deliver regulatory outcomes that ensure the financeability of businesses. Such a position would effectively render the benchmark test—as described by IPART in its 2018 final decision on its review of its financeability tests—redundant. This is because any finding of a financeability concern under the benchmark test could be simply dismissed as a false finding, because the building block approach will, by construction, provide an appropriate level of revenues. This seems to be what has occurred in the Hunter Water draft determination.

The negation of the role of financeability tests in this way serves to undermine the integrity of the regulatory framework by effectively removing an important check on regulatory errors. This would not support efficient and prudent financing decisions by regulated businesses.

We also note (in the quote above) IPART's suggestion that "the building block method accounts for all cashflows in a more precise and detailed way than the FFO over net debt ratio test does." We find this claim puzzling for two reasons.

- Firstly, in its final decision on its 2018 review of its financeability tests, IPART explained that the both the benchmark and actual tests use inputs derived from the building block approach. For instance, IPART stated that:[22]

  - ***Benchmark test:*** *we will set the inputs consistent with the parameters in the building block approach, including the tax allowance and an allowance for inflation indexation, as well as use the real cost of debt and level of gearing in the WACC.*

  - ***Actual test****: we will set some of these inputs using building block components (eg, operating expenditure and forecast revenues), but for others we would request financial data from the business that may be different to the inputs used to calculate our WACC. Overall, our approach for our actual financeability test is similar to the 2013 test.*

- Secondly, Appendix B of IPART's final decision on its 2018 review of its financeability tests, entitled *Relationship between the building block approach and the financial ratios in the benchmark financeability test*, provided a mathematical derivation that demonstrated that the FFO/debt ratio is a function of the elements of the notional revenue requirement established using IPART's building block method.

Hence, it is incorrect to suggest that "the building block method accounts for all cashflows in a more precise and detailed way than the FFO over net debt ratio test does." The FFO/debt ratio is designed explicitly to test whether the notional revenue requirement set using IPART's building block method is sufficient to meet a regulated business's debt obligations.

[22] IPART, Review of our financeability test, Final Report, November 2018, p. 23.

3.4 Conclusions

In our view, the evidence that IPART presented in the Hunter Water draft decision does not support its conclusion that Hunter Water would not face a financeability problem over the forthcoming regulatory period. To the contrary, IPART's own financeability tests show that under its draft pricing determination, Hunter Water would not be financeable (under both the benchmark and actual tests), based on the FFO/debt ratio, over the 2020-24 regulatory period. By contrast, Hunter Water would be financeable under Hunter Water's proposed prices.

IPART's conclusions that Hunter Water faces no financeability concerns over the forthcoming regulatory period can only be arrived at by reasoning and judgment that is neither transparent nor replicable by stakeholders. Indeed, IPART appears to have not implemented the decision-making process it established in 2018 for assessing whether a financeability concern is likely to arise. This reduces the predictability of the regulatory framework.

IPART also appears to assume away the apparent financeability problem identified by its own tests by arguing that the building block method it has used to set draft prices would "ensure" that Hunter Water will remain financeable—regardless of the outcome of a financeability test. This reasoning effectively negates any role for financeability tests within the regulatory framework, since any finding of a financeability problem could simply be dismissed as a false finding because it is inconsistent with the stated objective of the building block approach.

In our view, IPART should reconsider its conclusions from its financeability tests for Hunter Water, using the decision-making process it established in 2018. If IPART were to do so, it would be self-evident that the draft prices it has determined for Hunter Water would cause the business to fail the financeability requirement. Given that the failure occurs in relation to the FFO/debt ratio, there are two possible explanations for the financeability problem identified.

As IPART identified correctly in the Hunter Water draft determination, for a regulated firm, FFO represents the sum of the depreciation allowance and the after-tax return on equity.[23] Too low an FFO/debt ratio means that:

- The regulatory depreciation allowance is too low; and/or
- The real return on equity allowance is too low.

A standard solution to the regulatory depreciation allowance being set too low is to shorten assumed asset lives. Doing so would speed up the return of capital, thereby increasing the regulatory depreciation allowance.

The real return on equity allowance may be too low because IPART's estimate of the nominal required return on equity is too low and/or because IPART's estimate of inflation used to deflate its estimate of the nominal required return on equity is too high. Lowering IPART's estimate of inflation (perhaps closer to current market expectations of inflation, which are materially lower than IPART's estimate at the present time) would increase the real (cash) return on capital, thus providing Hunter Water with greater free cash flows. This, in turn, would increase the FFO/debt ratio.

[23] IPART, Draft Report for Hunter Water, p. 134.

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