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Review of Hunter Water Corporation's proposed expenditure for the 2025-30 regulatory period

A report for the Independent Pricing and Regulatory Tribunal of New South Wales

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Executive summary

HoustonKemp has been engaged to undertake a review of Hunter Water's expenditure proposal for the 2025-30 regulatory period. We present the conclusions from our assessment below.

The key findings from our review of Hunter Water's expenditure proposal for the 2025-30 regulatory period are that, in our opinion:

- there is scope for the Independent Pricing and Regulatory Tribunal (IPART) to consider delaying up to $343.9 million of expenditure for improving water security in the Lower Hunter region to a subsequent regulatory period, given the probability of reaching low water storage levels in the next regulatory period is very low and given insufficient engagement with customers on timing and the trade-off between affordability and water security regarding the Belmont desalination plant, which represents $479 million of proposed capital expenditure in 2025-30;
- Hunter Water has deficiencies in its engagement with both the Environmental Protection Authority (EPA) and its customers on the bill impacts and the trade-off between affordability and environmental sustainability in relation to the project for cessation of oceanic sludge discharge at Burwood Beach. However, we do not propose that IPART makes any adjustments to Hunter Water's proposed capital expenditure for cessation of oceanic sludge discharge at Burwood Beach, on the basis that:
  - we understand from Hunter Water that the project is required to address emerging PFAS contaminants, for which the community and stakeholders have demonstrated expectations for drinking water service providers to address; and
  - under IPART's new 3Cs framework, it would be reasonable for IPART, Hunter Water and other regulatory authorities to work through expectations of how parties should work together to understand and deliver outcomes in the best interest of consumers, ahead of the next regulatory period;
- it would be appropriate for IPART to defer $1.8 million of expenditure on environmental sustainability, given an uncertain requirement for any allowance to act on the New South Wales biosolids review at this time;
- it would be appropriate for IPART to adjust Hunter Water's operating expenditure allowance for labour costs upwards by $5.9 million over the 2025-30 regulatory period to reflect current and expected future labour market conditions, reflecting our opinion that Hunter Water has underestimated these costs;
- there is scope for IPART to defer $3.5 million in operating expenditure for the Belmont desalination plant, contingent on its decision regarding the appropriate timing of water security capital expenditure;
- Hunter Water's proposed operating expenditure efficiency factor of 0.9 per cent per annum during the 2025-30 regulatory period appears to be conservative, particularly given the potential opportunities and growing cost pressures on customers – we recommend that IPART adjust Hunter Water's proposed operating expenditure efficiency factor upwards to 1.5 per cent per annum; and
- Hunter Water has not incorporated a price elasticity of demand into its demand forecasts, despite a significant proposed increase in its water usage charge. We recommend that IPART adjust Hunter Water's demand forecasts to incorporate a price elasticity of demand.

Assessment of proposed capital expenditure for 2025-30

Hunter Water has proposed capital expenditure of $1.55 billion for the 2025-30 regulatory period. This represents a substantial 39 per cent increase compared to the previous regulatory period, which principally stems from the inclusion of $479 million allocated to the Belmont desalination plant – a major project designed to enhance the region's water security and resilience to climate variability.

Our comprehensive assessment of Hunter Water's proposed capital expenditure program has examined the strategic merit and efficiency of investments across all key expenditure drivers. This evaluation encompasses critical areas including water security investments to ensure sustainable supply, environmental sustainability initiatives to reduce environmental impacts, system upgrades to maintain reliable water services, investments in safety and workplace health infrastructure and infrastructure renewals to maintain high quality water services to customers.

We set out our recommended lower and upper bound adjustments to Hunter Water's proposed capital expenditure in Table E 1 below.

Table E 1: Proposed lower and upper bound capital expenditure adjustments ($2024/25, $millions)

Item	2025/26	2026/27	2027/28	2028/29	2029/30	Total
Hunter Water's proposed capital expenditure						
Belmont desalination plant	$223.9	$172.3	$52.0	$19.0	$12.0	$479.2
Centralised biosolids planning	-	-	-	-	$1.8	$1.8
Other capital expenditure	$196.2	$194.2	$220.8	$251.5	$210.5	$1,073.2
Hunter Water's proposed capital expenditure	$420.1	$366.5	$272.8	$270.5	$224.3	**$1,554.2**
Adjustments – lower bound						
Belmont desalination plant	-$121.0	-$139.8	-$52.0	-$19.0	-$12.0	-$343.9
Centralised biosolids planning	-	-	-	-	-$1.8	-$1.8
Total adjustments – lower bound	-$121.0	-$139.8	-$52.0	-$19.0	-$13.8	**-$345.7**
Total capital expenditure – lower bound	$299.1	$226.7	$220.8	$251.5	$210.5	**$1,208.5**
Adjustments – upper bound						
Centralised biosolids planning	-	-	-	-	-$1.8	-$1.8
Total adjustments – upper bound	-	-	-	-	-$1.8	**-$1.8**
Total capital expenditure – upper bound	$420.1	$366.5	$272.8	$270.5	$222.5	**$1,552.4**

Note: Values may not sum due to rounding.

Expenditure on water security

Our assessment raises significant questions about the appropriate timing of proposed water security expenditure in Hunter Water's capital program, particularly regarding the Belmont desalination plant. While we acknowledge the strategic importance of enhancing water security, several factors suggest that deferring some expenditure to the next regulatory period warrants serious consideration. Specifically, in our opinion:

- the probability of reaching critical water storage levels in the 2025-30 regulatory period is very low; and
- Hunter Water did not sufficiently engage with consumers on the trade-off between water security risk and the costs of deferring investment.

A key consideration is the probability analysis of reaching critical storage levels. Hunter Water adopts a 'design drought' based on a repeated sequence of its worst recorded drought in 1980/81. Under this design drought and with its current demand, Hunter Water models storages decreasing from full to 16 per cent in three years with currently reduced Grahamstown dam operating levels.

However, Hunter Water's probability analysis indicates a very low likelihood of storages falling to critical levels which would lead to customers facing strict water restrictions or worse consequences during the 2025-30 regulatory period, even under its highly conservative design drought. Specifically, under the design drought and with reduced Grahamstown dam operating levels, Hunter Water calculates the probability of customers facing:

- stage 3 restrictions and a total outdoor water ban, which Hunter Water will implement at 40 per cent storage, is 0.7 per cent in any given year, or a one in 143 year probability;
- the storage level that 'day zero' occurred in Cape Town, which reflects imminent risk of running out of water, which occurred at 30 per cent storage, is 0.07 per cent in any given year, or a one in 1,429 year probability; and
- the level of storage at which Hunter Water has limited confidence that water would flow on its network (which is also the level that Hunter Water prepares its 36-month drought plan to meet), which is at 15 per cent storage, is 0.002 per cent in any given year, or a one in 50,000 year probability.

Accordingly, in our opinion, it would be open to IPART to consider that the community, Hunter Water and the New South Wales government could continue to bear the risk of delaying a proportion of expenditure on drought response measures, where some key risks are the community facing stage 3 restrictions and a total outdoor water ban (one in 143 year event) or worse consequences (between a one in 1,429 year event and a one in 50,000 year event).

This recommendation hinges on our particular concerns about the limitations in Hunter Water's customer engagement regarding the Belmont desalination project. Importantly, we do not dispute the evidence that Hunter Water has provided to us about the need for the Belmont desalination plant to address water security concerns, at some point in time. Rather, we believe that the evidence about timing for the plant, which inherently reflects judgement about the trade-off between risks of running out of water and the costs of solutions to lower those risks have not been well explained or subjected to scrutiny by those consumers that are being asked to fund this project.

While Hunter Water conducted extensive customer consultation in developing the Lower Hunter Valley Water Security Plan (LHWSP) in 2021 and more recently for its pricing proposal, it specifically excluded discussions about the timing of the Belmont desalination plant from its recent engagement, despite material changes in:

- the cost of living circumstances of Hunter Water's customers;
- the expected costs and scope of the project, which increased 141 per cent from when customers were consulted on the project (from $220 million (nominal) to $530 million (nominal)), to the extent that Hunter Water prepared a revised business case in February 2024, which it did not consult with customers on;
- the expected long-term bill impacts of the project, including the annual operating costs once the plant has been completed; and
- the broader context of Hunter Water's long-term capital expenditure program, including significant proposed critical dam safety investments in 2030-35 that are likely to add another material one-off bill increase for consumers.

Collectively, this meant that customers were not given the opportunity to express their views on when this major infrastructure investment should proceed, nor were they adequately informed about its impact on future bills and operating costs should the plant need to be operated to meet water demands.

In addition, at no point in its customer engagement did Hunter Water put to customers the probability of reaching critical storage levels in any given year or the effect of the Belmont desalination plant on that probability, eg, that customers currently face a one in 143 year probability of entering stage 3 restrictions, and that the Belmont desalination plant will reduce this to a one in 400 year probability. Customers and Hunter Water's stakeholders may be willing to bear this risk for the 2025-30 regulatory period, given other considerations (such as cost of living pressures).

This engagement gap has created a significant weakness in the justification for the project's timing. Without clear customer input on the trade-off between bill impacts and water security risks, the inclusion of the project by Hunter Water in the 2025-30 capital program lacks a crucial element of support. This is particularly pertinent given current cost-of-living pressures facing the customer base.

It is important to note that robust customer engagement on project timing would not have bound Hunter Water to follow customer preferences. Had such engagement occurred, Hunter Water could have proceeded with the project in this regulatory period, even without customer support, if other evidence strongly supported the immediate need for the investment.

However, our assessment finds that, while Hunter Water has established a general case for investment in water security given the prevailing risks, the evidence supporting the need for this investment during the 2025-30 regulatory period is less compelling. This timing question, combined with the limitations in customer engagement on timing, suggests that deferral of some water security expenditure to the following regulatory period may be appropriate.

It follows that, in our opinion, it would be open to IPART to reduce Hunter Water's expenditure allowance for water security. We note that this is not akin to IPART taking on the decision regarding the acceptable level of risk relating to drought security in place of the community or other stakeholders. Rather, under the 3Cs framework, this is IPART considering whether in forming its pricing proposal, Hunter Water's customers have received sufficient information to make an informed decision on their willingness to pay for water security investments during the 2025-30 regulatory period, particularly in light of significant project cost increases, the broader portfolio of Hunter Water's proposed expenditure in the 2030-35 regulatory period, and cost of living pressures.

Nevertheless, we do not believe that it would be appropriate to consider any expenditure incurred or likely to be incurred in 2024/25 as not efficient, on the basis that it was consistent with the LHWSP. We have also explored the possibility of undertaking some construction at the Belmont site without building the desalination plant, to reduce the risk to Hunter Water for delivering additional water security in a future regulatory period, which we believe delivers some value to consumers. In our assessment, it would be appropriate for Hunter Water to:

- complete the ocean infall, which requires leasing one of two specialist barges in Australia; and
- progress construction of site foundations, which would accelerate the recommencement of construction of a desalination plant during a future regulatory period.

These are higher risk aspects of the project and so would help to derisk the subsequent desalination plant project once it has been decided to proceed to completion.

Regardless, it is ultimately a decision for Hunter Water as to how its capital expenditure allowance is best allocated to specific projects to meet its regulatory and customer obligations over the regulatory period. In a lower bound scenario, this may involve continuing some aspects of the Belmont desalination plant or engaging in other water security activities that might have been removed from its proposed capital expenditure program to make way for the Belmont desalination plant.

However, in a lower-bound scenario, we do not believe it would be appropriate for Hunter Water to include the expenditure associated with continuing to undertake works on distribution watermains, or to commence expenditure on other components of the project. Accordingly, our lower bound recommendation for the Belmont desalination plant is $178.3 million of capital expenditure, with $42.9 million falling in 2024/25 and $135.3 million falling in the 2025-30 regulatory period.

Our recommendation reflects the deficiencies in customer engagement identified above and taking into account the work that has already been undertaken on the Belmont desalination plant.

For completeness, we also believe it would be open to IPART to consider that Hunter Water's proposed expenditure on the Belmont desalination plant is included in an upper bound expenditure scenario. Such a decision would reflect an alternate opinion on the cost of living and water security risk trade off, which is central to the decision to proceed with the project during the 2025-30 regulatory period.

Specifically, Hunter Water's analysis indicates that, with reduced Grahamstown dam operating levels, constructing the Belmont desalination plant would decrease the probability of Hunter Water's customers facing critical storage levels by approximately a factor of three, ie:

- stage 3 restrictions and a total outdoor water ban from a one in 143 year event to a one in 400 year event;
- the level of storage at which 'day zero' occurred in Cape Town from a one in 1,429 year event to a one in 5,000 year event; and
- a storage level where Hunter Water is no longer confident that water would flow on its network from a one in 50,000 year event to a less than one in 100,000 year event.

In an upper bound scenario, it would be open to IPART to consider that this expenditure was prudent and efficient to deliver this level of risk mitigation to the community.

Expenditure on environmental sustainability

Environmental sustainability represents a major driver of Hunter Water's capital expenditure program, primarily stemming from regulatory obligations imposed by the EPA regarding wastewater treatment works operations and discharge management.

The EPA has established several key requirements that are shaping Hunter Water's investment program. Most significantly, these include:

- an anticipated requirement to cease oceanic sludge discharge from the Burwood Beach Wastewater treatment works (WWTW);
- anticipated changes to biosolids standards following the New South Wales government's biosolids review; and
- the need to meet evolving environmental discharge obligations as sewerage volumes grow.

Our review has identified concerns about Hunter Water's engagement with customers on these environmentally-driven investments. Under IPART's 3Cs framework, we believe Hunter Water has an obligation to engage with customers on all aspects of its expenditure proposal, including investment to satisfy existing and anticipated EPA requirements and the associated bill impacts of compliance.

Further, in our opinion, it is incumbent upon Hunter Water to engage with the EPA on the bill impacts of investments required to comply with specific environmental regulations and customer opinions on those bill impacts, including any major investments to satisfy conditions in its Environmental Protection Licenses (EPLs) granted under the *Protection of the Environment Operations Act 1997 (NSW)*. We believe that, in absence of this information, the EPA cannot weigh up the costs of achieving specific environmental outcomes, nor make trade-offs between the timing of competing environmental priorities.

This engagement is particularly critical given the significant costs associated with meeting EPA requirements. While the EPA has statutory objectives that may override customer preferences, we believe it is fundamental that customers understand how regulatory obligations will impact their bills and that this information is also available to the EPA when making regulatory decisions that impose obligations on Hunter Water.

In our opinion, the impact of regulatory requirements on customer bills should be clearly communicated by Hunter Water to both customers and the EPA. This transparency ensures regulatory decisions are made with full awareness of customer feedback and the financial implications of these decisions for the community.

In the case of oceanic sludge discharge requirements, in our opinion, IPART could reasonably conclude that customers should not bear the near-term costs of meeting these EPA requirements, on the basis that Hunter Water did not sufficiently consult with either its customers or the EPA on the bill impacts of ceasing oceanic sludge discharge.

However, we understand from further discussion with Hunter Water that the Burwood Beach cessation of oceanic sludge discharge project is designed to address emerging PFAS contaminants, for which the community and stakeholders have demonstrated expectations for drinking water service providers to address. For example, the EPA is currently reviewing PFAS guidelines and Hunter Water has recently attended ongoing public inquiries regarding PFAS contamination in waterways and drinking water supplies in New South Wales.

In addition, we acknowledge that our opinion above reflects a step change in how water service providers should interact with regulatory bodies to deliver outcomes in the best interests of consumers under IPART's new 3Cs framework, and would impose a retrospective standard to Hunter Water's consumer engagement. Accordingly, it would be reasonable for IPART, Hunter Water and other regulatory authorities to work through expectations of how parties should work together to understand and deliver outcomes in the best interest of consumers, ahead of the next regulatory period.

For these reasons, whilst we believe that there are deficiencies in Hunter Water's engagement with both the EPA and its customers on the bill impacts and the trade-off between affordability and environmental sustainability in relation to the project for cessation of oceanic sludge discharge at Burwood Beach, and whilst we believe it therefore remains open for IPART to consider reducing Hunter Water's allowance for environmental sustainability by up to $60 million in the 2025-30 regulatory period, we do not propose that IPART make any adjustments to Hunter Water's proposed capital expenditure for cessation of oceanic sludge discharge at Burwood Beach as part of our lower bound capital expenditure adjustment.

The situation is further complicated by Hunter Water's planned expenditure anticipating increased biosolids management standards. This highlights a fundamental challenge facing water utilities, being the need to respond to external regulatory drivers that can shift during a regulatory period and lie beyond the business' control.

As with the planned cessation of oceanic sludge discharge, we see merit in Hunter Water engaging with customers about the likely costs of meeting anticipated biosolids standards. This information should be provided directly to those conducting the biosolids review to ensure regulatory changes are made with full understanding of customer bill impacts and so customers are also aware of the expenditure and associated bill implications of these decisions.

The uncertainty surrounding future biosolids standards necessitates careful coordination between Hunter Water and the EPA regarding implementation timelines. This is particularly relevant for capital expenditure at Burwood Beach, where technology choices for sludge management must align with the planned cessation of oceanic sludge discharge and uncertain future biosolids standards.

Given the uncertainty around these requirements, we believe it is not appropriate for $1.8 million in expenditure to commence works on a centralised biosolids treatment plant during the 2025-30 regulatory period. This expenditure is likely to be more appropriately deferred to a subsequent regulatory period.

The path forward requires improved coordination between Hunter Water, the EPA and customers to ensure environmental investments deliver optimal outcomes while maintaining affordability. This necessitates a more transparent and inclusive approach to planning and implementing environmental compliance measures. In our opinion, there is a role for Hunter Water within the 3Cs framework to engage with customers and provide this information to the EPA to deliver better outcomes.

Assessment of remaining capital expenditure

Our detailed review of Hunter Water's proposed capital expenditure across several key operational categories has found sound justification for the planned investments.

Hunter Water has allocated $159 million for safety, health and wellbeing initiatives, which encompasses critical workplace safety upgrades, enhanced security measures at key facilities and systematic renewal of ageing infrastructure that poses potential health and safety risks. This program demonstrates a clear

understanding of both regulatory obligations and industry best practices in maintaining a safe operating environment.

The proposed $147 million investment in high quality water services reflects a well-structured approach to maintaining and upgrading water treatment facilities, distribution networks and quality monitoring systems. The program includes targeted renewal of critical water mains and upgrades to treatment processes.

The allocation of $93 million for other capital expenditure covers a diverse portfolio of projects including IT systems upgrades, fleet renewal and facility improvements. Each component of this category aligns with Hunter Water's broader strategic objectives.

Given Hunter Water's justification, customer engagement and demonstrated efficiency of these proposed investments, we find no basis for adjusting Hunter Water's capital allowance for these categories. The proposed expenditure represents a reasonable approach to maintaining essential service standards while managing customer bill impacts.

Assessment of capital efficiency factor

Hunter Water has incorporated a structured capital efficiency strategy into its expenditure proposal, targeting savings of $41.2 million across its capital program. This represents 2.7 per cent of its total proposed expenditure and demonstrates a proactive approach to expenditure optimisation across its capital program.

We expect that the opportunity for Hunter Water to achieve its capital efficiency target arises through three avenues, namely by:

- implementing enhanced design optimisation processes that emphasise value engineering and standardisation of infrastructure solutions where appropriate. This includes early contractor engagement to identify innovative design alternatives and capture construction efficiencies at the planning stage;
- focusing on contract delivery improvements, which could include bundling similar works to achieve economies of scale, implementing strategic supplier partnerships to drive innovation and cost reduction and adopting performance-based contracting approaches that incentivise efficiency without compromising quality outcomes; and
- identifying opportunities to efficiently defer capital works where such delays would not compromise service standards or risk management objectives. This flexible approach to timing helps optimise capital deployment while maintaining essential service levels.

In our opinion, Hunter Water's capital efficiency target of $41.2 million represents a reasonable and achievable goal for the 2025-30 period. This target balances the imperative to drive cost efficiencies with the need to maintain project delivery quality and manage delivery risks appropriately. The structured approach to achieving these savings provides confidence that the target can be realised without compromising essential infrastructure outcomes or service standards.

Assessment of deliverability

The deliverability of Hunter Water's proposed capital expenditure program requires particularly careful scrutiny given its unprecedented scale. The significant increase in planned expenditure for the 2025-30 regulatory period coincides with an especially challenging construction market environment, characterised by intense competition for resources both regionally and nationally.

Hunter Water has presented evidence of substantial internal preparation for this increased capital delivery challenge. It has strengthened its project management capabilities, enhanced its procurement frameworks and developed more sophisticated contractor engagement strategies. These organisational improvements demonstrate recognition of the delivery challenges ahead and a structured approach to addressing them.

However, internal capability, while critical, is only one component of successful program delivery. The broader market context presents significant risks, particularly given that Hunter Water subcontracts out a

large proportion of its capital and operating expenditure programs. The Hunter region is experiencing significant infrastructure activity across multiple sectors, creating intense competition for skilled labour, equipment and materials. This regional pressure is compounded by major infrastructure programs being delivered concurrently across New South Wales and other Australian jurisdictions.

Given these market dynamics, we conduct additional analysis to fully understand the deliverability risks facing Hunter Water's capital program. Overall, in our assessment, despite the large increase in expected labour demand in 2024/25 and 2025/26, historical labour mobility appears to be high in the Hunter Employment Region. This is consistent with what Hunter Water has told us in interviews.

Nevertheless, given the large increase in full-time equivalents (FTEs) required in the Hunter Employment Region for announced and further progressed projects, we expect deliverability to be challenging in the first two years of the 2025-30 regulatory period.

Review of anticipated capital expenditure for 2030-35

Hunter Water has identified a substantial pipeline of capital investments extending into the 2030-35 regulatory period, with preliminary estimates indicating additional expenditure of $1.6 billion. This significant future program encompasses several major infrastructure challenges facing the business. Key drivers include the need to meet anticipated new regulatory standards for biosolids management, fulfill dam safety obligations at both Grahamstown and Chichester dams and complete ongoing infrastructure expansion programs to accommodate regional growth.

Based on our experience reviewing similar long-term infrastructure programs, we anticipate that the projected expenditure of $1.6 billion may moderate as Hunter Water develops more detailed design solutions during the 2025-30 period. Engineering innovations, alternative delivery approaches and more precise scoping of requirements typically lead to cost savings in major infrastructure programs.

Nevertheless, the scale of projected investment represents a significant departure from historical capital expenditure patterns. Hunter Water's customers are facing the prospect of two consecutive regulatory periods with unprecedented levels of capital investment, with corresponding impacts on their bills. This represents a structural shift in the business' cost base that warrants careful consideration and comprehensive customer engagement.

We believe Hunter Water needs to substantially enhance its customer engagement regarding these longer-term expenditure requirements. Customers should be provided with clear visibility of both the infrastructure challenges ahead and their corresponding bill implications. This engagement should extend beyond the immediate regulatory period to help customers understand and prepare for the trajectory of prices over the next decade.

More sophisticated customer engagement would enable Hunter Water to better understand community preferences regarding the timing and prioritisation of major investments. While some expenditure is driven by non-negotiable regulatory requirements, there may be flexibility in the sequencing and delivery approach for other investments. Understanding customer preferences regarding the trade-off between service outcomes and bill impacts over time would help inform these decisions.

This longer-term perspective for expenditure planning and customer engagement would also support more effective regulatory outcomes. By developing a clearer understanding of customer preferences regarding the timing of major investments and associated bill impacts, Hunter Water can better align its infrastructure delivery program with community expectations while meeting its service obligations.

Assessment of proposed operating expenditure for 2025-30

Hunter Water has proposed operating expenditure of $978.8 million for the 2025-30 regulatory period, representing a measured increase from the previous period that reflects rising input costs and evolving

service deliver requirements across its network. We find that there is an efficient operating expenditure range of between $964.4 million and $984.7 million for the 2025-30 period.

Table E 2: Proposed lower and upper bound operating expenditure adjustments ($2024/25, $million)

Item	2025/26	2026/27	2027/28	2028/29	2029/30	Total
Hunter Water's proposed operating expenditure	$193.0	$194.2	$197.0	$197.8	$196.9	**$978.8**
Adjustments – lower bound						
Salaries and wages trend increase	$0.1	$0.3	$1.1	$1.8	$2.6	$5.9
Belmont desalination plant step change	-	-	-$0.7	-$1.7	-$1.1	-$3.5
Efficiency factor adjustment	-$1.1	-$2.2	-$3.4	-$4.5	-$5.6	-$16.8
Total adjustments – lower bound	**-$1.0**	**-$1.9**	**-$3.0**	**-$4.4**	**-$4.1**	**-$14.4**
Total operating expenditure – lower bound	**$192.0**	**$192.3**	**$194.0**	**$193.4**	**$192.8**	**$964.4**
Adjustments – upper bound						
Salaries and wages trend increase	$0.1	$0.3	$1.1	$1.8	$2.6	$5.9
Total adjustments – upper bound	**$0.1**	**$0.3**	**$1.1**	**$1.8**	**$2.6**	**$5.9**
Total operating expenditure – upper bound	**$193.1**	**$194.5**	**$198.1**	**$199.6**	**$199.5**	**$984.7**

Proposed trend increase in labour costs

Hunter Water proposed a trend increase in salaries and wages that will increase its operating expenditure by $10.6 million over the 2025-30 pricing period. Hunter Water attributed its real increase in labour costs to a combination of:

- remuneration changes under industrial instruments; and
- scientist and engineer regrades.

Hunter Water calculates its remuneration changes under industrial agreements in accordance with the New South Wales Government Fair Pay and Bargaining Policy (June 2024), which stipulates a 10.5 per cent increase in remuneration over three years.

To achieve a 10.5 per cent increase in remuneration over three years, Hunter Water proposes to raise remuneration rates by 4.0 per cent in 2024/25 (being prior to the commencement of the 2025-30 period), 3.5 per cent in 2025/26 and 3.0 per cent in 2026/27, including mandatory superannuation escalation. Since Hunter Water assumes annual consumer price index (CPI) inflation of 2.5 per cent throughout the pricing period, this represents real increases of 1.0 per cent in 2025/26 and 0.5 per cent in 2026/27. For the remainder of the regulatory period, Hunter Water assumes no real increases in remuneration rates (ie, remuneration rates are assumed to increase at 'the long-term inflation forecast of 2.5 per cent').

Hunter Water also includes a trend increase to reflect reclassification of scientists and engineers under their enterprise bargaining agreement, based on historical data demonstrating that the escalation of employees through pay bands will increase its real labour costs, including after accounting for the retirement of senior employees.

In our opinion, Hunter Water's proposed trend increase in labour for scientist and engineer regrades is reasonable. However, in our opinion, operating expenditure should be adjusted upwards to reflect market realities in the labour market which means that Hunter Water's proposed labour cost increases are likely to be underestimated, as demonstrated by our analysis of comparable utility business labour cost benchmarks.

We recommend that IPART adjusts Hunter Water's proposed operating expenditure upwards in the 2025-30 period by $5.9 million, which reflects a wage price index of 1 per cent above CPI each year of the regulatory period, to reflect this underestimation.

Proposed step increase in Belmont desalination operating expenditure

Hunter Water has proposed $3.5 million in step changes for the operation of the Belmont desalination plant, set to commence from 2027/28 onwards. Most expenditure will be capitalised during the performance guarantee period (until March 2030). However, a proportion of these plant testing and optimisation costs will also be expensed.

Consistent with our discussion of capital expenditure for water security, if IPART were to defer expenditure on water security for the Belmont desalination plant to a subsequent regulatory period, it would be appropriate for IPART to reduce the operating expenditure allowance by $3.5 million representing the budgeted expenditure for operating the Belmont desalination plant in the 2025-30 regulatory period.

Proposed efficiency factor

Hunter Water's proposed efficiency factor over the 2025-30 regulatory period translates to an average efficiency factor of 0.9 per cent per year, delivering total forecast operating expenditure efficiencies of $36.4 million.

The methodology used by Hunter Water appears generally robust and well-structured. The combination of specifically identified efficiency initiatives with a broader productivity factor represents good practice. The key question is whether Hunter Water's proposed operating expenditure efficiency factor is reasonable given the prevailing circumstances.

In our opinion, Hunter Water's target 0.9 per cent annual efficiency saving appears to be conservative, particularly given the potential opportunities and growing cost pressures on customers. While Hunter Water has emphasised its current efficiency as limiting its opportunities for future cost savings, we understand from Hunter Water that it might perform worse in its next round of Water Services Association of Australia (WSAA) benchmarking, due in part to the timing of its contracts where higher costs are expected to be passed through.

In our opinion, a business in Hunter Water's position would attempt to identify greater operating expenditure efficiencies in the 2025-30 regulatory period, particularly given cost of living pressures, trend increases in labour and treatment expenditure and the opportunities presented by technology. In our opinion, an average annual operating expenditure efficiency factor of 1.5 per cent would be more appropriate, given the current landscape. Specifically, including a higher efficiency factor could help to offset upward adjustments to wages and salaries that we believe are warranted.

Our recommended efficiency factor adjustment would result in operating expenditure savings of $53.2 million, which is $16.8 million of additional cumulative operating expenditure savings compared to Hunter Water's proposal, ie, an additional $1.1 million per year in 2025/26, growing to an additional $5.6 million per year by 2029/30.

Table E 3: Proposed efficiency factor adjustments

Year	2025/26	2026/27	2027/28	2028/29	2029/30	Total
Savings from Hunter Water's proposed efficiency factor	$4.0	$5.7	$7.1	$8.9	$10.7	$36.4
Savings from HoustonKemp's efficiency factor – lower bound	$5.1	$7.9	$10.5	$13.3	$16.3	$53.2
Cumulative efficiency factor adjustment – lower bound	-$1.1	-$2.2	-$3.4	-$4.5	-$5.6	-$16.8

Assessment of remaining operating expenditure

Beyond these specific adjustments, our assessment finds that Hunter Water has demonstrated the efficiency of its proposed operating expenditure. In particular, we note Hunter Water's strong performance in WSAA and National Performance Reporting benchmarking, which places it favourably among its peers.

The modest scale of proposed operating expenditure increases in the 2025-30 regulatory period compared to the previous period is well-justified by underlying expenditure drivers such as network growth, regulatory compliance requirements and service standard commitments.

Looking ahead, we believe that Hunter Water should take several actions.

- first, it should deepen its engagement with customers specifically around the medium-term trajectory of operating expenditure and the subsequent trend in bill impacts over a 10 year time horizon;
- second, it should apply a labour cost benchmark, adjusted if necessary by industry, local and overall labour market characteristics of Hunter Water's labour force, rather than using outturn enterprise agreement; and
- finally, it should aim to maintain its position as one of the most efficient water utilities under WSAA benchmarking by continuously targeting operating efficiency improvements and reflecting these efficiencies in its operating expenditure efficiency factor.

These enhancements will help ensure Hunter Water's operating expenditure proposal in the future better services both its operational needs and its customers' interests over the long term.

Assessment of dwelling and demand forecasts

Our review has examined Hunter Water's approach to forecasting both dwelling growth and water demand, two critical inputs that drive multiple aspects of the pricing determination. These forecasts fundamentally shape the assessment of future bill impacts and inform projections of operating expenditure requirements as Hunter Water expands its service delivery to meet the needs of a growing customer base.

Hunter Water's dwelling forecasts demonstrate robust methodological foundations. It has appropriately incorporated regional development plans, demographic trends and historical growth patterns into its projections. When benchmarked against alternative population and development forecasts from other sources, Hunter Water's projections align well with consensus expectations for regional growth.

However, our assessment identifies a significant concern with Hunter Water's water demand forecasting methodology. It has opted not to incorporate price elasticity adjustments in its demand projections, despite proposing substantial increases to water usage charges during the 2025-30 regulatory period. This approach appears to disregard well-established economic principles regarding consumer behaviour in response to price signals.

While we acknowledge the complexities inherent in applying historical price elasticity studies to current consumption patterns, in our opinion this challenge does not justify omitting price responsiveness in demand forecasting. Basic economic theory and empirical evidence consistently demonstrate that customers modify their consumption behaviour in response to price changes. In the absence of compelling quantitative evidence suggesting Hunter Water's customers are uniquely unresponsive to price signals, we believe standard price elasticity assumptions should be incorporated into demand forecasts.

Given these considerations, we recommend that IPART adjust Hunter Water's water demand forecasts to reflect customer responsiveness to the proposed increases in water usage prices. In the absence of region-specific elasticity studies, we believe adopting the price elasticity parameters used in Sydney Water's demand forecasting would provide a reasonable basis for this adjustment. This approach would leverage established methodologies while recognising the similar demographic and socioeconomic characteristics between the two service areas.

This adjustment would likely result in lower forecast water demand, better reflecting the expected customer response to higher usage charges. This more conservative demand forecast would provide a more reliable basis for financial planning and ensure that revenue projections adequately account for potential changes in customer behaviour.

Assessment of asset management, risk and procurement

Our review has examined Hunter Water's asset management, risk and procurement processes, including whether Hunter Water and its customers have taken on an appropriate quantum of risk during the 2025-30 regulatory period.

Hunter Water's asset management and risk systems appear to be robust, with Hunter Water adopting a risk-based approach to asset maintenance and replacement. Approximately 90 per cent of Hunter Water's assets are managed on a run-to-failure approach.

We understand that Hunter Water is less willing to accept risk where there is potential for critical impacts to its staff or the community. However, due to cost of living pressures, Hunter Water has had to accept some risks in the 2025-30 regulatory period, though will still perform within its Operating Licence.

We understand Hunter Water's customers are happy to accept unplanned outages if they are fixed quickly and are not willing to pay more to have no outages. This preference has also informed Hunter Water's reactive maintenance strategy.

In our assessment, Hunter Water's approach to asset management and risk do not have any implications for its proposed efficiency factor. However, it is not clear that Hunter Water's customers are willing to accept Hunter Water's proposed increase in capital expenditure to address some water security or environmental sustainability risks, in light of cost of living pressures. Accordingly, Hunter Water's approach to risk may have implications for the appropriate capital allowance, which we discuss in our assessment of Hunter Water's capital expenditure.

Hunter Water's procurement framework is in line with New South Wales government standards and aims to maintain competitive tension for all scopes of work.

In our assessment, Hunter Water's approach to procurement has no implications for its proposed efficiency factor, capital or operating expenditure allowances.

Observations on Hunter Water's approach to customer engagement

Our review of Hunter Water's expenditure proposal has also involved considering its customer engagement approach as it relates to our assessment of proposed expenditure. This assessment focused on three critical dimensions:

- how customer engagement informed proposal development and priority setting;
- the depth of direct customer engagement on proposed expenditure; and
- the quality of information provided to customers about bill impacts from major projects.

As the first pricing proposal developed under the 3Cs framework, Hunter Water has demonstrated a commendable commitment to customer engagement. It has integrated customer feedback into the development of its expenditure proposals, employing diverse engagement techniques to capture a broad spectrum of customer perspectives. Particularly noteworthy was the implementation of a customer deliberative forum, which empowered community members to actively participate in discussions about service priorities and project selection.

The engagement program incorporated several innovative elements that warrant recognition. Hunter Water successfully utilised multiple channels and formats to reach different customer segments, ensuring demographic and socioeconomic diversity in feedback collection. The deliberative forum represented a particularly sophisticated approach, creating a structured environment for in-depth customer consideration of complex infrastructure and service delivery challenges.

However, our assessment has identified a significant gap in Hunter Water's engagement approach. While considerable effort was invested in engagement during the proposal's development phase, there was limited customer consultation on the complete expenditure proposal prior to its submission to IPART. This represents a missed opportunity for comprehensive customer feedback on the integrated package of investments and associated bill impacts.

In addition, Hunter Water in developing its expenditure proposal did not engage with customers on the expenditure associated with the Belmont desalination plant, or expenditures related to current or anticipated compliance obligations. We believe that this was a missed opportunity to build customer support for these activities, while also informing the trade-off between bill impacts and timing for these activities.

Looking ahead, we believe Hunter Water should enhance its engagement approach by conducting thorough consultation on its complete expenditure proposal before submission to IPART. This would serve two important purposes:

- first, it would provide IPART with valuable insights into customer perspectives on the total package of proposed expenditure and resulting bill impacts; and
- second, it would enable Hunter Water to make final adjustments to its proposal based on customer feedback, particularly regarding the timing and prioritisation of investments.

This gap in engagement is particularly significant given the material price increases proposed for the 2025-30 period. The absence of comprehensive customer consultation on the complete proposal, especially regarding elements that substantially impact customer bills, represents a notable deficiency in Hunter Water's engagement approach for this pricing review. This limitation weakens the proposal's alignment with the customer-centric principles underlying the 3Cs framework.

Given the long-term implications of many proposed investments, future engagement should also focus more explicitly on helping customers understand the trajectory of expenditure and bills beyond the immediate regulatory period. This longer-term perspective would enable more meaningful customer input on the trade-offs between service outcomes, investment timing and bill impacts over time.

1. Introduction

We have been engaged by the Independent Pricing and Regulatory Tribunal (IPART) to review the prudence and efficiency of Hunter Water's expenditure proposal for the 2025-30 regulatory period.

Hunter Water has proposed $1.55 billion in capital expenditure over the period,[1] including $479 million on the Belmont desalination plant.[2] The main drivers of investment include:[3]

- water security ($512 million);
- environmental sustainability ($387 million);
- reliable water services ($298 million);
- safety, health and wellbeing ($159 million); and
- high quality water services ($147 million).

Hunter Water has set a capital expenditure efficiency target of $41.2 million for the 2025-30 period,[4] which is equivalent to a 0.9 per cent compounding annual efficiency.

Hunter Water has proposed $978.8 million in operating expenditure for the 2025-30 regulatory period, which amounts to an average of $195.8 million per year.[5] Hunter Water develops these projections through a base-trend-step methodology, ie:[6]

- base expenditure of $175.2 million per year;
- trend growth of 1.3 per cent per year, in addition to real input price changes for several cost categories;
- step changes of $40.7 million over the 2025-30 period; and
- cost savings through a compounding annual efficiency factor of 0.9 per cent per year.[7]

Hunter Water's forecast revenues (and subsequently prices and customer bills) are estimated by reference to its efficient costs.[8]

The remainder of our report is structured as follows:

- in section 2, we set out our approach to the expenditure review;
- in section 3, we provide an overview of Hunter Water's operating environment;
- in section 4, we assess Hunter Water's asset management, risk and procurement systems and processes;
- in section 5, we provide our assessment of Hunter Water's demand forecasts;
- in section 6, we set out our assessment of Hunter Water's proposed capital expenditure; and
- in section 7, we discuss our assessment of Hunter Water's proposed operating expenditure.

[1] Hunter Water, *2024 pricing proposal*, September 2024, p 107.

[2] Hunter Water information return, tab: 'Capex by outcome', row 7.

[3] Hunter Water, *2024 pricing proposal*, September 2024, pp 111-114.

[4] Hunter Water, *Attachment M - Cost Efficiency Strategy 2025-30,* September 2024, p 13.

[5] Hunter Water, *2024 pricing proposal*, September 2024, p 133.

[6] Hunter Water, *2024 pricing proposal*, September 2024, pp 147, 150, 151 and 156.

[7] We note this operating efficiency factor averages 1.0 per cent per year from 2024-2030.

[8] Hunter Water, *2024 pricing proposal*, September 2024, p 118.

2. Our approach to the expenditure review

In this section, we explain the relevance of the new 3Cs framework in guiding our analysis, present an overview of our assessment methodology and set out the information sources we rely on to conduct our expenditure review.

2.1 The 3Cs framework is new

In November 2022, IPART introduced the 3Cs framework, which broadened the focus of IPART pricing reviews to customer value, cost-efficiency and credibility over the short and long term. By centring the regulatory process around customer priorities, IPART aimed to ensure that pricing proposals promoted efficient use of water infrastructure and investment.[9]

The 3Cs framework is underpinned by twelve guiding principles, which water businesses and IPART are expected to use to develop and assess pricing proposals. These guiding principles are categorised into:[10]

- six 'customer principles' related to how customer preferences are integrated into the proposal;
- four 'cost principles' relating to how customer needs and preferences are delivered in a cost-efficient matter; and
- two 'credibility principles' focusing on how businesses provide assurance about the deliverability of its proposal.

These principles are illustrated in figure 2.1.

Figure 2.1: Guiding principles under the 3Cs framework

Source: IPART Water Regulation Handbook, July 2023, Figure 1.1.

Each business self-assesses its proposal as either 'standard', 'advanced' or 'leading' against the 3Cs framework. They will further identify focus principles, which will be given greater emphasis in IPART's assessment if well justified.[11]

Hunter Water has assessed its pricing proposal as 'advanced' and identified five focus principles:[12]

[9] IPART, *How we regulate the water business*, available at: https://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Metro-Pricing/How-we-regulate-the-water-businesses, accessed on 18 November 2024.

[10] IPART, *Water regulation handbook*, July 2023, pp 2 and 10.

[11] IPART, *Water regulation handbook*, July 2023, pp 9-10.

[12] Hunter Water, *2024 pricing proposal,* September 2024, p 315; IPART, *Water regulation handbook*, July 2023, pp 101-102 and 106-107.

- customer centricity, ie, how customers' needs and preferences are integrated into the planning and delivery of services in the short and long term;
- customer engagement, ie, making it easy for customers to engage on their priorities;
- robust costs, ie, quantitative evidence on how outcomes preferred by customers will be delivered at the lowest sustainable cost;
- balancing risk and long-term performance, ie, how the benefits and risks of investment decisions are weighed up and consistent with long term service performance; and
- commitment to improve value, ie, ambition in cost efficiency targets and steps taken to deliver promises.

IPART will either affirm or challenge and downgrade a water business' self-assessment using a grading rubric. This rubric is structured along the twelve guiding principles, with the 'standard', 'advanced' and 'leading' grading levels for each principle. The principles will be weighted according to the focus principles identified by the water business, if well-justified.[13]

Water businesses awarded with the 'advanced' or 'leading' assessment will be rewarded with procedural, reputational and financial rewards. These include financial payments, mechanisms to share customer value, informing customers on performance and tailored reviews for high quality proposals.[14]

2.2 Our assessment methodology

This report provides our comprehensive assessment of Hunter Water's 2025-30 expenditure proposal. Our assessment focuses on the following aspects of the Hunter Water proposal:

- materiality of impact on customer bills;
- sufficiency of customer engagement; and
- changes to risk appetite or risk assessment.

2.2.1 Assessment of materiality

We consider the materiality of each component of the expenditure proposal against at least one of three key reference points, ie:

- historical comparison – does the proposed expenditure for 2025-30 deviate materially from actual expenditure in the preceding regulatory period?;
- cross-business comparison – does the average annual rate of change in proposed expenditure deviate materially (both higher and lower) from the average rate of change of other comparable water businesses?; and
- benchmark comparison – is total proposed expenditure greater than is suggested by any available cost indices or independent benchmarks?

Undertaking this comparison enables subsequent assessments to be tailored to reflect the relevance of proposed expenditure on the long-term interests of customers. An expenditure proposal that is materially out of line with any of these reference points would signal the need for more comprehensive supporting information from Hunter Water, ie, a higher threshold for the sufficiency of evidence.

It is important to pay due consideration to the specific reasons that Hunter Water's proposed expenditure in the upcoming period may be inconsistent with the aforementioned points of comparison. It is plausible that prudent and efficient costs vary over time, across businesses and with respect to standardised indices – however, such discrepancies should be justified with evidence and analysis.

[13] IPART, *Water regulation handbook*,, July 2023, p 101.

[14] IPART, *Water regulation handbook*,, July 2023, p 3.

2.2.2 Risk appetite and risk assessment

Our analysis of Hunter Water's risk appetite considers a series of factors, including but not limited to:

- the rationale behind staging larger projects, as it pertains to the minimisation of bill impacts;
- whether risk mitigation measures address current and urgent risks or risks that may arise in the future;
- whether the possibility of deferring projects is considered, particularly in cases where doing so would:
  - materially reduce bill impacts without yielding an unacceptable decline in performance; and
  - allow greater certainty in the calculation of expected costs; and
- the prioritisation of different customer needs, eg, whether necessary expenditure on health and safety been prioritised over the renewal of assets that may be waning in quality but are still within compliance thresholds.

It is essential that Hunter Water affords due regard to these factors given the cost of living challenges facing the Lower Hunter community. Importantly, our approach to assessing risk does not focus on business risks to Hunter Water's operations and finances, but rather on risks to customers.

2.2.3 Sufficiency of customer engagement

In assessing the sufficiency of customer engagement for Hunter Water's expenditure proposal, our focus lies on the nature of customer engagement, the issues and projects on which customer engagement was sought and how customer feedback was incorporated into Hunter Water's decisions.

We acknowledge that the 3Cs framework does not require engagement on expenditure that is not a material issue for customers, eg, if expenditure is trending in line with expectations or immaterial for customer bills. Conversely, for expenditure that has a significant customer impact, Hunter Water should ensure that customers are fully informed and that their feedback is reflected in the final decision.

Relevantly, our consideration of customer engagement has been confined to considering whether Hunter Water adequately consulted customers before making decisions that are likely to have a material effect on customer bills. It follows that we have not undertaken a detailed evaluation of Hunter Water's customer engagement protocols.

2.3 Information sources used to inform our expenditure review

In preparing this report, we have drawn heavily on information provided by Hunter Water, including:

- Hunter Water's 2024 pricing proposal and accompanying attachments;
- the associated information return spreadsheet, which contains much of the analysis undertaken by Hunter Water in the preparation of its pricing proposal; and
- a series of confidential documents containing supporting information.

In addition to reviewing these documents (with a focus on materials pertaining to operating and capital expenditure, demand forecasts and business cases for major projects), we travelled to Newcastle for a series of interviews with representatives from Hunter Water. The purpose of the in-person discussions was to develop a greater understanding of selected elements of the pricing proposal. We supplied Hunter Water with a list of discussion topics and questions prior to each meeting. In this report, we clearly identify cases where we rely on information obtained through our discussions with Hunter Water.

We also filed two requests for information (RFIs) with Hunter Water to obtain further documentation on matters that we deemed relevant. Our citations in this report identify documents that we obtained in response to the RFIs.

Finally, we reviewed a number of publicly available documents and data sources that were not provided to us by IPART or Hunter Water, particularly for the purposes of benchmarking Hunter Water's performance against other businesses.

3. Overview of Hunter Water's operating environment

Hunter Water's operating environment has been 'unusually disruptive and volatile' in the current pricing period, contributing to unexpected fluctuations in expenditure. Hunter Water expects external pressures due to macroeconomic trends to continue in the upcoming pricing period, which has influenced key elements of its pricing proposal.[15]

Hunter Water's actual annual expenditure during the 2020-24 pricing period varied significantly from forecast annual expenditure in IPART's determination. Actual capital expenditure was 13 to 17 per cent lower than the IPART determination in 2020-21 and 2021-22 respectively, but reached 41 per cent higher than forecast in 2023-24. Actual operating expenditure was closer to the IPART determination, ranging from 5.6 per cent lower than forecast in 2021-22 to 2.9 per cent higher in 2023-24.[16]

Hunter Water has cited international political events impacting supply chains, rising inflation, wet weather, construction market conditions and the COVID-19 pandemic in contributing to fluctuations in expenditure in the current pricing period.[17]

Hunter Water responded to COVID-19 through 2020-22 by centring on the safety and wellbeing of their workforce and customers while ensuring the continuity of services. Preventative planned routine work and treatment plant maintenance was deferred, maintenance costs to Hunter Water property were lower than expected due to working from home arrangements and moderate additional ICT expenditure was incurred. Capital investment was delivered to within 2 per cent of the determination allowance across the regulatory period despite these challenges.[18]

Higher than anticipated inflation during the 2020-24 pricing period particularly contributed to labour costs, making up 32 to 35 per cent of total operating expenditure. We understand that many of Hunter Water's service delivery partners were engaged in multi-year contracts, acting as a temporary 'inflation-shield' to delay some impact of rising import prices, which have since begun to 'catch up' as contracts are retendered.

Water demand was lower than expected during the 2020-24 pricing period due to variable weather events, reducing operating expenditure. This included widespread flooding in July 2021 and significant rainfall in 2022, which led to fluctuations in reactive maintenance, lower water treatment costs, higher wastewater treatment costs and a reduced ability to undertake routine maintenance.[19]

Hunter Water's operating environment will continue to face external pressures in the upcoming pricing period. They have particularly outlined the following macroeconomic trends:[20]

- cost-of-living pressures;
- a more variable climate;
- a growing population; and
- escalating costs.

[15] Hunter Water, *2024 pricing proposal*, September 2024, p 83 and 140.
[16] Hunter Water, *2024 pricing proposal*, September 2024, pp 129 and 140.
[17] Hunter Water, *2024 pricing proposal*, September 2024, pp 129, 140-144.
[18] Hunter Water, *2024 pricing proposal*, September 2024, pp 120, 141-142.
[19] Hunter Water, *2024 pricing proposal*, September 2024, p 143.
[20] Hunter Water, *2024 pricing proposal*, September 2024, p 83.

Cost-of-living pressures

Hunter Water has indicated that a key priority in the upcoming pricing period will be keeping bills as low as reasonable due to cost-of-living pressures.[21]

Hunter Water's customers in the Lower Hunter region have a higher degree of relative socioeconomic disadvantage than Sydney and other metropolitan areas and so more of their customers may find water bill increases difficult to manage. In August of 2024, 31 per cent of participants in Hunter Water's Quarterly Community Survey indicated that they struggled to pay their water bill or another bill on time that year. Through their community engagement program, Hunter Water found that keeping bills as low as possible was the top priority for customers, above improving water quality, fixing hotspots and providing subsidised recycled water.[22]

IPART has also been required by the Premier of New South Wales to consider:[23]

- the cost-of-living impacts of Hunter Water's price determination;
- the effectiveness of existing rebates to manage the social impacts of its price determination;
- opportunities to adjust project timelines over the next ten years to minimise price impacts; and
- the deliverability of proposed capital plans based on capability and market conditions.

Climate variability and water security

Hunter Water states that its services and critical assets are susceptible to the impacts of a more variable and changing climate, which is exacerbated due to increased water salinity, higher temperatures and changing rainfall patterns. Hunter Water proposes to invest in its assets and water and wastewater services to ensure they are resilient to climatic conditions, while minimising lifecycle costs.[24]

Hunter Water states that water security is a priority given that climate change will increase the potential for more severe and frequent droughts. Hunter Water proposes to diversify its water sources to reduce reliance on rainfall through the Belmont desalination plant. Investments into reducing leakage in the water network, community water conservation programs and water recycling initiatives also contributes to Hunter Water's proposed expenditure in this period.[25]

Escalating costs

Hunter Water states that asset-intensive businesses incur costs which are escalating faster than consumer inflation. This includes costs from the price of materials and labour for construction, electricity, chemicals and fuel excise, treatment operations and recently tendered maintenance contracts, all of which have outpaced CPI, contributing to proposed increases in expenditure for Hunter Water.[26]

A growing population

The population in the Lower Hunter is forecast to grow more than 20 per cent in the next 20 years, putting upward pressure on water demand. Hunter Water states that it expects to incur greater capital and operating expenditure to service this growth, including through additional investment into assets for increased provision of water and wastewater services.[27]

[21] Hunter Water, *2024 pricing proposal*, September 2024, p 67.
[22] Hunter Water, *2024 pricing proposal*, September 2024, pp 83-84, 86.
[23] Letter from Minns, C., *Re: Section 13 Requirements for Sydney Water and Hunter Water and price determinations,* 24 August 2024.
[24] Hunter Water, *2024 pricing proposal*, September 2024, pp 83, 89, 91-92.
[25] Hunter Water, *2024 pricing proposal*, September 2024, pp 89-90.
[26] Hunter Water, *2024 pricing proposal*, September 2024, p 9, 83, 133
[27] Hunter Water, *2024 pricing proposal*, September 2024, pp 83 and 206

4. Assessment of asset management, risk and procurement systems and processes

In this section, we provide an overview and assessment of Hunter Water's asset management, risk and procurement systems and processes.

4.1 Asset management and risk systems

4.1.1 Overview of Hunter Water's asset management and risk systems

Hunter Water's asset management system has been certified to the international standard for asset management systems (ISO55001) since 2018. The system covers the complete lifecycle of assets, from planning and construction through to operation and disposal, while following a structured framework to deliver new capital projects and maintain existing infrastructure that serves customer needs.[28]

We understand that for asset management decision making, Hunter Water adopts a six-gateway approach. These gateways:

- filter for risk, with high and low risk investments going through different gateways;
- allow for progressive improvements in cost and risk certainty, as information is refined in each gateway, providing investment confidence;
- require business cases at certain gateways, where the required investment and options are evaluated – the business cases are developed according to:
  - Hunter Water's agreed decision criteria, constraints and mandatory compliance requirements; and
  - an assessment of the impact of lifecycle costs using monte-carlo analysis as required; and
- include reviewing project outcomes using benefits realisation standards to test the success of completed projects.

For asset management, Hunter Water maintains an enterprise resource management (ERM) framework. We understand that Hunter Water's approach to maintaining assets depends on outcomes in the event of failure. This involves assessing:

- the consequences of failure, including financial, regulatory/legal, reputation, safety and service consequences; and
- the likelihood of failure, from almost certain (1 in 1 year chance) to rare (1 in 100 year chance).

We understand that approximately 90 per cent of Hunter Water's assets have non-critical outcomes and are managed on a run or maintain to failure policy.

The remaining 10 per cent of assets have critical outcomes. Hunter Water's approach to managing these assets depends on the consequences of failure, which also sets Hunter Water's risk appetite. Hunter Water conducts annual risk reviews for critical assets, to prioritise investments that are outside of its standard risk appetite.

We understand that Hunter Water is less willing to accept risk where there is potential for critical impacts to its staff or the community. However, due to cost of living pressures, Hunter Water has had to accept some out of appetite risks in the 2025-30 regulatory period, though will still perform within its Operating Licence.

[28] Hunter Water, *2024 pricing proposal*, September 2024, p 118.

We understand Hunter Water's customers are happy to accept unplanned outages if they are fixed quickly and are not willing to pay more to have no outages. This preference has also informed Hunter Water's reactive maintenance strategy.

4.1.2 Our assessment of Hunter Water's asset management and risk appetite

In our assessment, Hunter Water's asset management system is appropriate for its network. In particular, Hunter Water:

- manages approximately 90 per cent of its assets on a reactive maintenance strategy, when failure of those assets has non-critical outcomes; and
- informs its reactive maintenance strategy with customer appetite to accept increased outages provided they are resolved quickly, allowing it to decrease proactive maintenance expenditure.

We have seen evidence that Hunter Water's gateway approach has resulted in a pragmatic refinement of costs for projects as certainty increases and has been appropriately informed by Hunter Water's prioritisation for the 2025-30 regulatory period.

Hunter Water's ex-post benefits realisation assessment of projects to apply lessons to other projects also contributes to improved investment decision-making.

Hunter Water states that it has had to take on increased risks in the 2025-30 regulatory period because of the cost of living crisis. Hunter Water states that it will take additional risks in areas where it can monitor its service performance and changing risk positions, put contingencies or mitigations in place and have the ability to adapt and respond as needed if risks eventuate.[29]

In our assessment, Hunter Water's approach to asset management and risk do not have any implications for Hunter Water's proposed efficiency factor or efficient operating expenditure. However, it is not clear that Hunter Water's customers are willing to accept Hunter Water's proposed increase in capital expenditure to address some water security or environmental sustainability risks, in light of cost of living pressures. Accordingly, Hunter Water's proposed risk tolerance has implications for our recommended range of efficient capital expenditure. We discuss this further in sections 6.3 and 6.4.

4.2 Procurement approach

4.2.1 Overview of Hunter Water's approach to procurement

The five principles of Hunter Water's commercial and procurement policy are consistent with the New South Wales government procurement framework and include:[30]

- value for money;
- fair and open competition;
- easy to do business;
- innovation; and
- economic development, social outcomes and sustainable procurement practices.

We understand that contracts are tendered competitively. All new tenders are advertised on Hunter Water's online portal, Tenderlink, which allows registered suppliers and contractors to view and receive email updates of relevant tenders as they become available, lodge tenders online and request and download

[29] Hunter Water, *2024 pricing proposal*, September 2024, pp 97-98.

[30] Hunter Water, *Policy – Commercial and procurement*, September 2023, p 4.

documentation.[31] We understand that contracts for which expenditure exceeds $200,000 dollars are procured through an open tender process or through an established panel, while all other contracts require quotes from tenderers. Specifically:

- at least two quotes are required if expenditure exceeds $10,000; and
- at least three quotes are required if expenditure exceeds $50,000.

Notwithstanding the competitive tendering process, Hunter Water maintains a panel of preferred suppliers for specific types of work, including but not limited to:[32]

- a design and engineering services panel;
- a construction services panel;
- a plumbing services panel; and
- a data insights panel.

These strategic partnerships allow Hunter Water to 'adjust resources according to the individual needs of projects and peaks and troughs in portfolio workload.'[33]

We further understand that the treatment operations contract will be awarded following a six-stage process set to conclude by June 2025. This process includes:

- market sounding;
- expression of interest (EOI) release;
- EOI assessment/shortlist;
- early tenderer involvement;
- request for proposal; and
- contract award.

4.2.2 Our assessment of Hunter Water's approach to procurement

In our assessment, Hunter Water maintains a pragmatic procurement approach that is likely to balance a high level of efficiency for procuring work whilst maintaining competitive tension. Hunter Water's increasing requirements for larger pieces of work is also appropriate.

Accordingly, in our assessment, Hunter Water's approach to procurement has no implications for Hunter Water's proposed efficiency factor, nor its proposed capital or operating expenditure.

[31] Hunter Water, *Information for suppliers*, available at: https://www.hunterwater.com.au/about-us/our-business/suppliers, accessed on 17 December 2024.

[32] Hunter Water, *2024 pricing proposal*, September 2024, pp 116-117.

[33] Hunter Water, *2024 pricing proposal*, September 2024, p 116.

5. Assessment of dwelling and demand forecasts

In this section, we set out our assessment of Hunter Water's dwelling and demand forecasts.

5.1 Dwelling forecasts

The terms 'dwellings' and 'billable connections' are closely related but distinct concepts in the context of Hunter Water's pricing proposal.[34] Although these measures are similar, the calculation of total billable connections is subject to a set of rules that do not apply to the calculation of total dwellings.[35]

The distinction between billable connections and dwellings is important because:

- billable connections are used to apportion target revenues and to calculate prices;[36] whereas
- dwellings are used to forecast growth in operating expenditure over the pricing period.[37]

We have therefore focused on dwelling growth forecasts for the purposes of this expenditure review.

5.1.1 Overview of Hunter Water's dwelling forecasts

Hunter Water forecasts average annual dwelling growth of 1.31 per cent over the 2025-30 pricing period.[38] Hunter Water does not explicitly set out the methodology that underpins its forecasts. However, Hunter Water states that in developing its forecast, it reviews development application approvals and consults with local councils to ascertain the scale and location of dwelling growth.[39]

5.1.2 Benchmarking dwelling forecasts

We compare Hunter Water's forecast dwelling growth of 1.31 per cent per year against New South Wales government projections for the local government areas (LGAs) serviced by Hunter Water. We note that the New South Wales government has published projections in five-year intervals, namely 2021, 2026, 2031, 2036 and 2041. We therefore evaluate Hunter Water's proposed trend growth rate for 2025-30 against the average annual growth rate derived from New South Wales government projections in 2026 and 2031.

We find that the LGAs serviced by Hunter Water are expected to see an average annual dwelling growth of 1.47 per cent between 2026 and 2031 under the 'main' (or base) scenario, as shown in table 5.1 below.[40] This is a similar rate of annual dwelling growth to Hunter Water's forecast of 1.31 per cent.

[34] In summary, Hunter Water's billable connections are counted by dwellings for residential customers and by the size of the meter for non-residential customers, measured by the yearly average connections. For further criteria see: Hunter Water, *Pricing proposal – Technical paper 7: Demand for services*, 1 July 2019, p 16.

[35] Hunter Water, *2024 pricing proposal*, September 2024, pp 17, 20, 133 and 195.

[36] Hunter Water, *2024 pricing proposal,* September 2024, p 195.

[37] Hunter Water, *2024 pricing proposal,* September 2024, p 151.

[38] Hunter Water, *2024 pricing proposal,* September 2024, p 161.

[39] Hunter Water, *Water demand forecasting: Supporting content on factors influencing water demand and method*, September 2024, p 5.

[40] Hunter Water also serves a small part of Singleton – we have excluded this from our analysis because the New South Wales Government population and dwelling projection tool does not support segmentation within LGAs. See: Hunter Water, *Annual report 2023*, pp 7 and 11.

Table 5.1: Projected dwelling growth in LGAs serviced by Hunter Water, 2026-31

LGA	Forecast dwelling count in 2026	Forecast dwelling count in 2031	Average annual dwelling growth
Lake Macquarie	98,173	104,175	**1.19%**
Newcastle	82,685	88,088	**1.27%**
Cessnock	29,928	32,966	**1.95%**
Dungog	4,725	5,025	**1.24%**
Maitland	41,778	47,261	**2.50%**
Port Stephens	39,786	42,069	**1.12%**
Total	**297,075**	**319,584**	**1.47%**

Source: New South Wales Government, Explore the data – Population projections, available at: https://www.planning.nsw.gov.au/research-and-demography/population-projections/explore-the-data, spreadsheet: 'Main high and low series', tab: 'LGA implied dwelling demand', accessed 22 November 2024.

As an additional check, we also examine population projections for the same LGAs. The LGAs serviced by Hunter Water are expected to see an average annual population growth of 1.30 per cent between 2026 and 2031, which is almost identical to Hunter Water's forecast annual dwelling growth of 1.31 per cent – see table 5.2.

Table 5.2: Projected population growth in LGAs serviced by Hunter Water, 2026-31

LGA	Forecast population in 2026	Forecast population in 2031	Average annual population growth
Lake Macquarie	224,853	236,642	**1.85%**
Newcastle	178,765	188,973	**1.02%**
Cessnock	70,305	77,064	**1.03%**
Dungog	10,010	10,531	**2.18%**
Maitland	101,216	112,748	**1.12%**
Port Stephens	78,532	82,025	**0.87%**
Total	**663,681**	**707,983**	**1.30%**

Source: New South Wales Government, Explore the data – Population projections, available at: https://www.planning.nsw.gov.au/research-and-demography/population-projections/explore-the-data, spreadsheet: 'Main high and low series', tab: 'LGA total population', accessed 22 November 2024.

5.1.3 Our assessment of dwelling forecasts

In our opinion, Hunter Water's methodology for forecasting dwelling growth appears to be reasonable because:

- Hunter Water's forecast average annual dwelling growth of 1.31 per cent is:
  - not significantly different to the New South Wales government's corresponding estimate of 1.47 per cent (summarised in table 5.1); and
  - consistent with the New South Wales government's estimate of 1.30 per cent for population growth in the region (summarised in table 5.2); and

- Hunter Water's billable connection forecasts were generally accurate in the 2020-24 period,[41] and billable connections are similar to dwellings. This indicates that, in absence of a significant change in circumstances, Hunter Water's methodology for forecasting dwelling growth is likely to be reasonable.

5.2 Water demand forecasts

Water demand forecasts are used to calculate expected revenues, inform expenditure requirements and evaluate the need for water and wastewater capacity expansion. Hunter Water anticipates that total water demand over the pricing period will increase at an annual rate of 0.2 per cent (including bulk water sales and sales to the Central Coast), driven by annual demand growth of:[42]

- 0.7 per cent for residential properties; and
- -1.3 per cent for non-residential properties.

In the 2020-24 period, actual water sales (excluding Central Coast transfers) were approximately 7.0 per cent lower than forecast due to:[43]

- wetter-than-average weather conditions;
- strong water conservation behaviour among customers; and
- reduced water usage in some non-residential sectors due to social restrictions associated with COVID-19.

5.2.1 Overview of water demand forecasts

Hunter Water's water demand forecasting methodology involves four steps, ie:[44]

- step 1: identify a baseline time period that includes a broad range of weather conditions and represents stable customer behaviour with modern water consumption;
- step 2: simulate baseline water use behaviour over a longer climactic sequence;
- step 3: disaggregate total average water demand for the baseline period into component sectors; and
- step 4: apply the outcomes of the first three steps to the integrated supply-demand planning (iSDP) model, a tool used widely by Australian water utilities, to produce end use water demand forecasts.

Hunter Water uses July 2016 to June 2018 as its baseline period.[45] We understand from Hunter Water that these years were selected because:[46]

- they had a range of weather conditions which collectively reflect average climate conditions; and
- they were not impacted by external factors that make more recent years non-representative, including the 2018/19 and 2019/20 droughts, COVID-19 and reduced water consumption due to water restrictions.

Hunter Water then establishes baseline demand for the average weather year by simulating baseline behaviour over a longer climactic sequence, ie, 1970 to 2024.[47]

The iSDP model is a tool designed for urban water supply and demand planning and enables the creation of detailed water demand forecasts based on either disaggregated end uses (eg, showering, toilet flushing) or

[41] Hunter Water, *2024 pricing proposal*, September 2024, pp 197-201.
[42] Hunter Water, *2024 pricing proposal*, September 2024, p 207.
[43] Hunter Water, *2024 pricing proposal*, September 2024, p 205.
[44] Hunter Water, *2024 pricing proposal*, September 2024, pp 204-205.
[45] Hunter Water, *2024 pricing proposal*, September 2024, p 204.
[46] Hunter Water, *2024 pricing proposal*, September 2024, p 204.
[47] Hunter Water, *2024 pricing proposal*, September 2024, p 204.

sectors (eg, residential, commercial, industrial).[48] Originally developed by Sydney Water and updated by the CSIRO and the University of Technology Sydney's Institute for Sustainable Futures,[49] the model relies on a series of inputs including but not limited to:[50]

- demographic data, eg, population and dwelling growth;
- sales data for individual appliances;
- recycled water demand; and
- water conservation measures.

The model incorporates assumptions about how residential consumers use water, including internal and external factors.[51] The model can run sensitivities for climate change over longer time horizons and weather variability within a year.

Residential demand

To forecast residential demand, Hunter Water considers:[52]

- the population and number of dwellings;[53]
- the mix of different residential property types;
- the Federal government's water efficiency labelling and standards (WELS) scheme[54] and New South Wales government's building sustainability index (BASIX) policy[55] influencing adoption of water saving technologies and the number of rainwater tanks;
- changing water consumption behaviour, eg, increased conservation;
- customer demographics; and
- a changing and more variable climate.

Hunter Water forecasts residential demand of 42,958 ML in 2029/30, compared to 41,503 ML in 2024/25, ie, an average annual increase of 0.7 per cent.[56] This translates to an average annual decrease of 0.6 per cent per residential dwelling, given the increase in residential demand is less than Hunter Water's forecast annual dwelling growth increase of 1.31 per cent.

[48] University of Technology Sydney, *Integrated Supply and Demand Planning Model (iSDP)*, available at: https://www.uts.edu.au/isf/explore-research/projects/integrated-supply-and-demand-planning-model-isdp, accessed 21 November 2024.

[49] University of Technology Sydney, *Integrated Supply and Demand Planning Model (iSDP)*, available at: https://www.uts.edu.au/isf/explore-research/projects/integrated-supply-and-demand-planning-model-isdp, accessed 21 November 2024.

[50] Hunter Water, *Pricing proposal – Technical paper 7: Demand for services*, 1 July 2019, p 9.

[51] Hunter Water, *2024 pricing proposal*, September 2024, pp 205 and 238.

[52] Hunter Water, *2024 pricing proposal*, September 2024, p 203.

[53] We explain Hunter Water's methodology for forecasting dwelling numbers in section 5.1.

[54] The WELS scheme is a nationwide urban water saving scheme that 'reduces demand for drinking water by informing consumers about water efficiency at the point of sale.' See: Australian Government, *About the water efficiency labelling and standards scheme*, available at: https://www.waterrating.gov.au/about, accessed 21 November 2024.

[55] BASIX is an initiative by the New South Wales government aimed at creating more environmentally sustainable homes. The policy's water conservation requirements primarily affect newly constructed houses and substantial home renovations, helping to safeguard the state's water resources and strengthen its ability to withstand drought conditions. See: New South Wales Government, *BASIX water review – stage 1*, December 2023, p 4.

[56] Hunter Water, *2024 pricing proposal*, September 2024, p 207.

Hunter Water expects 'the adoption of water-saving appliances, a shift in housing types and ongoing customer water conservation efforts' to place downward pressure on residential water demand over the coming period.[57]

Non-residential demand

Non-residential demand is driven by macroeconomic factors, population growth and a changing climate.[58] Hunter Water reviewed historical trends and engaged with customers to estimate future demand:[59]

> Over recent years, we have observed an increase in the number of service industry customers, with a fall in heavy industry customers. This trend is expected to continue. We directly engage with our largest non-residential customers to understand their expected future demand levels.

Hunter Water adjusts its 2025-30 non-residential demand forecast on the basis that:

- one of its largest consumers, Eraring Power station, is scheduled to close during the pricing period;[60] and
- demand is expected to reduce among heavy industrial customers.[61]

Hunter Water forecasts non-residential demand of 16,038 ML in 2029/30, down from 17,143 ML in 2024/25, reflecting an average annual decrease of 1.3 per cent.[62]

Price elasticity of demand

Hunter Water has elected not to adjust its water demand forecast to account for the effect of higher water usage prices proposed for the next regulatory period.[63]

In general, we would expect the quantity of water demanded to fall when the price of water increases. The size of this effect is captured by the price elasticity of demand, which describes the expected percentage reduction in quantity demanded when prices increase by one per cent.[64]

Hunter Water has reviewed several studies on price elasticities of water demand and considered these to not be relevant to its demand forecasts because they are old, not based on Hunter Water's customer base and calculated at different price levels to Hunter Water's prices:[65]

> We reviewed several studies of price elasticities of water demand and have low confidence that these elasticity calculations are relevant. Specifically, we are concerned the price elasticity studies are:
>
> - **Old** – and therefore may not represent customers' current sensitivity to price. Economic conditions change over time, as do the value people place on a commodity and water use behaviours.
> - **Not based on our customers** – different customers may have a different sensitivity to price.

[57] Hunter Water, *2024 pricing proposal*, September 2024, p 209.
[58] Hunter Water, *2024 pricing proposal*, September 2024, p 203.
[59] Hunter Water, *2024 pricing proposal*, September 2024, p 203.
[60] Hunter Water, *2024 pricing proposal*, September 2024, p 20.
[61] Hunter Water, *2024 pricing proposal*, September 2024, p 207.
[62] Hunter Water, *2024 pricing proposal*, September 2024, p 207.
[63] Hunter Water, *2024 pricing proposal*, September 2024, p 210.
[64] Perloff, J M, *Microeconomics*, Addison-Wesley, sixth edition, Boston, 2012, p 45.
[65] Hunter water, *2024 pricing proposal*, September 2024, p 210.

- **Calculated at different price levels** – different price levels lead to different demand changes by customers. The studies measure price elasticity of water demand at significantly lower water price levels compared to what we propose for the upcoming pricing period.

While we acknowledge the concerns that Hunter Water has expressed about the historical studies of the price elasticity of water demand, we disagree that they are sufficient grounds for not applying a price elasticity assumption to its water demand forecasts. In our opinion, the concerns that Hunter Water identifies are reasons that might influence the magnitude of the price elasticity estimate, rather than whether or not a price elasticity estimate is adopted.

Hunter Water further states that if price elasticities of demand are applied, then 'it would be prudent to factor down elasticities' because:[66]

- there is an asymmetric risk associated with elasticity adjustments, ie, overestimating elasticity is more likely to compromise the accuracy of demand forecasts than underestimating it; and
- there is a risk of overcharging customers when the elasticity is overestimated – this is because an overestimation of elasticity implies an underestimation of demand, leading to higher prices for customers.

In our opinion, these reasons do not support a factoring down of demand elasticities. Specifically, in our opinion there is no reason why overestimating price elasticity of water demand is more likely to compromise the accuracy of demand forecasts than underestimating it.

In addition, the demand volatility adjustment mechanism (DVAM) mitigates the risk of significantly under- or over-charging that arises from differences in demand forecasts and actual demand. The DVAM is triggered when revenue from actual water sales varies more than five per cent from the forecast and adjusts Hunter Water's revenue allowance for any over- or under-recovery of sales in the subsequent period.[67]

As such, in our opinion Hunter Water should determine a 'best estimate' for a price elasticity of demand to apply to its forecasts.

5.2.2 Benchmarking of demand forecasts

We compare Hunter Water's annual demand growth estimates against a number of benchmarks and find that Hunter Water's estimate of annual demand growth of 0.2 per cent is consistent with these benchmarks, ie:

- using the Weather and Research Forecasting Model, Barker *et al* anticipate that water demand will increase by 0.1 per cent per year in Sydney between 2020 and 2040 – this includes both residential and non-residential demand;[68]
- Sydney Water expects residential water demand among its users to increase by 0.48 per cent per year between 2024/25 and 2034/45;[69]
- Yarra Water expects residential water demand in its region to increase by 0.6 per cent per year from 2023-24 to 2027-28, driven primarily by a growth in customer numbers;[70] and
- TasWater forecasts that water use will increase by 0.47 per cent per year from 2023-24 to 2025-26 in its region.[71]

[66] Hunter Water, *Water price elasticity of demand meta review & position*, September 2024, p 6.

[67] Hunter Water, *2024 pricing proposal*, September 2024, p 186.

[68] Barker, A., et. al., *Drivers of future water demand in Sydney, Australia: examining the contribution from population and climate change*, Journal of Water and Climate Change, 12(4), 2021.

[69] Sydney Water, *2024 pricing proposal*, September 2024, p 245.

[70] Yarra Valley Water, *2023-28 price submission*, September 2022, p100.

[71] The Tasmanian Economic Regulator, *Investigation into TasWater's prices and services for the period 1 July 2022 to 30 June 2026 Final Report*, May 2022, p 23.

In addition, we consider Hunter Water's estimates of average daily water consumption against a set of comparators.

Hunter Water estimated that average daily water consumption will decrease from 499 litres in 2018 to an average of 460 litres over the 2025-30 regulatory period for houses and from 299 litres in 2018 to an average of 279 litres over the 2025-30 regulatory period for apartments.[72]

By contrast, Sydney Water estimated daily average water use of:[73]

- 274 litres for 'low water users', such as those in townhouses or small houses; and
- 546 litres for 'typical water users' living in a standard house.

Whilst these estimates are not directly comparable due to differences in household size and square meterage, Sydney Water's estimates of daily water demand for:

- 'low water users' are comparable to Hunter Water's estimates for apartments; and
- 'typical water users' are higher than Hunter Water's estimates for average standalone houses.

Finally, current water usage per household in the Lower Hunter (177 litres per person per day)[74] is similar to Sydney Water's average residential water use as of 2022-23 (178 litres per person per day).[75]

5.2.3 Our assessment of demand forecasts

Summary of assessment

In our opinion, Hunter Water's projected water demand increase of 0.2 per cent per year over the pricing period appears to be reasonable because:

- Hunter Water's methodology for estimating water demand growth appears to be robust; and
- Hunter Water's estimates of annual demand growth are consistent with estimates prepared by other water businesses.

However, in our opinion a price elasticity of demand should have been applied to the demand forecast. In our opinion, in absence of a specific study of the price elasticity of its customers, it would be reasonable to adopt other Australian estimates, particularly where there are limited reasons why those estimates would not be applicable to Hunter Water's customers. Accordingly, we believe it would be reasonable and appropriate for Hunter Water to adopt the same price elasticity of demand proposed by Sydney Water.

Sydney Water has proposed the following price elasticities of demand in its 2025-30 pricing proposal:[76]

- -0.23 for single dwellings;
- -0.07 for multi-residential dwellings; and
- -0.17 for non-residential dwellings.

These estimates were derived through a short-term residential model that was pioneered by Sydney Water and Dr Vasilis Sarafidis in 2011,[77] and described as 'best practice' and 'a well-researched and robust tool for

[72] Hunter water, *2024 pricing proposal*, September 2024, p 209.

[73] Sydney Water, *2024 pricing proposal*, September 2024, p 17.

[74] Hunter Water, *Saving water in the home*, available at: https://www.hunterwater.com.au/home-and-business/information-for-homes/how-to-save-water/in-the-home, accessed on 26 November 2024.

[75] Sydney Water, *Annual Water Conservation Report 2022-23,* p 15.

[76] Sydney Water, *2024 pricing proposal*, September 2024, p 252.

[77] Sydney Water, *2024 pricing proposal*, September 2024, p 248.

medium term forecasts' in a 2020 report published by WS Atkins International Limited (Australia branch) for IPART.[78]

IPART accepted Sydney Water's proposed price elasticity of water demand estimates in its 2019 price proposal, which were based on the same model,[79] though IPART commented that elasticities would be 50 per cent lower during drought seasons.[80]

Bill adjustment due to price elasticity of demand

To understand the implications of adopting a price elasticity of demand adjustment to water usage for the proposed bill increases, we have estimated the effect of increased prices on Hunter Water's demand forecasts. This is relevant to our assessment of materiality of expenditure proposals on bills, which we use to determine our approach to examining the expenditure programs of Hunter Water.

We apply Sydney Water's price elasticity estimates to Hunter Water's forecasts for residential customers. Incorporating these elasticities would result in a modest increase in the expected water bills of the typical house and apartment in the Lower Hunter region.

We obtain our adjusted forecasts through a four-step process. First, we divide Hunter Water's residential demand into house and apartment components. We rely on the number of billable connections by property type and average water consumption by property type to estimate the shares of total residential demand that are allocated to houses and apartments.

Second, we calculate an annual weighted average price elasticity of demand for Hunter Water's customers.[81] We obtain this by:

- applying Sydney Water's price elasticity of demand for:
  - single-residential dwellings (-0.23) to houses;
  - multi-residential dwellings (-0.07) to apartments; and
  - non-residential dwellings (-0.17) to non-residential customers; and
- weighting these by Hunter Water's forecast water demand for each customer type.

Table 5.3 below presents Hunter Water's original demand forecast against our adjusted values.

Table 5.3: Water demand forecasts (ML) with price elasticity of demand adjustment, excluding bulk water sales and transfers to the Central Coast

Demand forecast	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
PED adjustment to Hunter Water forecast	58,646	57,524	56,611	55,742	55,061	54,257
Hunter Water forecast	58,646	58,678	58,793	58,880	59,042	58,996

Source: HoustonKemp analysis; Hunter Water, 2024 pricing proposal, p 207.

Third, we adjust Hunter Water's proposed fixed charges assuming revenue neutrality. In other words, we ask: if we hold total revenue from water charges constant and adjust demand downwards due to the effect of elasticity (as we did in the previous step), by how much must we increase the fixed water charge? We note that this results in an equal price increase for residential customers in houses and apartments.

[78] Atkins, *Sydney Water Corporation expenditure and demand forecast review – Final report*, March 2020, p 12.

[79] Sydney Water, *Price proposal 2020-24 – Appendix 8A: Overview of 7 separate price schedules*, p 4.

[80] IPART, *Review of prices for Sydney Water from 1 July 2020*, June 2020, pp 299, 302.

[81] For the purposes of our price elasticity of demand adjustments, we disregard bulk water sales and transfers to the Central Coast.

Finally, we use these updated fixed charges to derive the total expected bill for the typical house and typical apartment over the pricing period.

Hunter Water assumes in its pricing proposal that expected annual water consumption remains constant over the pricing period at:[82]

- 146 kL/annum for the typical house; and
- 87 kL/annum for the typical apartment.

We adopt these estimates of expected annual water consumption for 2024/25, and adjust them downwards in subsequent years to account for the effect of rising variable prices on typical water consumption using Sydney Water's price elasticity of demand (ie, -0.23 for the typical house and -0.07 for the typical apartment). Table 5.4 below summarises our adjustments to Hunter Water's estimated fixed charges and typical water consumption profiles under these assumptions.

Table 5.4: Fixed water charges and typical consumption profiles with and without price elasticity of demand adjustments

Category	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Our estimated fixed water charge (with PED adjustment)	$27.58	$55.13	$83.24	$112.27	$141.24	$170.25
Typical house consumption profile with PED adjustment	146.0 kL	142.6 kL	139.8 kL	137.1 kL	135.0 kL	132.6 kL
Typical apartment consumption profile with PED adjustment	87.0 kL	86.4 kL	86.0 kL	85.6 kL	85.4 kL	84.9 kL
Hunter Water's proposed fixed water charge (without PED adjustment)	$27.58	$42.52	$57.47	$72.41	$87.36	$102.30
Typical house consumption profile without PED adjustment	146.0 kL	146.0 kL	146.0 kL	146.0 kL	146.0 kL	146.0 kL
Typical apartment consumption profile without PED adjustment	87.0 kL	87.0 kL	87.0 kL	87.0 kL	87.0 kL	87.0 kL

Source: HoustonKemp analysis.

This implies that applying Sydney Water's price elasticity of demand increases the average change in bills for a typical house from 5.8 per cent to 5.9 per cent and the average change in bills for a typical apartment from 5.5 per cent to 6.4 per cent – see table 5.5. In short, incorporating a price elasticity of demand adjustment results in customers consuming less water and also facing higher bills.

Table 5.5: Total bill for typical house and apartment with and without price elasticity of demand adjustments

Category	2024/25 total bill	2025/26 annual change	2026/27 annual change	2027/28 annual change	2028/29 annual change	2029/30 annual change	Average annual change
Typical house with PED adjustment	$1,335.52	+6.8%	+6.2%	+5.8%	+5.5%	+5.1%	**+5.9%**
Typical apartment with PED adjustment	$1,045.01	+9.1%	+6.3%	+5.9%	+5.7%	+5.2%	**+6.4%**
Typical house without PED adjustment	$1,335.52	+6.7%	+6.0%	+5.6%	+5.4%	+5.1%	**+5.8%**
Typical apartment without PED adjustment	$1,045.01	+8.0%	+5.3%	+5.0%	+4.8%	+4.5%	**+5.5%**

Source: HoustonKemp analysis.

[82] Hunter water, *2024 pricing proposal*, September 2024, p 270 and 272.

6. Assessment of capital expenditure proposal

In this section, we provide our assessment of Hunter Water's proposed $1.55 billion capital expenditure program for the 2025-30 regulatory period, as well as its estimated $266.8 million of capital expenditure for 2024/25.

We also discuss the deliverability of Hunter Water's capital expenditure program, its capital expenditure efficiency strategy and its long-term capital expenditure program.

6.1 Overview of Hunter Water's 2025-30 capital expenditure proposal

Hunter Water has proposed a capital expenditure program of $1.55 billion for the 2025-30 regulatory period, prioritising customer affordability while maintaining and improving service performance. Hunter Water states that this represents a significant reduction from its initial $2.1 billion investment plan, achieved through careful prioritisation and deferral of investments.[83] However, we note from our discussions with Hunter Water that some of this $2.1 billion investment program was reduced due to deliverability considerations.

The single largest investment in the proposal is the Belmont desalination plant, accounting for approximately $479 million or almost one-third of the total capital investment proposed through the period to 2030.[84] Hunter Water states that this project is crucial for reducing the region's dependence on rainfall and ensuring water security as the climate continues to change.[85]

Excluding the Belmont desalination plant, Hunter Water proposes to invest about the same level of capital expenditure in the 2025-30 regulatory period as in the 2020-25 period.[86] Hunter Water's proposed capital expenditure has the majority of expenditure (61 per cent) on water services, followed by wastewater (30 per cent), corporate services (6 per cent) and stormwater (2 per cent).[87]

The capital expenditure investment proposal focuses on five key outcome areas: water security, environmental sustainability, reliable water services, clean and safe water and safety/health/wellbeing. These priorities were developed based on customer feedback and regulatory requirements, with water security receiving the largest allocation at $512 million.[88]

Hunter Water has incorporated a capital efficiency target of $41.2 million into its proposal, which it aims to achieve through improved project delivery, better planning and decision-making and digital transformation initiatives.[89]

Hunter Water has put forward a capital expenditure plan that it has assessed in terms of its delivery capability, considering market conditions, internal capacity and established partnerships.[90]

The investment plan includes significant upgrades to existing infrastructure, including major works at the Burwood Beach and Morpeth wastewater treatment works, improvements to the Grahamstown water

[83] Hunter Water, *2024 pricing proposal*, September 2024, p 107-108.
[84] Hunter Water, *2024 pricing proposal*, September 2024, p 107.
[85] Hunter Water, *2024 pricing proposal*, September 2024, pp 6, 78 and 107.
[86] Hunter Water, *2024 pricing proposal*, September 2024, p 108.
[87] HoustonKemp analysis of Hunter Water, *2024 pricing proposal*, September 2024, p 108.
[88] Hunter Water, *2024 pricing proposal*, September 2024, p 111-114.
[89] Hunter Water, *2024 pricing proposal*, September 2024, p 122-123.
[90] Hunter Water, *2024 pricing proposal – Attachment E: Additional detail on drivers of investment*, September 2024, p 24.

treatment plant and critical pipeline replacements. These projects aim to maintain service reliability and meet environmental regulations.[91]

Hunter Water has established governance processes, including a gateway approval system and strategic procurement approaches, to ensure efficient project delivery. It maintains several strategic partnerships and panels to provide flexibility in resource allocation and optimise project outcomes.[92]

Market challenges, including construction cost escalation and resource constraints, have been carefully considered in the proposal.[93] Hunter Water has developed strategies to manage these challenges, including early contractor involvement and strategic bundling of work packages.[94]

Looking beyond 2030, Hunter Water forecasts continued significant capital investment needs, currently estimating that approximately $1.6 billion will be required for the 2030-35 regulatory period. Hunter Water states that this future investment will be driven by major wastewater treatment works upgrades and the need to address strategic issues relating to biosolids management and dam safety.[95]

We summarise below the major capital projects proposed by Hunter Water.

Belmont desalination plant ($479M)

The Belmont desalination plant represents Hunter Water's largest capital investment, designed to produce 30 million litres of drinking water per day as a rainfall-independent supply source. Hunter Water states that the project, scheduled for completion in 2028, is central to the region's water security strategy and will help build resilience against drought conditions in a changing climate.[96]

Burwood Beach WWTW upgrade stage 3 ($70M)

The Burwood Beach wastewater treatment works upgrade involves major improvements to screening and biological systems to address asset deterioration and accommodate population growth. Hunter Water states that the project, set to be completed in 2031, is critical for maintaining environmental compliance and ensuring the facility can meet increasing demand from the service area.[97]

Grahamstown WTP clear water tank ($64M)

The Grahamstown water treatment plant clear water tank project involves constructing a new tank and refurbishing existing infrastructure to improve pathogen and toxin disinfection capabilities. Hunter Water states that this upgrade is essential for the facility that provides 60 per cent of the region's drinking water and will ensure it can meet future demand while maintaining water quality standards.[98]

Burwood Beach WWTW sludge upgrade ($60M)

Hunter Water states that the Burwood Beach sludge upgrade project will implement new treatment processes to cease waste activated sludge discharge via the ocean outfall, meeting EPA licensing

[91] Hunter Water, *2024 pricing proposal*, September 2024, p 107.

[92] Hunter Water, *2024 pricing proposal*, September 2024, pp 116, 130 and 318.

[93] Hunter Water, *2024 pricing proposal*, September 2024, p 128.

[94] Hunter Water, *2024 pricing proposal*, September 2024, pp 105 and 122.

[95] Hunter Water, *2024 pricing proposal*, September 2024, pp 107 and 126.

[96] Hunter Water, *2024 pricing proposal*, September 2024, p 124.

[97] Hunter Water, *2024 pricing proposal*, September 2024, p 124; Hunter Water, *2024 pricing proposal – Attachment E: Additional detail on drivers of investment*, September 2024, p 16.

[98] Hunter Water, *2024 pricing proposal*, September 2024, p 124.

requirements. Hunter Water states that the project, targeting completion by 2033, represents a significant environmental improvement and regulatory compliance initiative.[99]

Chichester Truck Gravity Main replacement (Brookfield to Burmi) ($56M)

The Chichester Trunk Gravity Main replacement project involves replacing a 12-kilometre section of critical water supply infrastructure between Brookfield Tunnel and Burmi Creek. Hunter Water states that the two-stage project, completing in 2029 and 2033, will reduce water losses through leakage, improve worker safety and ensure reliable water supply to the region.[100]

Morpeth wastewater treatment upgrade ($35M)

The Morpeth wastewater treatment upgrade includes new inlet works and a biological nutrient removal bioreactor to meet future growth demands and environmental protection requirements. The project, scheduled for completion in 2033, aims to ensure compliance with EPA load limits and environmental impact statement targets through 2050.[101]

Grahamstown Stage 2 filter refurbishment ($28M)

The Grahamstown filter refurbishment project involves replacing end-of-life treatment filters at this crucial water treatment facility. Hunter Water states that the project, due for completion in 2029, is essential for maintaining high-quality drinking water supply to customers.[102]

6.2 Assessment of 2024/25 capital expenditure

Overview of 2024/25 capital expenditure

IPART's 2020 determination of Hunter Water's prices set capital expenditure for the 2020-24 period. IPART subsequently accepted Hunter Water's request to extend the pricing period by one year, resulting in no change to Hunter Water's prices and no express capital expenditure allowance set for 2024/25.[103]

Hunter Water's expected expenditure in 2024/25 is $266.8 million, which is approximately $54.3 million (25.6 per cent) higher than its average annual expenditure between 2020-24. Hunter Water attributes this increase in expenditure to the Belmont desalination plant and other spending on delivering outcomes from the Lower Hunter Water Security Plan (LHWSP), which comprises $48.2 million (or 89 per cent) of the increase in expenditure.[104]

We understand from discussions with Hunter Water that, before including Belmont desalination plant expenditure, it targeted its average capital expenditure from 2020-24 for 2024/25. We summarise Hunter Water's capital investments for 2024/25 in table 6.1 below.

[99] Hunter Water, *2024 pricing proposal*, September 2024, p 124; Hunter Water, *2024 pricing proposal - Attachment E: Additional detail on drivers of investment*, September 2024, p 17.

[100] Hunter Water, *2024 pricing proposal*, September 2024, p 124.

[101] Hunter Water, *2024 pricing proposal*, September 2024, p 124.

[102] Hunter Water, *2024 pricing proposal*, September 2024, p 124.

[103] Hunter Water, *2024 pricing proposal*, September 2024, p 129.

[104] Hunter Water, *2024 pricing proposal*, September 2024, p 131.

Table 6.1: Composition of Hunter Water's 2024/25 capital expenditure

Key investment	Outcome	$ capital expenditure (% total)
Belmont desalination plant	Water security	$47.6 million (18%)
Wallsend 2 stormflow pump station and rising main	Environmentally sustainable	$10.9 million (4%)
Tomago depot building renewal	Business enabling	$10.2 million (4%)
Harpers Hill reservoir renewal	Reliable water services	$9.2 million (3%)
Grahamstown UV upgrade project	Clean safe water	$8.1 million (3%)
Tomago WTP chlorination upgrade	Clean safe water	$7.9 million (3%)
Carneron Park WD high-level system	Reliable water services	$7.6 million (3%)
Stormwater major rehabilitation and renewal program	Safety, health and wellbeing	$7.2 million (3%)
Acadia Vale and Morisset reservoir renewal	Reliable water services	$6.8 million (3%)
Trunk main management - Louth Park	Reliable water services	$5.7 million (2%)
Other projects and programs (individually <$5m)	Various	$101.1 million (38%)
Provisions	Various	$49.0 million (18%)
Program efficiency	N/A	-$4.5 million (- 2%)

Source: Hunter Water, 2024 pricing proposal, September 2024, p 132.

Assessment of 2024/25 capital expenditure

In discussions with Hunter Water, we understand there are no deliverability concerns with its 2024/25 capital expenditure program.

In our opinion, it would be reasonable for a business operating in a competitive environment to set its target expenditure based on the revenue it expects to receive from its customers. A prudent and efficient business would make trade-offs on the expenditure it can incur in any given year. However, we understand that Hunter Water prioritised its capital expenditure using a target capital expenditure excluding the Belmont desalination plant.

In addition, we note that Hunter Water will have a range of capital projects in any given year and may be required to bring forward or defer capital expenditure in any given year to prioritise the needs of its network.

Given that Hunter Water was aware that prices were not increasing and revenue would be insufficient to recover the entirety of its capital expenditure, any material increases in average expenditure over the preceding period would require a clear need. Hunter Water has explained this, through its prioritisation of water security related capital expenditure.

However, given our subsequent concerns about the timing of the Belmont desalination plant (see section 6.3.1), the validity of this need at this time is less clear. That said, we believe that Hunter Water has acted based on the outcomes of the Lower Hunter Water Security Plan (LHWSP) in incurring expenditure to date related to the Belmont desalination plant.

It follows that, while it would be open to IPART, we do not believe it would be appropriate for IPART to reduce some of the capital expenditure included in the roll-forward of the regulatory asset base.

6.3 Water security

Hunter Water proposes to spend $512 million ($2024-25 real) on water security in the upcoming regulatory period, including:[105]

- $479 million on the Belmont desalination plant; and
- $20 million on leakage reduction, consistent with the outcomes from its customer engagement.

We are confident that the remaining $13 million for water security activities is reasonable given that Hunter Water's proposed capital expenditure envelope for 2025-30 excluding the Belmont desalination plant is consistent with expenditures in previous regulatory periods. In forming this opinion, we have also considered Hunter Water's asset management processes and investment governance arrangements. As such, these expenditures can be considered efficient for the purposes of IPART setting its capital expenditure regulatory allowance.

6.3.1 Belmont desalination plant ($479 million)

Project overview

Hunter Water has proposed to construct a 30 ML/day permanent desalination plant at Belmont, doubling the existing capacity of Hunter Water's enduring supply. The project is estimated to cost $460 million (nominal) or $479 million (real) during the 2025-30 pricing period, with a total project cost of $530 million (nominal), representing close to one third of Hunter Water's proposed capital investment in the upcoming regulatory control period.[106]

Hunter Water states that its current water supply system performs well during average climate conditions but is vulnerable to drought due to small water storages, high natural losses (evaporation) and a reliance on rainfall.[107] The Belmont desalination plant is designed to provide a climate-independent water supply to improve water security for the Lower Hunter region.

The Lower Hunter Water Plan

Plans for the Belmont desalination plant have evolved over time in response to an evolving understanding of water security needs in the Lower Hunter region.

Desalination was initially identified in the 2014 Lower Hunter Water Plan (LHWP) as a drought response measure.[108] In the 2014 LHWP, the New South Wales government and Hunter Water identified the potential for temporary, portable desalination units to provide enough water as a short-term solution to supplement the Lower Hunter's drinking water supplies in periods of extreme drought. In addition, the 2014 LHWP found that desalination would only need to operate in an extreme drought and that it would be very costly to construct a large-scale, permanent desalination plant for such rare occasions.[109]

The Lower Hunter Water Security Plan

The Hunter region experienced a prolonged drought between 2017 and 2020.[110] This drought particularly affected water storage levels in the Lower Hunter in 2019/20, with water storage levels dropping to 52 per

[105] Hunter Water information return, tab: 'Capex by outcome', rows: 7-11.

[106] Hunter Water, *2024 pricing proposal*, September 2024, pp 14, 112 and 124.

[107] Hunter Water, *Hunter Water Belmont desalination plant detailed business case*, February 2024, p 8.

[108] Hunter Water, *Belmont desalination plant*, available at: https://www.hunterwater.com.au/community/major-projects-in-your-area/desalination, accessed on 23 November 2024.

[109] New South Wales Department of Finance and Services, *2014 Lower Hunter water plan*, January 2014, p 58.

[110] New South Wales Department of Planning, Industry & Environment, *Hunter Valley snapshot – 2017 2020 drought*, 14 September 2021, p 1.

cent, the lowest level in 40 years.[111] At points during the drought, storage levels fell at a rate of approximately 1 per cent per week.[112]

The government initiated a review of the LHWP in 2018, referred to as the Lower Hunter Water Security Plan (LHWSP). This review found that implementing just the measures identified in the 2014 plan would result in a shortfall of water supply. Early analysis indicated that a desalination plant with capacity up to 30ML/day would provide increased reliability in meeting the region's water supply needs during drought conditions, beyond the original concept for a temporary desalination plant from 2014.[113]

Based on this early analysis, Hunter Water submitted an application for a 30ML/day drought response desalination plant. The desalination plant would be built if Hunter Water's storages reach around 45 per cent capacity.[114]

The New South Wales Department of Planning, Industry and Environment assessed this as State Significant Infrastructure and approved it in July 2021.[115] Hunter Water estimated that, if required during a drought, construction of a temporary desalination plant would cost between $220 million and $250 million (nominal).[116]

The option of building a permanent desalination plant was first evaluated in the final LHWSP released in 2022, where the Department of Planning and Environment found new modelling methods and datasets suggested that water supply in the Hunter region may be less secure than previously thought.[117]

The LHWSP found the 2019/20 drought revealed that it takes around seven years from planning to delivering water from major new infrastructure like a desalination plant, while storages can drop from full to critical levels in just three years during severe drought.[118]

In community engagement, the LHWSP found that the existing system, including the Belmont drought response desalination plant, could only guarantee supply of around 50 per cent of the community's minimum water needs. This was in contrast to community expectations of having their minimum water demands met regardless of drought severity.[119]

Hunter Water further states that a permanent desalination plant at Belmont would:[120]

- reduce Hunter Water's reliance on rainfall, as the Lower Hunter is the only major urban city in Australia without a climate independent water supply;
- reduce the chance of running out of water, as water levels can fall from typical operating levels to critically low levels in around three years during a severe drought;

[111] Hunter Water, *2024 pricing proposal – Attachment D: The Lower Hunter Water Security Plan*, p 1.

[112] Hunter Water, *Belmont desalination plant – detailed business case*, February 2024, p 4.

[113] New South Wales Department of Planning, Industry & Environment, *Belmont Drought Response Desalination Plant Assessment Report*, July 2021, p 11.

[114] Hunter Water, *Belmont desalination plant,* August 2021, available at: https://www.hunterwater.com.au/documents/assets/src/uploads/documents/Community-update-Belmont-desalination-plant-August-2021.pdf, accessed on 23 November 2024.

[115] New South Wales Department of Planning, Industry & Environment, *Belmont Drought Response Desalination Plant Assessment Report*, July 2021, p 11.

[116] Hunter Water, *Belmont desalination plant,* August 2021, available at: https://www.hunterwater.com.au/documents/assets/src/uploads/documents/Community-update-Belmont-desalination-plant-August-2021.pdf, accessed on 23 November 2024.

[117] New South Wales Department of Planning and Environment, *Lower Hunter Water Security Plan*, April 2022, p 37, 40, 42 and 51.

[118] New South Wales Department of Planning and Environment, *Lower Hunter Water Security Plan*, April 2022, p 42.

[119] New South Wales Department of Planning and Environment, *Lower Hunter Water Security Plan*, April 2022, p 40.

[120] Hunter Water, *2024 pricing proposal – Attachment D: The Lower Hunter Water Security Plan*, pp 1, 2, 4, 6 and 8.

- provide Hunter Water with a longer response time in the event of a drought by slowing the rate of depletion, with the LHWSP finding that an up-front supply augmentation is essential because the Hunter Water system does not provide 'the luxury of time' to build infrastructure reactively in drought; and
- mitigate the 13 GL yield shortage in Hunter Water's supply system.

Community engagement on the LHWSP

The LHWSP was developed through comprehensive community engagement conducted over three phases between 2018 and 2021.

Initial engagement in phase 1 (2018) focused on understanding community values and expectations through deliberative forums, online surveys, surveys at events and stakeholder engagement.[121] Hunter Water found that the community strongly supported water restrictions during drought and identified, in order, the following water supply priorities:[122]

- high quality water;
- reliable water supply; and
- environmental sustainability and affordability.

Phase 2 (2019-2020) expanded engagement through deliberative forums, online surveys, surveys at events, its Community Liaison Group, community drop in sessions and stakeholder engagement. This phase gathered detailed feedback on supply and demand options.[123]

Hunter Water found that the community was open to Hunter Water considering all options to secure its water future, but preferred options that reduce reliance on drinking water over options that supplement water supplies.[124] Hunter Water found that the community was generally supportive of preliminary programs, although there were relatively similar levels of support for all programs, with each receiving between 61 and 73 per cent support.[125]

Phase 3 (2020-2021) tested specific proposals through online surveys, ongoing meetings with the Community Liaison Group, focus groups, video presentations for high schools and focus group discussions with stakeholder groups.[126]

Hunter Water surveyed over 1,200 people in an online survey about the seven preliminary programs considered for the LHWSP. Again, all programs received support from more than 60 per cent of participants, but the programs that received the most support contained purified recycled water programs.[127]

The community accepted that enhanced water security would require investments affecting bills but preferred up-front investments over reactive drought responses. Hunter Water informed customers that, based on the estimated costs of proposed water conservation, recycling, supply augmentation and drought readiness actions, the preferred plan (including a permanent Belmont desalination plant, but excluding a drought response desalination plant), was likely to add a one-off increase of between $75 and $120 per year to customer bills (ie, a one-off increase of between 6 and 9 per cent).[128]

[121] New South Wales Department of Planning and Environment, *Lower Hunter Water Security Plan*, April 2022, p 50.
[122] New South Wales Department of Planning and Environment, *Lower Hunter Water Security Plan*, April 2022, pp 50 and 67.
[123] New South Wales Department of Planning and Environment, *Lower Hunter Water Security Plan*, April 2022, p 50.
[124] New South Wales Department of Planning and Environment, *Lower Hunter Water Security Plan*, April 2022, p 50.
[125] New South Wales Department of Planning and Environment, *Lower Hunter Water Security Plan*, April 2022, p 59.
[126] New South Wales Department of Planning and Environment, *Lower Hunter Water Security Plan*, April 2022, p 50.
[127] New South Wales Department of Planning and Environment, *Lower Hunter Water Security Plan*, April 2022, p 73.
[128] New South Wales Department of Planning and Environment, *Lower Hunter Water Security Plan*, April 2022, p 93.

2024 revised business case and pricing proposal

Due to substantial increases in construction costs since the LHWSP was prepared and the change in scope from drought-response to permanent, Hunter Water prepared a revised business case in February 2024. Hunter Water finds that, although the cost of the plant has increased from $220 million (nominal) to $530 million (nominal), including $479 million in real terms allocated to the 2025-30 period, the Belmont desalination plant remains the preferred next supply augmentation.[129]

We understand from Hunter Water that the increase in construction cost estimates is principally due to two main drivers, ie:

- first, the change in scope from a temporary to a permanent desalination plant, which involves better quality and longer life assets; and
- second, general escalation of construction costs above CPI between 2022 and 2024.

The revised business case compared a range of options against a base case under which no planned investment in water security occurs, ie, a 'do nothing' base case.[130] Such a scenario would entail the reactive construction of drought response desalination facilities at Belmont (30 ML per day) and Stockton (60 ML per day).[131] Hunter Water states that the expected capital and operating costs under the 'do nothing' base case are $1.018 billion and $507 million, respectively.[132]

Hunter Water's business case considered various options, ie:[133]

- multiple configurations of the Belmont plant including:
  - a single-staged 30 ML/day plant by 2028;
  - a single-staged 60 ML/day plant delivered by 2032; and
  - a staged plant with capacity 30ML/day by 2028, expandable to 60 ML/day by 2034;
- a permanent desalination plant at an alternative site, ie a 30 ML/day or a 60 ML/day option by 2032 at Stockton or Walsh Point;
- the Paterson River Offtake that would either entail a 40 GL or 80 GL storage share in Glennies Creek Dam allocated to Hunter Water with a 50 ML/day offtake on the Paterson River, to be delivered post-2032;
- purified recycled water (PRW) with 30 ML/day capacity, delivered post-2037; and
- an emergency desalination plant at either Walsh Point or a new site at Stockton, with construction to commence only if triggered by a post-2029 drought.

Among other reasons, the analysis supported proceeding with the 30 ML/day Belmont Plant because:[134]

- Hunter Water will be able to mitigate its yield deficit and drought risk as soon as practicable, which it believes will reduce the annual probability of reaching the trigger for drought response desalination from 50 per cent to around 2 per cent; and

[129] Hunter Water, *Belmont desalination plant – detailed business case*, February 2024, p 6.

[130] Hunter Water, *Belmont desalination plant – detailed business case: Supporting document N – additional economic analysis*, January 2024, p 1.

[131] Hunter Water, *Belmont desalination plant – detailed business case: Supporting document N – additional economic analysis*, January 2024, pp 1-2.

[132] Hunter Water, *Belmont desalination plant – detailed business case: Supporting document N – additional economic analysis*, January 2024, p 4.

[133] Hunter Water, *Belmont desalination plant – detailed business case*, February 2024, pp 21-22.

[134] Hunter Water, *Belmont desalination plant – detailed business case*, February 2024, p 6.

- Hunter Water has already undertaken substantial work and has a high level of confidence in the cost estimates and deliverability of the project.

Hunter Water has provided information on the project's estimated costs, delivery timeline and basic scope. We understand that Hunter Water has undertaken competitive procurement in line with its procurement strategy, ie:

- Hunter Water selected John Holland in 2019 to run the Belmont desalination project using a competitive tendering process;
- the contract with John Holland has a pain/gain sharing mechanism, to provide incentives for cost minimisation;
- John Holland has undertaken competitive tendering for 160 discrete packages of work; and
- Hunter Water engaged an independent cost assessor to confirm the value for money of the project.

The delivery and funding for the project was approved by the New South Wales government in June 2024, with Hunter Water indicating it has the capacity and capability to deliver the project within the 2025-30 pricing period. Construction is planned to be completed in 2028 while normal operational modes are proposed to begin in 2030.[135]

We understand from Hunter Water that it did not re-engage with the community on the Belmont desalination plant for the revised business case or the pricing proposal because it:

- had already undertaken extensive community engagement for the LHWSP; and
- believed the bill impacts of the project had not changed.

Our assessment of the Belmont desalination plant

The probability of reaching critical storage levels in the 2025-30 regulatory period is very low

Hunter Water's assessment of the need for the project and its community engagement on the desalination plant are based on Hunter Water's performance against its water system yield curves.

Hunter Water agreed three risk thresholds with its stakeholders that underpin the LHWSP, ie:[136]

- water restrictions should not be imposed more than one in ten years;
- water restrictions should not be imposed more than five per cent of the time; and
- the annual probability of reaching the 36-month point in the drought plan (being three years before storage levels reach 15 per cent, in a drought sequence) should not exceed two per cent in any given year.

Hunter Water's current system is able to meet the first two risk thresholds, but Hunter Water states that it is in breach of the third requirement.

Hunter Water's 2022-27 operating license requires that it must develop and submit a drought response plan to the Minister, which it did in November 2023.[137] Consistent with its drought response plan, Hunter Water calculates the 36-month point in the drought management plan based on a repeated drought sequence modelled on the 1980-81 drought, augmented by current data on water demand (the design drought). Hunter

[135] Hunter Water, *2024 pricing proposal – Attachment D: The Lower Hunter Water Security Plan*, September 2024, p 8.
[136] Hunter Water, *2024 pricing proposal – Attachment D: The Lower Hunter Water Security Plan*, September 2024, p 3.
[137] Hunter Water, *The Lower Hunter Drought Response Plan*, November 2023.

Water adopted the 36-month point on an ambitious assumption that a temporary desalination plant could be implemented within three years.[138]

We do not dispute Hunter Water's risk thresholds, nor its trigger to undertake drought preparation actions 36 months prior to reaching 15 per cent storage under its design drought. However, we note that the probability of Hunter Water's modelled design drought occurring during the 2025-30 regulatory period has not materially changed compared to historical periods, and remains very low.

By way of example, Hunter Water states that the 2017-20 drought was one of the worst on record.[139] Over this three-year period, Hunter Water's storage inflows dropped from 96 per cent to 52.5 per cent.[140] This compares to Hunter Water's design drought, which, assuming 70GL/year demand,[141] has storages dropping from:[142]

- assuming reduced Grahamstown dam operating levels, full to 16 per cent in three years;[143] and
- assuming full Grahamstown dam operating levels, full to 20 per cent in three years.

Despite adopting a conservative modelled drought sequence, Hunter Water finds a very low probability of reaching critical storage levels in any given year – see table 6.2.

We assess Hunter Water's evidence to support the Belmont desalination plant against the probability of reaching critical storage levels under the design drought. Specifically, we assess the probability that Hunter Water's customers will in fact face strict water restrictions or worse consequences, assuming Hunter Water's design drought sequence occurs, ie:

- stage 3 restrictions and a total outdoor water ban, which Hunter Water will implement at 40 per cent storage;
- the storage level that 'day zero' occurred in Cape Town, which reflects imminent risk of running out of water and a situation where water was delivered in rations,[144] which occurred at 30 per cent storage; and
- the level of storage at which Hunter Water is no longer confident that water would flow on its network (which is also the level that Hunter Water prepares its 36-month drought plan to meet), which is at 15 per cent storage.

We understand from Hunter Water's climate modelling that, based on current demand of 70 GL/year and a reduced operating level of Grahamstown dam due to current dam safety concerns, as shown in table 6.2, absent construction of the Belmont desalination plant and with reduced operating level at Grahamstown dam, the probability of:

- being in stage 3 restrictions and facing a total outdoor water ban is 0.7 per cent in any given year, or a one in 143 year probability;
- reaching the level of storage at which 'day zero' occurred in Cape Town is 0.07 per cent in any given year, or a one in 1,429 year probability; and
- reaching a storage level where Hunter Water is no longer confident that water would flow on its network is 0.002 per cent in any given year, or a one in 50,000 year probability.

[138] Hunter Water, *2024 pricing proposal – Attachment D: The Lower Hunter Water Security Plan*, September 2024, pp 3-4.

[139] Hunter Water, *2024 pricing proposal customer summary*, February 2024, p 3.

[140] Hunter Water, *Belmont desalination plant detailed business case*, February 2024, p 9.

[141] We understand from Hunter Water that its current demand is approximately 70GL/year.

[142] Hunter Water, *Price Path Audit Qs Belmont Desalination*, Response to information request, 20 November 2024, pp 3 and 5.

[143] We discuss the reduced maximum operating level of Grahamstown dam due to safety concerns in section 6.6.1.

[144] For completeness, we are not suggesting that this would or would not occur on Hunter Water's network in this circumstance.

Table 6.2: Probability of reaching events (design drought, 70GL/year demand)

Grahamstown dam operating level	Belmont desalination plant operating	Annual probability of reaching events			
		Trigger for drought management plan (36 months to 15% storage)	*Stage 3 restrictions, total outdoor water ban (40% storage)*	*Level of storage equivalent to 'Day Zero' in Cape Town (30% storage)*	*No confidence that water would flow on the network (15% storage)*
Normal maximum operating level (12.8m above sea level)	No	>50%	0.2%	0.02%	<0.001%
	Yes	10%	0.1%	0.005%	<0.001%
Reduced maximum operating level (11.5m above sea level)	No	**100%**	**0.7%**	**0.07%**	**0.002%**
	Yes	20%	0.25%	0.02%	<0.001%

Source: Hunter Water analysis.

Accordingly, based on Hunter Water's analysis, there is a very low probability (one in 143 year event) of Hunter Water's customers facing stage 3 restrictions and a total outdoor water ban or worse during the 2025-30 regulatory period, even under Hunter Water's conservative design drought. We note that this probability has not changed when compared to previous regulatory periods, aside from through the reduced operating level of Grahamstown dam due to safety concerns.

As such, in our opinion, it would be open to IPART to consider that the community, Hunter Water and the New South Wales government could continue to bear the risk of delaying a proportion of expenditure on drought response measures, where some key risks are the community facing stage 3 restrictions and a total outdoor water ban (one in 143 year event) or worse consequences (between a one in 1,429 year event and a one in 50,000 year event). We discuss the reasons underpinning this conclusion in the remainder of this section.

Conceptually, this would be equivalent to adjusting the risk thresholds Hunter Water agreed with its customers under the LHWSP, being the annual probability of reaching the 36-month point three years before storage levels reach 15 per cent in a severe drought sequence not exceeding two per cent, which is also the trigger under Hunter Water's drought management plan. Such an adjustment could be made on the basis that IPART considered that the community and the New South Wales government would have considered that incurring the costs of the Belmont desalination plant at this time was not warranted given the bill impacts to consumers and the probability of reaching storage levels of 15 per cent was sufficiently low. Currently, consumers have not been given sufficient information to make this decision, nor the opportunity to express their opinions on this trade-off.

Based on Hunter Water's analysis, under reduced Grahamstown dam operating levels, the Belmont desalination plant will decrease the probability of Hunter Water's customers facing critical storage levels by approximately a factor of three, ie:

- stage 3 restrictions and a total outdoor water ban from a one in 143 year event to a one in 400 year event;
- the level of storage at which 'day zero' occurred in Cape Town from a one in 1,429 year event to a one in 5,000 year event; and
- a storage level where Hunter Water is no longer confident that water would flow on its network from a one in 50,000 year event to a less than one in 100,000 year event.

Accordingly, in an upper bound scenario, it would be open to IPART to consider that this expenditure was prudent and efficient to deliver this level of risk mitigation to the community. We note that, on Hunter Water's analysis, a more effective method of reducing the probability of reaching stage 3 restrictions appears to be progressing Grahamstown dam safety investments (which would reduce the probability of reaching stage 3

restrictions to a one in 500 year event), noting that it would have a lower impact on the probability of Hunter Water meeting its drought management plan trigger.

We also note that, based on the current demand projections and design drought, building the desalination plant would reduce the probability of reaching 36 months prior to 15 per cent storage (the trigger for Hunter Water's drought response plan) from 100 per cent to 20 per cent with reduced Grahamstown dam operating level and to 10 per cent with normal Grahamstown dam operating level.

It follows that, under the design drought, the probability of reaching 36 months prior to 15 per cent storage is low and whilst the Belmont desalination plant will reduce the probability of triggering the drought response plan, it will not bring Hunter Water below the two per cent likelihood threshold it agreed with stakeholders in the LHWSP.

Hunter Water did not sufficiently engage with consumers on the trade-off between water security risk and the costs of deferring investment

Although the probability of reaching critical storage levels is low in the 2025-30 regulatory period, we believe Hunter Water has demonstrated a need and community support for additional water security investment. Based on our analysis of the LHWSP, it appears that customers:

- broadly understood and supported the consequences if Hunter Water did not invest in water security solutions; and
- understood that the preferred portfolio of solutions (including the proposed water conservation, recycling, supply augmentation and drought readiness actions) was likely to add a one-off increase of between $75 and $120 per year to customer bills.[145]

However, we note that the LHWSP was published in April 2022 and customer engagement occurred periodically between 2018 and 2021 to inform the plan. During this period, the economy was stronger and there were limited cost of living pressures impacting consumers – in 2021, 19 per cent of Hunter Water's customers reported that they were struggling to pay their bills on time, compared to 40 per cent in February 2024.[146]

Hunter Water did not undertake further engagement with customers on the Belmont desalination plant as part of the development of its pricing proposal, on the basis that the decision had been made during the LHWSP and customers had already been engaged in this context. Specifically, Hunter Water described the Belmont desalination plant as part of non-negotiable expenditure, therefore removing customers' ability to comment on the project (and water security investment more broadly).

In our opinion, Hunter Water has not put to customers several important aspects of its water security and its proposed program to address it, which would be important for customers to make an informed decision on the appropriate level of water security expenditure during the 2025-30 regulatory period, including:

- the cost and scope changes of the preferred portfolio in the revised business case compared to the LHWSP, including that Hunter Water's estimate of a one-off bill increase of $75-$120/year no longer covers any water recycling or long-term investments;
- the long-term bill impacts of the Belmont desalination plant, which whilst they represent an average one-off bill increase in the 2025-30 pricing period of $90/year for an average stand-alone house, in fact:
  - represent a $150/year bill increase in 2029/30 before incurring any operating costs;
  - have a further $31 million in operating costs in the 2030-35 period even when the plant is not operated for drought response;[147] and

[145] New South Wales Department of Planning and Environment, *Lower Hunter Water Security Plan*, April 2022, p 93.

[146] Hunter Water, *2024 pricing proposal*, September 2024, p 84.

[147] Hunter Water, *2024 pricing proposal*, September 2024, p 162.

  - costs an additional $20 million per year for each year the plant operates at full capacity, when required;[148]
- the broader context of Hunter Water's long-term capital expenditure plan, which has several large investments including critical dam safety investments that are likely to add another material one-off bill increase in the 2030-35 regulatory period; and
- the probability of reaching critical storage levels in any given year under the design drought.

Hunter Water did not re-engage with consumers on the quantity of water security that would be delivered by the Belmont desalination plant, compared to the LHWSP. The bill impact of $75-$120 that was advised as part of the LHWSP was for a range of investments, including proposed water conservation, recycling, supply augmentation and drought readiness actions. This includes the Belmont desalination plant and connection from Lostock dam to Glennies Creek dam, as well as water recycling, which the community was highly supportive of.

In our opinion, Hunter Water should have re-engaged with consumers on the appropriate expenditure on water security as part of its pricing proposal and whether this expenditure should be made during the 2025-30 period or be delayed to future regulatory periods, given:

- cost of living pressures and customers preferences for affordability trade-offs, which were different in 2024 compared to when Hunter Water's original community engagement was undertaken; and
- significant cost escalations for the Belmont desalination plant since consumers had been originally engaged on the plan, to the extent that Hunter Water undertook an updated business case for the project, including revising the scope of its broader water security plan.

During its broader engagement for the 2024 pricing proposal, Hunter Water saw evidence that cost of living pressures were front of mind for customers and customers were prioritising bill affordability. By way of example, Hunter Water:[149]

- saw a shift in customer priorities, with affordability becoming the top priority later in its engagement; and
- found that '[k]eeping bills as low as possible is… more important than almost any type of improved service or experience'.

In conjunction, costs for the Belmont desalination plant increased significantly from when customer consultation originally occurred, both due to the change in scope from a temporary drought response to a permanent desalination plant, and in line with significant cost escalations. This resulted in a 141 per cent increase in capital expenditure to deliver the desalination plant, ie, an increase from $220 million (nominal) to $530 million (nominal).

These two factors collectively call into question whether customers would still support Hunter Water's expenditure on water security, particularly in light of the low probability of reaching critical storage levels during the 2025-30 regulatory period. By way of example, customers may be willing to continue to bear the increased water security risk of facing stage 3 water restrictions and a total outdoor water ban (one in 143 year event) or worse consequences during the 2025-30 regulatory period, given affordability pressures.

Customers were not engaged on the long-term bill implications of the Hunter Water desalination plant, including that the average bill impact in 2030-35 is likely to be closer to $120/year in $2024/25 for annual operation – see figure 6.1. In our assessment, this is comprised of an average of:

- approximately $100/year in recovery of capital expenditure; and

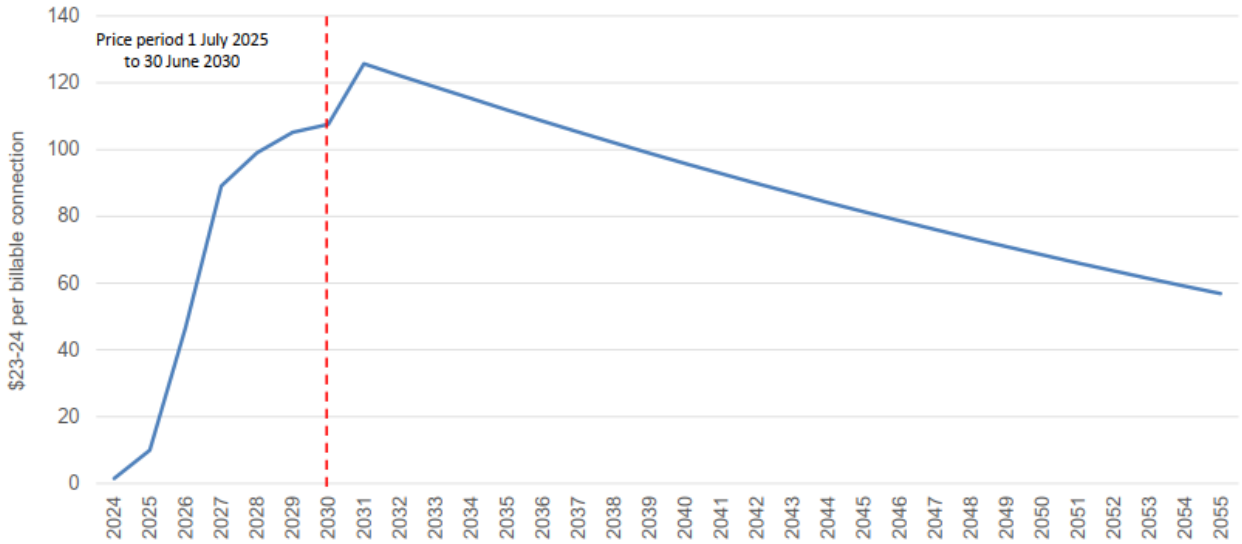
[148] Hunter Water, *Belmont desalination plant detailed business case*, February 2024, p 30.

[149] Hunter Water, *2024 pricing proposal*, September 2024, pp 10, 61 and 78.

- approximately $22/year in annual operating expenditure, not including the operating expenditure of running the Belmont desalination plant for drought response.

In addition, we do not believe customers were consulted on the operating costs of the Belmont desalination plant if it were used for drought response. We calculate an indicative bill impact of $68 to $81 per year of additional operating expenditure for any year that required operating the desalination plant at full capacity for drought response (or a proportion of that expenditure, if it was operated for less than a full year).[150]

Figure 6.1: Hunter Water's estimated long-term bill impact of the Belmont desalination plant, $2023/24



Source: Hunter Water, Belmont desalination plant – detailed business case, February 2024, p 62.

Hunter Water has also identified a step change in capital expenditure that is likely required in the 2030-35 regulatory control period, in part to address dam safety issues, sludge management at Burwood Beach and the biosolids review. The collective effect of these projects may have decreased customer tolerance for water security expenditure in the 2025-30 regulatory period, particularly with bill increases from water security investments increasing in 2030-35.

Finally, in our assessment, the community has been sufficiently engaged on the risks associated with not investing in water security solutions. However, in our opinion, there has been a lack of engagement on the probability of those risks materialising and the relationship between alternative approaches to risk and the costs involved. This gap in Hunter Water's community engagement hinders customers' ability to trade off water security risk and affordability preferences.

Specifically, Hunter Water has not put to customers the probability of reaching critical storage levels or the effect of the Belmont desalination plant on that probability, eg, that customers currently face a one in 143 year probability of entering stage 3 restrictions, and that the Belmont desalination plant will reduce this to a one in 400 year probability. Customers and Hunter Water's stakeholders may be willing to bear this risk for a period of time, given other considerations (such as cost of living and Hunter Water's projected step change in capital expenditure to address other needs in the 2030-35 regulatory period).

[150] We note that the bill impact of desalination plant operation is different depending on when in the regulatory period the operation occurs – ie, the net present value of desalination plant operation in year 1 of a regulatory control period is higher than in year 5 of a regulatory control period.

As such, in our opinion, customers did not have sufficient information in their engagement under the LHWSP to make an informed decision on the appropriate timing of the Belmont desalination plant (or water security expenditure), given customer appetite to bear water security risks. Specifically, Hunter Water has not engaged with consumers on the trade-off between the probability of a drought occurring in the 2025-30 regulatory period (eg, a one in 143 year probability for customers entering stage 3 water restrictions and a total outdoor water ban) and the cost implications of deferring water security investment.

On these considerations, we believe it would be open to IPART to conclude that some components of Hunter Water's proposed water security investments can be deferred, which would minimise the cost impact of the Belmont desalination plant to consumers during the 2025-30 regulatory period given cost of living concerns. Our conclusion is based on:

- the relatively low probability of reaching critical storage levels during the next regulatory period and the subsequent small change in that probability with the Belmont desalination plant;
- the lack of engagement with customers on the timing of the incurrence of expenditure on the Belmont desalination plant; and
- the lack of engagement with customers about future bill increases and how the Belmont desalination plant would lead to increased future costs should it need to be used.

Key to this decision will be IPART's consideration of the appropriate balance between water security investment, for which we believe Hunter Water has demonstrated an overall genuine need but not necessary a need during this regulatory period, with current cost of living pressures that customers have expressed are front of mind.

Option to defer some water security expenditure

We have explored the possibility of undertaking some construction at the Belmont site without completing the desalination plant, to reduce the risk to Hunter Water for delivering additional water security in a future regulatory period.

Specifically, we do not believe that it would be appropriate to consider any expenditure incurred or likely to be incurred in 2024/25 is not efficient, on the basis that it was consistent with the LHWSP.

In addition, we understand from Hunter Water that constructing the ocean infall and outfall requires leasing one of two specialised barges in Australia and so would be a key risk for progressing a drought response desalination plant. We also expect that having site foundations would accelerate construction of a drought response desalination plant.

However, in a lower-bound scenario, we do not believe it would be appropriate for Hunter Water to include the expenditure associated with continuing to undertake works on distribution watermains, or to commence expenditure on other components of the project. This is because these components of the project could be completed in parallel to other components of the project when it resumed.

Accordingly, our lower bound recommendation for the Belmont desalination plant is $178,252,468 of capital expenditure, with $42,947,429 falling in 2024/25 and $135,305,039 falling in the 2025-30 regulatory period – see table 6.3.

Table 6.3: Lower bound construction expenditure – Belmont desalination plant ($2024/25)

Component	2024/25	2025/26	2026/27	Total
Detail design	10,985,182	18,304,698	-	29,289,880
Mobilisation and John Holland preliminaries	6,766,295	19,866,712	-	26,633,007
Earthworks	14,406,355	1,427,859	-	15,834,213
Ocean intake and pump station	2,710,820	63,273,171	32,432,600	98,416,590
Distribution watermains	8,078,777	-	-	8,078,777
Total	42,947,429	102,872,439	32,432,600	178,252,468

Source: HoustonKemp analysis of Hunter Water response to RFI.

We calculate the net present value of the costs of proceeding with the Belmont desalination plant's construction as compared to deferring the investment. To do this, we:

- adopt a 25-year assessment period from 2025/26 to 2049/50, excluding all investment prior to the 2025-30 regulatory period;
- adopt a 5 per cent discount rate, consistent with Hunter Water's revised business case and New South Wales Treasury guidelines;[151]
- adopt CPI of 2.5 per cent per annum, consistent with Hunter Water's assumed CPI rate;
- adopt the expenditure profile for lower bound construction expenditure detailed in table 6.3;
- assume that it would take $56 million ($2024/25) of additional expenditure to resume operations, ie, a full duplication of the detail design and mobilisation costs would occur in year 1 of the regulatory period the expenditure is deferred to (see table 6.3);
- assume that the remaining expenditure will occur over the same profile of the regulatory period it is deferred to; and
- assume annual operating expenditure of $5.8 million ($2023/24),[152] commencing the year after construction is completed, which we escalate to $2024/25 using ABS CPI data.

On these assumptions, we calculate a positive net present value (NPV) of costs for deferring Hunter Water's proposed expenditure on the Belmont desalination plant, ie:

- proceeding with the Belmont desalination plant's construction in 2025-30 has a present value cost of $523.1 million;
- proceeding with the early works detailed above and deferring the remaining construction to the 2030-35 regulatory period has a present value cost of $459.3 million; and
- proceeding with the early works detailed above and deferring the remaining construction to the 2035-40 regulatory period has a present value cost of $353.3 million.[153]

We calculate an average indicative bill impact in 2025-30 of deferring this proportion of expenditure of $45.56/year for the average customer, ie, approximately halving the bill impact of Hunter Water's proposal to the average consumer.

[151] Hunter Water, *Belmont desalination plant detailed business case,* February 2024, p 38; New South Wales Treasury, *TPG23-08 New South Wales government guide to cost-benefit analysis,* February 2023, p 9.

[152] Hunter Water, Belmont desalination plant – detailed business case, February 2024, p 30.

[153] Deferring the completion of the project to later periods would have the effect of further lowering the costs incurred by customers, but would also defer the water security benefits to be delivered by the project.

For completeness, we also believe it would be open to IPART to consider that Hunter Water's proposed expenditure on the Belmont desalination plant is included in an upper bound expenditure scenario. Such a decision would reflect an alternate opinion on the cost of living and water security risk trade off, which is central to the decision to proceed with the project during the 2025-30 regulatory period.

6.3.2 Leakage reduction ($20.1 million)

Project overview

Hunter Water has proposed $20.1 million for leakage reduction[154] over the 2025-30 regulatory period, driven by the need to 'balance the demand for water with the available supply'. Hunter Water states that water conservation is a priority due to climate change and an increasing population in the Lower Hunter region.[155] This investment will include initiatives to increase district metering to identify and repair leaks, pressure management to reduce leaks caused by high pressure and active leak detection systems.[156]

Customer engagement

Hunter Water's consultation with the community panel initially identified water conservation as a key priority for customers.[157] Moreover, Hunter Water learned through its community engagement for the LHWSP that customers desire the 'continued use of permanent water conservation measures' and 'up front water security investments'.[158] Based on these insights, Hunter Water set 'ambitious water conservation targets that require investment above the level supported by the [Economic Level of Water Conservation] methodology', which provides a standard against which projects and programs within the LHWSP are expected to be assessed.

Consequently, in its pricing proposal Hunter Water has aimed to reduce its average leakage volume by 40 per cent over the pricing period, from 83 litres per connection per day to less than 50 litres per connection per day.[159] Given the costs involved, Hunter Water retested this with its community panel to inform its pricing proposal.[160] The community panel supported an incremental $11.4 million spend on leakage reduction.[161]

In our assessment, Hunter Water's proposal to invest in leakage reduction above the economic level of leakage is driven by customer preferences and informed by strong customer engagement.

Accordingly, in our opinion, Hunter Water's customer-centric approach to leakage reduction expenditure, including adequately engaging with and receiving the approval of the community panel, is sufficient grounds to support the reasonableness of this expenditure.

6.4 Environmental sustainability

Hunter Water has allocated $387 million in environmental sustainability projects for the 2025-30 period, representing its second largest expenditure category after water security initiatives. This investment focuses on protecting waterways, managing wastewater and supporting regional development.

Hunter Water proposes three major capital projects for environmental sustainability, which we review in the remainder of this section, ie:

- Burwood Beach wastewater treatment works (WWTW) sludge management – $60 million;

[154] Hunter Water also refers to leakage reduction as 'non-revenue water'. See: Hunter Water, *2024 pricing proposal - Attachment E: Additional detail on drivers of investment*, September 2024, pp 1-2.

[155] Hunter Water, *2024 pricing proposal*, September 2024, pp 111 and 115.

[156] Hunter Water, *2024 pricing proposal - Attachment E: Additional detail on drivers of investment*, September 2024, p 3.

[157] Hunter Water, *2024 pricing proposal*, September 2024, p 38.

[158] Hunter Water, *2024 pricing proposal – Attachment D: The Lower Hunter Water Security Plan*, p 5.

[159] Hunter Water, *2024 pricing proposal*, September 2024, pp 65 and 72.

[160] Hunter Water, *2024 pricing proposal - Attachment E: Additional detail on drivers of investment*, September 2024, p 2.

[161] Hunter Water, *2024 pricing proposal*, September 2024, p 115.

- Burwood Beach WWTW stage 3 upgrades – $70 million; and
- Morpeth WWTW – $35 million.

Hunter Water also has several environmental compliance capex projects totalling $222 million, including:[162]

- $85 million for renewing wastewater network assets to prevent dry weather overflows;
- $63 million for renewing major and minor assets across treatment plants;
- $30 million for upgrading vulnerable wastewater pump stations and rising mains;
- $28 million for upgrading wastewater network capacity to service growth and protect against wet weather overflows; and
- $14 million for upgrading smaller treatment plants for growth and EPA compliance.

We understand from Hunter Water that $15 million of the investment in renewing wastewater network assets is above business-as-usual expenditure, as part of its critical sewer mains renewals program. We have reviewed the evidence base for this and in our opinion, the investment appears to be reasonable.

The remaining $207 million appears to be reasonable, on the basis that our assessment of Hunter Water's proposed capital expenditure envelope for 2025-30 excluding the Belmont desalination plant is consistent with prudent and efficient expenditure in preceding periods.

6.4.1 Burwood Beach sludge treatment upgrade ($60 million)

Project overview

Hunter Water has proposed a $60 million upgrade to cease sludge discharge through the ocean outfall at Burwood Beach WWTW. This represents 3.9 per cent of the proposed capital expenditure for 2025-30 and is part of a larger $182 million project extending beyond 2030, with the remaining $122 million capital cost being incurred in the 2030-35 pricing period.[163]

Wastewater sludge is currently discharged into the sea through the ocean outfall at Burwood Beach WWTW, which we understand is the last remaining treatment plant in Australia to do so. Hunter Water states that this process leads to:[164]

- occasional non-compliance with environmental regulation; and
- an increasing public health risk over time.

Specifically, we understand from Hunter Water that it has been in periodic breach of its selenium limit since 2020-21, with breaches becoming more frequent as the population in the Burwood Beach catchment area increases.

Hunter Water states that upgrades to the plant are required to stop the disposal of waste activated sludge discharge to the ocean, to meet the EPA's licensing requirements of stopping all ocean discharges within a 10-year period.[165]

The EPA advised Hunter Water that it considered its current practice of sludge discharge to the ocean as unsustainable and unacceptable in the long-term.[166] Specifically:[167]

[162] Hunter Water, *2024 pricing proposal*, September 2024, p 112.
[163] Hunter Water, *2024 pricing proposal*, September 2024, p 124.
[164] Hunter Water, *2024 pricing proposal – Attachment E: Additional detail on drivers of investment,* September 2024, p 17.
[165] Hunter Water, *2024 pricing proposal – Attachment E: Additional detail on drivers of investment,* September 2024, p 17.
[166] Hunter Water, *Biosolids Management investment plan*, 16 June 2023, MIC2023-16-07/2.003, p 7.
[167] Hunter Water, *Biosolids Management investment plan*, 16 June 2023, MIC2023-16-07/2.003, p 7.

- at a meeting in February 2022, the EPA verbally requested that Hunter Water work towards providing a medium-term date for cessation of oceanic sludge discharge;
- in June 2022, Hunter Water committed to providing a Sludge Management Plan for Burwood Beach WWTW to the EPA by 31 March 2024;
- Hunter Water developed and provided the EPA with its initial Sludge Management Plan on 16 June 2023; and
- EPA advised Hunter Water in a letter sometime between 16 June 2023 and 10 August 2023 that its 10-year timeframe for the cessation of oceanic sludge discharge was not acceptable to the EPA, as it does not align with its strategic objectives within its strategic plan;[168] and

In a letter to Hunter Water on 20 June 2023,[169] and formalised through a variation to one of Hunter Water's Environmental Protection Licenses (EPLs) granted under the *Protection of the Environment Operations Act 1997 (NSW)* on 4 January 2024, the EPA required Hunter Water to provide the EPA by 30 June 2024 a Burwood Sewage Treatment Plant Sludge Management Plan (SMP) and options report that had to include:[170]

- a plan including timelines for the cessation of sewage sludge disposal to the ocean;
- consideration of future demand and adaptability for growth;
- assessment of a range of infrastructure options including technical considerations, risk assessment and upfront capital and ongoing operating and maintenance costs for the management of sludge from the sludge treatment plant;
- infrastructure options that deal with emerging contaminants from the sludge; and
- any preliminary consideration of environmental impacts.

In the same variation to Hunter Water's EPLs, the EPA formally noted its expectation that Hunter Water will commit to infrastructure works to cease oceanic sludge discharge as soon as practical.[171]

Hunter Water submitted the Burwood SMP to the EPA on 28 June 2024, committing to cease sludge discharge to the ocean by July 2033, in line with the EPA's expectations.[172]

In addition to its sludge management expenditure, in its final investment case for the Burwood SMP, Hunter Water also identifies $1.8 million of expenditure in 2025-30 to commence works on a centralised biosolids treatment plant, to handle future growth and address risks from emerging contaminants.[173] This investment is followed by $180.3 million in 2030-35.[174]

Based on the available evidence, we are satisfied that Hunter Water has a need to invest to cease ocean discharge of sludge at Burwood Beach WWTW, given the current breach of its selenium license. That said, it is less clear about the timing for the investment given current concerns about cost-of-living pressures.

Customer engagement

Hunter Water's customers have informed Hunter Water that it should 'be environmentally responsible but mindful of affordability with any proposed initiatives or investments that go beyond compliance.'[175]

[168] EPA, *Draft Notice 1631011 of Variation to Environment Protection Licence 1683*, n.d., DOC23/645354, p 1.
[169] Hunter Water, *Biosolids Management investment plan*, 30 August 2024, HW2023-80/10/27.002, p 3.
[170] EPA, *Notice of Variation of Licence No. 1683*, 4 January 2024, cl U4, p 33.
[171] EPA, *Notice of Variation of Licence No. 1683*, 4 January 2024, cl U4, p 33.
[172] Hunter Water, *Biosolids Management investment plan*, 30 August 2024, HW2023-80/10/27.002, p 3.
[173] Hunter Water, *Biosolids Management investment plan*, 30 August 2024, HW2023-80/10/27.002, p 7.
[174] Hunter Water, *Biosolids Management investment plan*, 30 August 2024, HW2023-80/10/27.002, p 7.
[175] Hunter Water, *2024 pricing proposal*, September 2024, p 69.

Hunter Water has in the past undertaken extensive community engagement on the discharge of sludge to the ocean and found that whilst customers are highly supportive of cessation of the practice, are unwilling to accept the large bill impacts of doing so:[176]

> Extensive community engagement from 2010 to 2014 identified a preference from the broader community for ceasing the discharge of biosolids to the ocean and to reuse the biosolids on land. However, the Community Reference Group, given more information, supported continuing ocean sludge discharge based on the large cost associated with sludge treatment and the marginal difference in impacts on the marine environment and public health. It is uncertain if community sentiment has shifted in the past nine years.
>
> Focus group research in early 2022 assessed community sentiments around options for sludge management at Burwood Beach WWTW at a range of overall bill increases. While there was clear support for ceasing sludge discharge to the ocean with a bill impact of $13-$18 per year, there was less support when considering overall (cumulative) bill impacts of up to $200 per year. This qualitative research, with a small sample size, gives an indication of the sentiment of the focus group participants, but is not necessarily representative of the views of our customers and community more broadly. Preferences and willingness to pay for ceasing sludge discharge to ocean at Burwood Beach WWTW, in the context of potential cumulative bill impacts, are uncertain.

We understand from Hunter Water that it considers the sludge management upgrade is required to continue to obtain its licence and has not put this investment to consumers.

Assessment of Burwood Beach WWTW sludge management

In our opinion, there is a significant lack of customer engagement on the proposed Burwood Beach WWTW sludge management expenditure. As such, in our opinion it would be open to IPART to defer the proposed expenditure for the cessation of oceanic sludge discharge and a centralised biosolids treatment plant to a subsequent regulatory period.

To support our assessment, we engaged with the EPA in December 2024. In this discussion, the EPA reiterated its requirement for Hunter Water to cease oceanic sludge discharge as soon as practical, consistent with the variation to Hunter Water's EPLs made in January 2024.

The EPA confirmed that its position stems from ongoing environmental and public health concerns, and the fact that Hunter Water has the last remaining ocean outfall for sludge discharge in Australia. However, we understand that no specific monitoring or studies had been undertaken recently on the public health impacts of oceanic sludge discharge.

The EPA highlighted that itself and Hunter Water had come to a negotiated timeframe for cessation of oceanic sludge discharge. Specifically, the EPA noted that Hunter Water's proposed 10-year timeframe was originally not acceptable to the EPA, but they negotiated this timeframe based on further considerations, including deliverability.

The EPA confirmed that Hunter Water had not consulted with the EPA on the bill impacts associated with different cessation timeframes and that it was unaware of the customer bill impacts that would result from Hunter Water's proposed implementation timeline.

This lack of consultation on affordability impacts is particularly relevant given Hunter Water's customer engagement did not support cessation of oceanic sludge discharge at higher costs. This suggests there may be opportunities to better align the implementation timeframe with both the EPA's environmental objectives and customer affordability considerations through project deferral.

In our opinion, Hunter Water has not sufficiently engaged with the EPA or its customers on the bill impact of cessation of ocean sludge. Specifically, in our opinion, it is incumbent upon Hunter Water to engage with the EPA on the bill impacts of investments required to comply with specific environmental regulations and

[176] Hunter Water, *Biosolids Management investment plan*, 16 June 2023, MIC2023-16-07/2.003, p 8.

customer opinions on those bill impacts, including any major investments to satisfy conditions in its EPLs. We believe that, in absence of this information, the EPA would be unable to weigh up the costs of achieving specific environmental outcomes, nor make trade-offs between the timing of competing environmental priorities.

In addition, under IPART's 3Cs framework, we believe Hunter Water has an obligation to engage with customers on all aspects of its expenditure proposal, including investment to satisfy existing and incoming EPA requirements and the associated bill impacts of compliance.

However, we understand from further discussion with Hunter Water that the Burwood Beach cessation of oceanic sludge discharge project is designed to address emerging PFAS contaminants, for which the community and stakeholders have demonstrated expectations for drinking water service providers to address. For example:

- the EPA is leading an investigation program to assess the legacy of PFAS use across NSW, including a review of PFAS guidelines;[177]
- Hunter Water has recently attended ongoing public inquiries regarding PFAS contamination in waterways and drinking water supplies in New South Wales;[178] and
- the broader community has regularly expressed concerns about PFAS.[179]

In addition, we acknowledge that our opinion above reflects a step change in how water service providers should interact with regulatory bodies to deliver outcomes in the best interests of consumers under IPART's new 3Cs framework, and would impose a retrospective standard to Hunter Water's consumer engagement. Accordingly, it would be reasonable for IPART, Hunter Water and other regulatory authorities to work through expectations of how parties should work together to understand and deliver outcomes in the best interest of consumers, ahead of the next regulatory period.

For these reasons, whilst we believe that there are deficiencies in Hunter Water's engagement with both the EPA and its customers on the bill impacts and the trade-off between affordability and environmental sustainability in relation to the project for cessation of oceanic sludge discharge at Burwood Beach, and whilst we believe it therefore remains open for IPART to consider reducing Hunter Water's allowance for environmental sustainability by up to $60 million in the 2025-30 regulatory period, we do not propose that IPART make any adjustments to Hunter Water's proposed capital expenditure for cessation of oceanic sludge discharge at Burwood Beach as part of our lower bound capital expenditure adjustment.

Relevantly, we note that our critique of this proposed expenditure and timing relies on the lack of any proper engagement on timing with customers and the EPA. If Hunter Water had engaged with its customers on this expenditure and presented the results to the EPA and the EPA in turn decided to proceed with the cessation of oceanic sludge discharge (irrespective of whether customers supported the project), then our conclusion may be different. To our mind, this reflects the role that IPART has when setting prices under the 3Cs framework to ensure that Hunter Water places customer at the centre of all expenditure decisions. Importantly, this does not mean that customer opinions will always be accepted, given important environmental, public health and other operational considerations.

We also engaged with the EPA on its biosolids review. The EPA reiterated its position that nothing has changed in its signalling to Hunter Water, which is to consider the 'best available technology' to meet long-term environmental objectives.

[177] EPA, *The NSW government PFAS investigation program*, available at: https://www.epa.nsw.gov.au/your-environment/contaminated-land/pfas-investigation-program, accessed 13 February 2025.

[178] Parliament of NSW, *Inquiry into PFAS contamination – public hearings and site visits*, Media release, 31 January 2025, p 1; Hunter Water, *A statement from Darren Cleary*, 10 February 2025, available at: https://www.hunterwater.com.au/news/a-statement-from-darren-cleary, accessed 13 February 2025.

[179] For example, see: News of the Area, *PFAS concerns spread to Medowie as inquiry hits Hunter*, 12 February 2025, available at: https://www.newsofthearea.com.au/pfas-concerns-spread-to-medowie-as-inquiry-hits-hunter, accessed 13 February 2025.

The EPA is still in the process of developing its regulatory strategy and specific biosolids requirements. The EPA highlighted that its approach is likely to draw upon the updated national guidelines, which have not yet been released.

In our assessment, it would be open to IPART to conclude that the need for $1.8 million of expenditure in 2025-30 to commence works on a centralised biosolids treatment plant is uncertain and so could be deferred to a subsequent regulatory period.

6.4.2 Burwood Beach stage 3 upgrade ($70 million)

Project overview

Hunter Water has proposed a $70 million upgrade of screening and biological systems at Burwood Beach WWTW, which represents approximately 4.5 per cent of Hunter Water's proposed capital expenditure for 2025-30. There is also a further $18 million of expenditure proposed to be incurred in the 2030-35 pricing period.[180]

The works aim to:[181]

- address Environmental Protection License (EPL) compliance for selenium;
- cater for growth; and
- resolve worker safety risks related to the existing screen house.

Burwood Beach WWTW is Hunter Water's largest wastewater treatment works and serviced an equivalent population (EP) of approximately 208,000 people in 2022. Future growth in the catchment means the plant will service an estimated 247,000 EP by 2043.[182]

The existing screening and biological systems at Burwood Beach WWTW suffer from asset condition issues and capacity constraints. Catchment growth and asset deterioration over the next few years will further increase the asset's safety and regulatory risks.[183]

Screening system

The reliable capacity of the primary pumping station is already being restricted to 4,000 litres per second (L/s), compared to its original stated capacity of 5,900 L/s, due to the condition of the screening system. This is insufficient to handle the plant's peak wet weather flows, which has resulted in regular flooding of the inlet works building and a breach of Hunter Water's EPL to keep average overflow frequency at the ocean south of Merewether Baths to one in six months, in line with the Newcastle Upgrade Management Plan.[184]

The plant has already had several flooding events due to insufficient reliable screening capacity, each of which posed worker safety risks.[185] The peak wet weather flow delivered to the Burwood Beach WWTW is expected to increase to 6,250 L/s by 2028 and 7,500 L/s by 2043, further increasing the likelihood of wet weather overflows.[186] Hunter Water notes that pumping upgrades should not be required to service the

[180] Hunter Water, *2024 pricing proposal*, September 2024, p 124.

[181] Hunter Water, *2024 pricing proposal – Attachment E: Additional detail on drivers of investment*, September 2024, p 16.

[182] Hunter Water, *Burwood Beach WWTW stage 3 upgrade*, 6 September 2022, HW 2021-1255/8.001, p 5.

[183] Hunter Water, *Burwood Beach WWTW stage 3 upgrade*, 6 September 2022, HW 2021-1255/8.001, p 2.

[184] Hunter Water, *Burwood Beach WWTW stage 3 upgrade*, 6 September 2022, HW 2021-1255/8.001, pp 5-7; EPA, *Notice of Variation of Licence No. 1683*, 4 January 2024, cl U5.1.

[185] Hunter Water, *Burwood Beach WWTW stage 3 upgrade*, 6 September 2022, HW 2021-1255/8.001, p 5.

[186] Hunter Water, *Burwood Beach WWTW stage 3 upgrade*, 6 September 2022, HW 2021-1255/8.001, p 6.

design peak instantaneous flow of 7,500 L/s and upgrading screening capacity from 5,900 L/s to 7,500 L/s will only add $1.5 million ($2022/23) in costs to the project.[187]

The poor condition of the screening system is also directly resulting in both safety risks due to manual cleaning requirements, excessive odours and flooding risks.[188]

Biological (secondary) treatment

The main problem with the existing secondary treatment process is the deteriorating condition of the activated biofiltration (ABF) tower, which already has a range of structural problems that pose safety risks to employees and will result in non-compliance with EPL conditions for:[189]

- total suspended solids (TSS) concentration by 2028 and total nitrogen load limit by 2040; and
- offensive odour emissions if taken offline, posing a safety risk to workers.

We understand from Hunter Water that the ABF tower has been taken offline and is in standby mode to address these problems. An interim solution is underway to ensure TSS compliance until 2028, but further upgrades are required.[190]

There are also problems with the ultraviolet (UV) system, which we understand will continue to worsen as growth increases. We understand from Hunter Water that improvements at the plant are required to ensure reliable compliance with performance targets identified by New South Wales Health and the EPA.

Finally, sludge discharge to the ocean currently results in non-compliance with the selenium load limit in the EPL and it is predicted that the Zinc load limit would be exceeded by 2040.[191]

Customer engagement

Hunter Water has provided limited information about specific customer engagement regarding this upgrade. While service reliability and environmental protection are generally supported by customers, there is no evidence that Hunter Water has engaged directly with customers on the cost implications of this investment.

Assessment of Burwood Beach WWTW stage 3 upgrades

In our opinion, Hunter Water has provided sufficient evidence to demonstrate that its proposed expenditures and timing for the Burwood Beach WWTW stage 3 upgrades are reasonable.

Specifically, Hunter Water has demonstrated both worker safety concerns and specific breaches of its Environmental Protection License due to the poor condition of these assets, which will continue to be exacerbated in the future as load growth continues.

In addition, we understand that Hunter Water investigated the scope for staging of its expenditures, but determined the need to complete this upgrade to free up land on its constrained Burwood Beach site for the sludge management project.

[187] Hunter Water, *Burwood Beach WWTW stage 3 upgrade*, 6 September 2022, HW 2021-1255/8.001, pp 18 and 28.
[188] Hunter Water, *Burwood Beach WWTW stage 3 upgrade*, 6 September 2022, HW 2021-1255/8.001, pp 7-10.
[189] Hunter Water, *Burwood Beach WWTW stage 3 upgrade*, 6 September 2022, HW 2021-1255/8.001, pp 6 and 10.
[190] Hunter Water, *Burwood Beach WWTW stage 3 upgrade*, 6 September 2022, HW 2021-1255/8.001, p 10.
[191] Hunter Water, *Burwood Beach WWTW stage 3 upgrade*, 6 September 2022, HW 2021-1255/8.001, p 11.

6.4.3 Morpeth WWTW ($35 million)

Project overview

Hunter Water has proposed a $35 million upgrade to Morpeth WWTW, representing 2.3 per cent of proposed capital expenditure for 2025-30. A second stage of works costing $57 million is planned for 2030-35, bringing the total project cost to $94 million.[192]

Morpeth WWTW is currently operating beyond its designed capacity of 60,000 EP by approximately 10,000 EP and operates in a high growth catchment area, with the load expected to reach 80,000 EP by 2030 (15 per cent growth). This overloading creates a more significant risk of non-compliance with the EPL load limits.[193]

Hunter Water has undertaken two upgrades to temporarily increase the plant's operating capacity until 2025 (stage 2 and stage 3 upgrades completed in 2017 and 2020 respectively),[194] but indicates that a permanent solution is now required to provide additional treatment capacity and maintain compliance.

Hunter Water states the plant 'requires a major upgrade' to ensure compliance with EPL load limits, cater for growth in the Thornton, Chisholm and East Maitland region and ensure their processes protect the natural environment. The project involves upgrading existing inlet works and constructing a biological nutrient removal (BNR) bioreactor.[195]

In its original business case, Hunter Water's preferred option for the upgrade was a two-stage upgrade, ie:[196]

- stage 4 was to be commissioned in 2026 to provide capacity to service 2035 loads; and
- stage 5 was to be commissioned in 2035 to provide capacity to service 2050 loads.

Stage 4 includes construction of an elevated grit chamber, fine screens, a flow divider, an additional biological nutrient removal (BNR) bioreactor, ferric chloride dosing system, sodium hydroxide dosing system and Actiflow system.[197]

Hunter Water advises it is currently preparing a Revised Business Case for the Morpeth Stage 4 upgrade, including for interim control and optimisation works to enable management of performance and risks for two additional years of project deferral.[198]

Hunter Water notes that the performance of the Morpeth WWTW will continue to require careful monitoring to manage EPL compliance risks and other requirements, and that its interim solutions may not be sufficient to reliably manage the growth and environmental risks, requiring Hunter Water to bring forward the investment.[199]

[192] Hunter Water, *2024 pricing proposal*, September 2024, pp 100, 112 and 124.

[193] Hunter Water, *2024 pricing proposal*, September 2024, p 100; Hunter Water, *2024 pricing proposal – Attachment E: Additional detail on drivers of investment*, September 2024, p 16.

[194] Hunter Water, *Morpeth WWTW Stage 4 Upgrade*, 24 January 2022, HW2021-767/8.004, pp 4-5.

[195] Hunter Water, *2024 pricing proposal*, September 2024, pp 100 and 124; Hunter Water, *2024 pricing proposal – Attachment E: Additional detail on drivers of investment*, September 2024, p 16.

[196] Hunter Water, *Morpeth WWTW Stage 4 Upgrade*, 24 January 2022, HW2021-767/8.004, pp 2 and 9.

[197] Hunter Water, *Morpeth WWTW Stage 4 Upgrade*, 24 January 2022, HW2021-767/8.004, p 9.

[198] Hunter Water, *Morpeth WWTW Upgrade – Capital project summary*, 22 November 2024, HW2021-1219/10/1.005, p 1; Hunter Water, *2024 pricing proposal*, September 2024, p 100.

[199] Hunter Water, *2024 pricing proposal*, September 2024, p 100.

Customer engagement

Hunter Water has provided limited information about specific customer engagement regarding this upgrade. While environmental protection is generally supported by customers, there is no clear evidence of engagement about the cost implications of this investment.

Assessment of Morpeth WWTW

Hunter Water has provided compliance data demonstrating current EPL load limit exceedances at Morpeth WWTW. This evidence, combined with projected growth in the catchment, establishes a clear need for investment in the plant's capacity and treatment capability.

In addition, Hunter Water has staged the project to provide capacity to service demand as it increases, allowing it to defer expenditure on the stage 5 upgrades until the 2030-35 pricing period.

Accordingly, in our opinion, Hunter Water's proposed expenditure on the Morpeth WWTW appears to be reasonable.

6.5 Reliable water services

Hunter Water plans to invest $298 million in reliable water services during 2025-30, focusing on maintaining consistent supply and adequate water pressure for both existing and new customers.[200]

We understand from Hunter Water that of this expenditure, approximately $104 million reflects an increase to business as usual expenditure, ie:

- $56 million to replace the next section of the Chichester Trunk Gravity Main (CTGM) to ensure customers continue to receive supply;
- $30 million for addressing Community Panel recommendations to improve water pressure and resolve wet weather overflows and odours for customers who experience them; and
- $18 million increase in the trunk mains program, principally to address repeat failures, condition vulnerability or customer supply continuity.

We have reviewed the evidence base to support Hunter Water's increased investment in the trunk mains program and in our opinion, this investment appears to be reasonable. We assess the other two investments in the remainder of this section.

The remaining $194 million appears to be reasonable, on the basis that our assessment of Hunter Water's proposed capital expenditure envelope for 2025-30 excluding the Belmont desalination plant appears to be reasonable.

6.5.1 Chichester trunk gravity main replacement ($56 million)

Project overview

Hunter Water has proposed expenditure of $56 million in 2025-30 and $63 million in 2030-35 to replace a 12km section of the Chichester Trunk Gravity Main (CTGM) between Brookfield Tunnel and Burmi Creek. This investment represents 3.5 per cent of Hunter Water's proposed capital expenditure for 2025-30. This represents a total project cost of $121 million between 2020 and 2040.[201]

[200] Hunter Water, *2024 pricing proposal*, September 2024, p 111.

[201] Hunter Water, *2024 pricing proposal*, September 2024, p 124.

The CTGM was built in 1923, delivers up to 90 ML/day of water supply to approximately 60,000 customers and supplies around 40 per cent of Hunter Water's average daily water demand. Most of the pipeline has been progressively replaced, but the remaining section is heavily corroded with misaligned joints.[202]

The remaining section of the pipeline has been repaired extensively over time using welds, which stop leaks but also increase the stiffness of the pipeline, increasing the probability of leaks in other locations and the risks and consequences of catastrophic failure.[203]

We understand from Hunter Water that continual monitoring and maintenance have allowed the main to continue operating, but continual degradation of the main is increasing the risk of a large failure, necessitating pipeline replacement. We also understand from Hunter Water that failure of the CTGM could result in it breaching its Operating Licence in one event, due to the number of people affected by water supply interruptions.

Hunter Water considered rehabilitation and relining options during planning but determined that a full replacement is required due to site and operational limitations.[204]

We have reviewed evidence that Hunter Water has undertaken an options analysis for the replacement and that the preferred option has a different route to reduce project costs and environmental impacts.

The replacement has been planned in two stages, with the most vulnerable section to be replaced in 2025-30 and the remaining section planned for 2030-35. Hunter Water plans to manage risks to the community for the remaining section through close and regular monitoring.[205]

Customer engagement

We understand from Hunter Water that its customers are willing to accept occasional planned and unplanned outages, provided they are rectified quickly. A catastrophic failure of the CTGM would not be able to be quickly fixed and so would breach customer expectations of reliable drinking water.

However, Hunter Water has not provided evidence that it has posed the cost implications of this investment to its customers.

Assessment of the CTGM

Hunter Water has proposed a total cost for the 12km CTGM replacement of $121 million over several pricing periods. This is the last section of the CTGM to be replaced. This works out at approximately $10 million per kilometre.

The most comparable replacement in the last ten years was the Duckenfeld to Tarro section of the CTGM, which was eight kilometres of pipeline replaced from 2018 to 2021 at $56.7 million in $2024-25. The cost per kilometre of this project was $7 million, or $3 million per kilometre lower than that of the upcoming pricing period.[206]

We understand from Hunter Water that the preferred option for replacing the remaining section avoids the Columbey National Park, which the CTGM currently runs through. This increases the cost of the project, but increases the project's feasibility and reduces its environmental sustainability.

[202] Hunter Water, *2024 pricing proposal*, September 2024, p 99; Hunter Water, *2024 pricing proposal – Attachment E: Additional detail on drivers of investment*, September 2024, p 11.

[203] Hunter Water, *2024 pricing proposal*, September 2024, p 99.

[204] Hunter Water, *2024 pricing proposal – Attachment E: Additional detail on drivers of investment,* September 2024, p 9.

[205] Hunter Water, *2024 pricing proposal*, September 2024, pp 99 and 124.

[206] Hunter Water, *Annual Report 2021,* 2021, p 18; Harwin, D, *Pipeline replacement to secure Lower Hunter's Water Supply,* October 2018, Accessed at: https://www.hunterwater.com.au/documents/assets/src/uploads/documents/Media-Releases/2018/Minister-Harwin-Media-Release---Pipeline-replacement-to-secure-the-Lower-Hunters-water-supply-(WEB).pdf, viewed 16 December 2024.

We also understand from Hunter Water that parts of this segment of the pipeline are difficult to access, which historically reduced the safety risk to the community, but is likely to add further costs.

In addition, it is widely understood that construction costs have escalated by more than CPI. For example, output of building construction prices increased by:[207]

- 5.9 per cent in the year up to September 2024, compared to 2.8 per cent CPI inflation;
- 5.1 per cent in the year up to September 2023, compared to 3.5 per cent CPI inflation; and
- 12.8 per cent in the year up to September 2022, compared to 7.3 per cent CPI inflation.

As such, although the cost per kilometre has increased by $3 million or 43 per cent in real terms, the proposed cost increase appears to be justifiable given the current construction market and difficult conditions for accessing the pipeline.

In addition, Hunter Water has efficiently staged the project to manage the risks of catastrophic pipeline failure, deferring the section which it has a greater ability to monitor and undertake maintenance on.

Accordingly, in our opinion, Hunter Water's proposed cost of replacing the CTGM appears to be reasonable.

6.5.2 Community panel recommendations

Hunter Water proposes to invest $30 million during 2025-30 to address service issues identified through their Community Panel process. This includes:[208]

- $18 million to improve water pressure for customers who repeatedly experience service problems; and
- $12 million to resolve wet weather overflows and odours for repeatedly affected customers.

Hunter Water engaged extensively with its community panel to understand customer priorities regarding service reliability. A key recommendation from the panel centred on achieving equity of service delivery across all customers. The panel emphasised that while occasional service disruptions are acceptable, persistent issues affecting the same customers repeatedly are not equitable when all customers pay the same rates.[209]

The investment program aligns with the community panel's core recommendation that 'equity of care and service for all customers is important' and that 'Hunter Water should fix as many repeat service issues as possible'.[210] This represents a strategic shift from reactive maintenance to proactively addressing persistent service issues.

To ensure accountability, Hunter Water will:[211]

- track and report progress through its customer report card;
- provide rebates to affected customers if issues cannot be resolved;
- establish a Community Committee to monitor progress; and
- report annually on the number of customers removed from the repeat service issue register.

[207] ABS, *Producer Price Indexes, Australia,* November 2024, available at: https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/producer-price-indexes-australia/latest-release#construction, viewed 18 December 2024; ABS, *Consumer Price Index, Australia,* October 2024, available at: https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/producer-price-indexes-australia/latest-release#construction, viewed 18 December 2024.

[208] Hunter Water, *2024 pricing proposal*, September 2024, p 113.

[209] Hunter Water, *2024 pricing proposal*, September 2024, p 45.

[210] Hunter Water, *2024 pricing proposal*, September 2024, p 65.

[211] Hunter Water, *2024 Pricing Proposal,* September 2024, pp 62 and 72.

In our opinion, Hunter Water has appropriately engaged with customers to understand the needs of the community. Its proposed investment projects accordingly address these needs.

6.6 Safety, health and wellbeing

Hunter Water proposes $159 million in expenditure to ensure community and worker safety, including:[212]

- $36 million to renew its stormwater assets to maintain their integrity;
- $35 million to commence upgrade works at Grahamstown and Chichester dams to address dam safety risks;
- $28 million to address other worker safety issues;
- $21 million to address unsafe levels of hydrogen sulphide at Belmont wastewater treatment works;
- $12 million to reduce community risks from potential breaks and flooding of large pipes;
- $11 million to progressively remove asbestos from its assets;
- $11 million to reduce worker safety risks when accessing confined spaces; and
- $4 million to renew assets at its dams and catchments.

Given the large effect of the proposed critical dam safety upgrades on customer bills in 2030-35, we review Hunter Water's proposed critical dam safety upgrades investment in this section.

We are confident that the remaining $124 million is reasonable given that Hunter Water's proposed capital expenditure envelope for 2025-30 excluding the Belmont desalination plant is consistent with expenditures in previous regulatory periods. In forming this view, we have also considered Hunter Water's asset management processes and investment governance arrangements.

6.6.1 Commencing critical dam safety upgrades ($35 million)

Project overview

Grahamstown dam is Hunter Water's largest dam, supplying over 50 per cent of the region's water needs and has been in operation since 1961.[213] Chichester dam contributes around 35 per cent of the region's drinking water supply and was constructed between 1915 and 1926.[214]

Hunter Water has proposed capital expenditure for safety upgrades at both Grahamstown and Chichester dams during 2025-30. This includes $20 million for preliminary works at Grahamstown dam and $15 million at Chichester dam, representing 2.3 per cent of its proposed capital expenditure for this period.[215] These preparatory works are part of larger programs. The total program cost is estimated at $450 million for Grahamstown dam (to be delivered in stages by 2040) and $195 million for Chichester dam (to be delivered by 2035).[216]

The proposed expenditure for the 2025-30 regulatory period concerns planning and preparatory activities for the commencement of safety upgrades in the subsequent regulatory period. This involves field investigations and design work for the structural improvements required to bring risks within dam safety guidelines.[217] From discussions with Hunter Water we understand that dam safety upgrades of this scale may take up to 10 years to complete, and so vigorous planning will validate the scale and complexity of the required upgrades.

[212] Hunter Water, *2024 pricing proposal*, September 2024, p 113.
[213] AECOM, *Grahamstown dam Comprehensive Risk Assessment Report,* June 2024, p.8.
[214] Hunter Water, *Chichester dam Safety Review Fact Sheet,* August 2023.
[215] Hunter Water, *2024 pricing proposal*, September 2024, pp 113 and 124.
[216] Hunter Water, *2024 pricing proposal*, September 2024, pp 124.
[217] Hunter Water, *2024 pricing proposal*, September 2024, pp 127.

The need for critical dam safety upgrades

The Grahamstown and Chichester dams are 'declared dams' under the *Dams Safety Act 2015 (New South Wales)*.[218] Under the *Dams Safety Regulation 2019 (New South Wales)*, Hunter Water must maintain a range of documents, including a risk report that, at least once every five years, assesses and sets out:[219]

- the societal risk rating of the dam, which is calculated by multiplying the estimated probability of dam failure in a given year by the estimated number of deaths the dam failure would cause;
- the highest individual risk rating of the dam, which is the increase in risk to the life of a person because of the dam; and
- an explanation as to any assumptions made in making these calculations.

If the societal or highest individual risk rating for a dam is higher than the annual safety threshold, Hunter Water must forward a copy of the risk report to Dams Safety New South Wales. The annual safety thresholds are:[220]

- 0.001 for societal risk for an existing dam; and
- 0.0001 for individual risk for an existing or proposed dam.

If either of these ratings are above the safety threshold, Dams Safety New South Wales may direct Hunter Water to take one or more specific steps within a specified time to ensure that the rating is reduced to the safety threshold or lower.[221]

Grahamstown dam

Hunter Water commissioned AECOM to complete a comprehensive risk assessment of the Grahamstown dam, which was completed in June 2024.[222] The report found that Grahamstown dam operates within the Dams Safety New South Wales safety threshold in normal and flood conditions but exceeds the safety threshold in earthquake events.[223]

AECOM identified 16 failure modes associated with the Grahamstown dam and determined that the cumulative likelihoods and consequences of these events give rise to a 'societal risk' that exceeds the regulatory safety threshold.[224] We also understand that 'societal risk' only entails the risk of loss of life,[225] and does not account for non-fatality risks such as water security or environmental risks.

Specifically, AECOM calculated annual risk ratings at the Grahamstown dam of:[226]

- 0.0175 for societal risk, which exceeds Dam Safety New South Wales's safety threshold of 0.001; and
- 0.000054 for individual risk, which is lower than Dams Safety New South Wales's safety threshold of 0.0001 – AECOM notes that these calculations may be underestimated and should be recalculated with dam break modelling more specific to particular failure modes.

[218] *Dams Safety Act 2015 (New South Wales)*, ss 4(1) and 5; Dams Safety New South Wales, *List of declared dams in New South Wales*, 22 November 2024, available at: https://www.damsafety.nsw.gov.au/publications/list-of-declared-dams-in-nsw, accessed 27 November 2024.

[219] *Dams Safety Regulation 2019 (New South Wales)*, cl 15; Dams Safety New South Wales, *Reporting*, available at: https://www.damsafety.nsw.gov.au/reporting, accessed 27 November 2024.

[220] *Dams Safety Regulation 2019 (New South Wales)*, cl 15(4).

[221] *Dams Safety Regulation 2019 (New South Wales)*, cls 15(5)-15(6).

[222] AECOM, *Grahamstown dam Comprehensive Risk Assessment Report,* June 2024.

[223] AECOM, *Grahamstown dam risk assessment summary report*, June 2024, p 13.

[224] AECOM, *Grahamstown dam risk assessment summary report*, June 2024, p 12.

[225] Dams Safety New South Wales, *Reporting*, https://www.damsafety.nsw.gov.au/reporting, accessed on 12 December 2024.

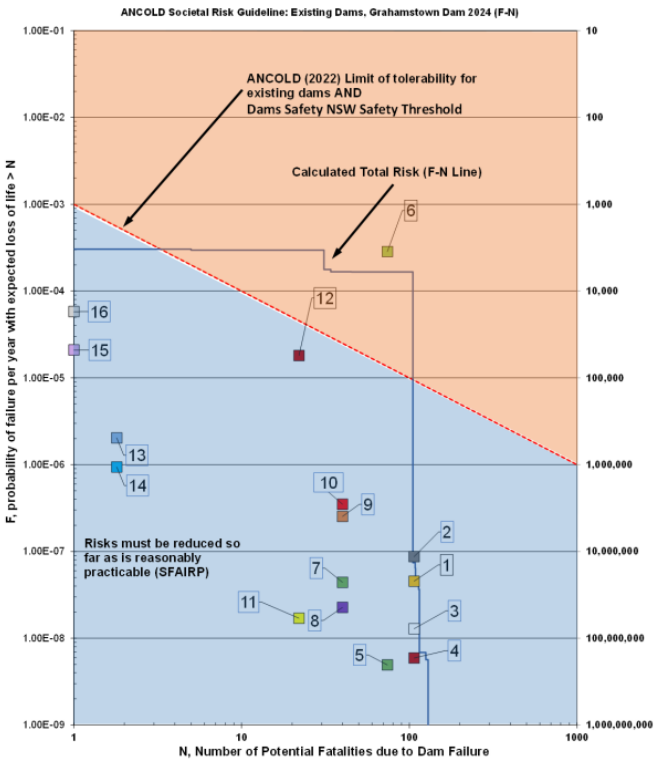
[226] AECOM, *Grahamstown dam Comprehensive Risk Assessment Report,* June 2024, pp 136 and 144.

Figure 6.2 below, drawn from the AECOM report, describes the probability of a dam failure event that would cause a particular number of fatalities. The dotted red line represents the acceptable safety threshold while the blue line depicts the calculated cumulative risk of all identified failure modes for the Grahamstown dam.[227] Therefore, the risk threshold and calculated risk consider both the consequences and the likelihood of failure.

It follows that the risk of a dam failure is too high if the blue line lies above the red line. Risks above this threshold are 'considered unacceptable and require risk reduction measures to be implemented to reduce the probability of failure and/or consequences to the downstream community.'[228]

For example, consider an event that would yield 10 fatalities. Safety regulations dictate that the probability of such an event should not exceed approximately one in 10,000 (as shown by the red line). However, the actual probability of such an event is in the region of one in 8,000 (as shown by the blue line), meaning that urgent action is required.

Figure 6.2: Societal risk of failure at Grahamstown dam



Source: AECOM, Grahamstown dam risk assessment summary report, June 2024, p 12.

The most significant risk facing the Grahamstown dam is the potential for an earthquake. AECOM found that during an earthquake, the foundations of the dam embankments could become destabilised through a process of liquefaction, leading to erosion and eventual failure of the embankment, ie:[229]

> Liquefaction can occur when wet, sandy sediments temporarily behave like quicksand during the shaking motion of an earthquake. This process could destabilise the sand shoulders of the

[227] AECOM, *Grahamstown dam risk assessment summary report*, June 2024, p 12.

[228] AECOM, *Grahamstown dam risk assessment summary report*, June 2024, p 12.

[229] Hunter Water, *Grahamstown dam risk assessment factsheet*, July 2024, pp 1-2.

embankments, impacting the clay core and lead to the erosion and eventual failure of the embankment.

Of the three embankments at the Grahamstown dam, the Main Embankment is the most vulnerable. An earthquake could cause the Main Embankment to fail and release water to lower-lying areas, presenting a risk to people and property.[230]

Hunter Water is already operating Grahamstown dam at a lower maximum capacity of 82 per cent, to mitigate the community safety risk in the event of an earthquake. This has reduced Hunter Water's total system capacity to 88 per cent.[231] Further assessments and studies have been recommended to reduce key uncertainties, which will inform the risk reduction methods.[232]

Chichester dam

Hunter Water commissioned GHD to undertake a risk assessment of the Chichester dam, which was completed in August 2023.[233] GHD found that although the dam remains safe for day-to-day operations, the advancement of dam technology, climate change, the risk of extreme weather events and the thoroughness of future risk assessment indicates that action will be needed to ensure the dam's continual safe operation.[234]

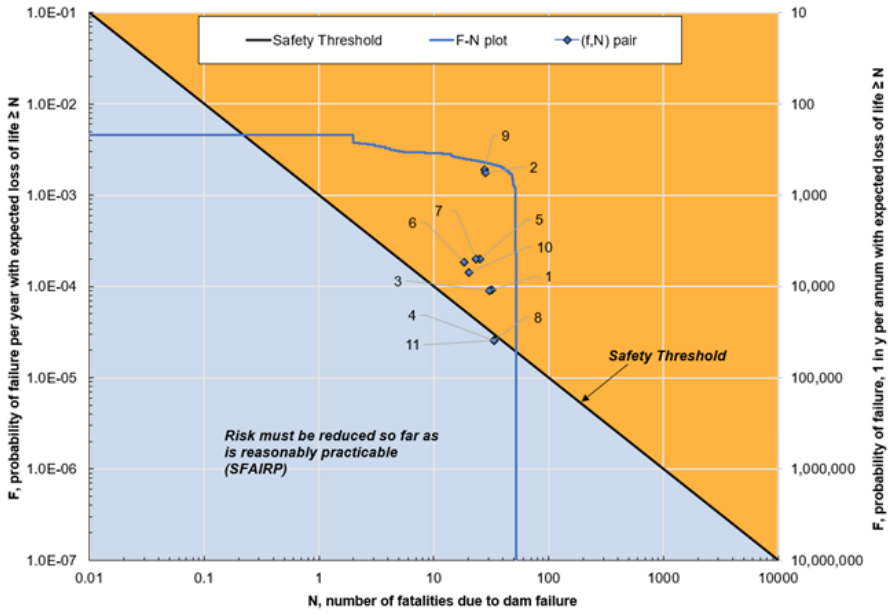
GHD identified 11 failure modes that create an aggregate risk level that exceeds the safety threshold. The worst-case loss of life figures range from two to 60 people, depending on the timing of the dam failure.[235] We understand that proposed capital expenditure on Chichester dam is driven primarily by flood risk as opposed to earthquake risk, for example through:[236]

- prolonged high rainfall over months or years leading to a reactivation of a historical landslide area (one in 10,000 annual probability); and
- seven flooding scenarios (with one in 500 being the highest annual probability).

Figure 6.3 below summarises the outcome of the risk assessment. As with the Grahamstown dam, there are a number of failure scenarios that exceed the acceptable risk threshold.

[230] Hunter Water, *Grahamstown dam risk assessment factsheet,* July 2024, pp 1-2.
[231] Hunter Water, *2024 pricing proposal – Attachment D: The Lower Hunter Water Security Plan*, September 2024, p 9.
[232] AECOM, *Grahamstown dam Comprehensive Risk Assessment Report,* June 2024, p.144.
[233] GHD, *Chichester dam risk assessment report*, August 2023, p 1.
[234] Hunter Water, *Chichester dam safety review fact sheet,* August 2023, p 1.
[235] GHD, *Chichester dam risk assessment summary report*, December 2023, pp 4-6.
[236] Hunter Water, *Chichester dam safety review fact sheet,* August 2023, pp 2-3.

Figure 6.3: Societal risk of failure at Chichester dam



Source: GHD, Chichester dam risk assessment summary report, December 2023, p 5.

GHD calculated annual risk ratings at the Grahamstown dam of:[237]

- 0.0027 for individual risk, which exceeds the Dam Safety New South Wales safety threshold of 0.0001; and
- 0.126 for societal risk, which exceeds the Dam Safety New South Wales safety threshold of 0.001.

Hunter Water has begun investigation, planning and design works to address the risks identified in the GHD report.[238] We understand from Hunter Water that several maintenance have been or are being completed to improve the stability of the wall whilst planning

Customer engagement

Hunter Water has provided limited information about specific customer engagement regarding these dam safety works. Although we understand that public safety is a fundamental expectation, Hunter Water should, at minimum, inform customers of the long-term cost implications of these investments.

In particular, Hunter Water does not appear to have posed the bill impact implications of these large dam safety projects in its long-term capital expenditure plan.

In our opinion, Hunter Water should have put to customers the cost impacts of the dam safety upgrades in the 2030-35 period when consulting on its proposed capital program for the 2025-30 regulatory period, and specifically the Belmont desalination plant. This would have enabled customers to make a more accurate assessment of their water bill trajectory over the 10-year horizon, thereby allowing a more informed assessment of opportunities to trade off expenditure and risk.

[237] GHD, *Chichester dam risk assessment report*, August 2023, pp 43 and 47.

[238] Hunter Water, *Chichester dam safety review fact sheet,* August 2023.

Our assessment of critical dam safety investments

The drivers of these projects are the dams exceeding the safety threshold set by Dam Safety New South Wales, ie:

- for the Grahamstown dam, the risk of an earthquake that exceeds the societal risk safety threshold; and
- for the Chichester dam, the risk of flood events that exceeds the individual and societal risk safety thresholds.

Under the Dams Safety Regulation, Hunter Water is required to, so far as reasonably practicable, ensure the risks associated with its dams are reduced or eliminated, ie:[239]

> The dam safety management system must be designed to be used by the owner of the dam as the primary means of ensuring, **so far as is reasonably practicable**, the safety of persons, property and the environment is not put at risk from the dam. [emphasis added]
>
> …
>
> The risk treatment process must identify risk reduction measures that are to be implemented to eliminate or reduce risks, **but only in so far as is reasonably practicable**. [emphasis added]

Following our discussions with Hunter Water, in our opinion the dam safety projects are needed to meet an explicit external regulatory requirement. Hunter Water's proposed expenditure on planning and preparatory works on dam safety upgrades in the 2025-30 regulatory period is therefore reasonable for the purposes of achieving efficient and reasonable expenditure on safety upgrades in the subsequent regulatory period.

Importantly, for the avoidance of doubt, this conclusion contrasts with our conclusion on the Burwood Beach sludge management project, because the EPA has committed to working with Hunter Water on the cessation of oceanic discharge and has not directed Hunter Water to take any specific actions within a given timeframe.

Put another way, we understand that Hunter Water does not currently have a specific date by which it must cease oceanic sludge discharge to address in part high levels of selenium discharge from Burwood Beach. Accordingly, there is a greater opportunity for Hunter Water to engage with the EPA on customer bill impacts, to allow the EPA to make an informed trade off decision on the environmental impact against the cost impact on consumers for a proposed environmental obligation placed on Hunter Water.

We understand from discussions with Hunter Water that its proposed allowances of $20 million and $15 million for the Grahamstown dam and Chichester dam safety projects respectively are for preparatory works, particularly related to planning and design. The total program cost is estimated at $450 million for Grahamstown dam (to be delivered in stages by 2040) and $195 million for Chichester dam (to be delivered by 2035).[240]

In our opinion, a planning budget of less than 5 per cent of expected total project expenditure for Grahamstown dam and less than 10 per cent of expected total project expenditure for Chichester dam, appears to be reasonable for dam safety projects of this magnitude. Accordingly, in our opinion, Hunter Water's proposed expenditure for dam safety projects in 2025-30 appears to be reasonable.

[239] *Dams Safety Regulation 2019 (New South Wales)*, cls 12(2) and 14(6).

[240] Hunter Water, *2024 pricing proposal*, September 2024, pp 124.

6.7 High quality water services – clean, safe water

Hunter Water proposes to spend $147 million to sustain the quality of drinking water, which is principally comprised of $106 million in upgrades at the Grahamstown Water Treatment Plant (WTP).[241] We assess the Grahamstown WTP in the remainder of this section.

In addition, Hunter Water proposes:[242]

- $23 million to renew assets at its water treatment plants;
- $9 million for better management of its water catchments to protect the quality of source water; and
- $6 million for water network upgrades, including disinfection improvements and reservoir integrity refurbishments to prevent vermin ingress.

Hunter Water's customers have indicated that clean, safe drinking water is their number one priority for Hunter Water.[243] In addition, Hunter Water is required to maintain a Drinking Water Quality Management system consistent with Australian Drinking Water Guidelines and implement this system to the satisfaction of New South Wales Health.[244]

As such, the remaining expenditure appears to be reasonable, on the basis that our assessment of Hunter Water's proposed capital expenditure envelope for 2025-30 excluding the Belmont desalination plant appears to be reasonable.

6.7.1 Grahamstown WTP ($106 million)

Project overview

Hunter Water has proposed $106 million in the 2025-30 regulatory period for upgrades to the Grahamstown WTP, which has a capacity of around 250 million litres per day and provides 60 per cent of the region's drinking water.[245] Hunter Water has proposed a further $60 million in the 2030-35 regulatory period for the removal of algal solids at the Grahamstown WTP, which it deferred from the upcoming regulatory period.[246]

The Grahamstown WTP currently supplies 60 per cent of the region's drinking water and is over 50 years old. Upgrades to the Grahamstown WTP are required to ensure safe supply of drinking water and reduce a range of risk events, including the potential for widespread illness and supply shortfalls due to operating restrictions/outages.[247]

There are three principal investments driving the Grahamstown WTP expenditure in the 2025-30 regulatory period, in addition to a range of minor works, ie:

- a new clear water tank (CWT) and refurbishment of the existing CWT at Grahamstown WTP;[248]
- upgrades to the Tomago 1 water pump station (WPS) manifolds;[249] and
- stage 2 filters upgrades at Grahamstown WTP.[250]

[241] Hunter Water, *2024 pricing proposal*, September 2024, p 114.
[242] Hunter Water, *2024 pricing proposal*, September 2024, p 114.
[243] Hunter Water, *2024 pricing proposal*, September 2024, pp 12 and 66.
[244] Hunter Water, *2024 pricing proposal*, September 2024, p 89.
[245] Hunter Water, *2024 pricing proposal*, September 2024, p 114.
[246] Hunter Water, *2024 pricing proposal*, September 2024, p 102.
[247] Hunter Water, *Grahamstown WTP CWT & WPS Upgrade*, 3 October 2023, HW 2021-1219/8.005, p 5.
[248] Hunter Water, *Grahamstown WTP CWT & WPS Upgrade*, 3 October 2023, HW 2021-1219/8.005.
[249] Hunter Water, *Grahamstown WTP CWT & WPS Upgrade*, 3 October 2023, HW 2021-1219/8.005.
[250] Hunter Water, *Grahamstown WTP Stage 2 filters upgrade*, 4 November 2024, MIC2024-11-06/2.002.

Works on the Grahamstown WTP CWT ($43.2 million)

The 14.6 ML CWT at Grahamstown WTP is critical for monitoring and controlling water standards. It provides buffering to treated water flows and contact time for primary chlorine disinfection to occur.[251]

The current CWT is unable to meet New South Wales Health recommended chlorine disinfection requirements under worst-case conditions due to the small size of the CWT relative to the WTP capacity, the low length-to-width ratio and the lack of internal baffling to prevent short circuiting. Hunter Water has investigated refurbishing the existing CWT to increase chlorine contact time, but structural risks, tank geometry and a lack of redundancy means the existing CWT cannot be retrofitted to meet the required performance without adding additional tank volume.[252]

Hunter Water has identified two key risks due to the current configuration of the CWT, ie:[253]

- WTP chlorination disinfection processes are compromised due to insufficient contact time, resulting in the potential for widespread illness for a large population; and
- raw water quality and source conditions leading to an algal event in Grahamstown dam resulting in a material reduction in treatment capacity and leading to a supply-demand shortfall.

To mitigate these risks and provide redundancy, amongst other investments, Hunter Water proposes to increase its disinfection capacity by:[254]

- adding a new CWT capable of treating 180 ML/d ($28.7 million); and
- refurbishing its existing CWT (following commissioning of the new CWT), to provide disinfection capacity of 180 ML/d) ($14.5 million).

This represents a significant uplift in its current maximum disinfection capacity of 160 ML/d (if Hunter Water implemented operational changes). Hunter Water notes that the reliable capacity of the WTP upstream of the CWT is approximately 260 ML/d and additional investments in upstream processes would be required to realise a 360 ML/d total WTP production capacity.[255]

Tomago 1 WPS manifolds upgrades ($31.3 million)

The existing CWT supplies treated water to Tomago 1 WPS via a single feed pipeline, meaning there is no redundancy and a failure of this asset would result in supply from Grahamstown WTP being unavailable. This pipeline connects to the seven pumps at Tomago 1 WPS through a complicated arrangement of multiple suction manifolds.[256]

Hunter Water's ability to assess the pipeline and manifolds' condition is significantly limited as the asset is buried, parts of the asset are covered with an asbestos wrapping and it is not possible to isolate the asset for a long enough period given that there is no alternate supply. The lack of redundancy to take the pipeline offline for a thorough condition assessment means that there is some uncertainty regarding the likelihood of a major failure, or whether minor failures (leaks) already exist.[257]

Hunter Water has identified that the CWT to Tomago 1 WPS pipeline and the Tomago 1 WPS suction and delivery manifolds are operationally critical assets and have reached 75 per cent of their design life. Hunter Water estimates possible response times for a major failure of the pipeline or manifolds to be at least 3 days

[251] Hunter Water, *Grahamstown WTP CWT & WPS Upgrade*, 3 October 2023, HW 2021-1219/8.005, p 5.
[252] Hunter Water, *Grahamstown WTP CWT & WPS Upgrade*, 3 October 2023, HW 2021-1219/8.005, p 5.
[253] Hunter Water, *Grahamstown WTP CWT & WPS Upgrade*, 3 October 2023, HW 2021-1219/8.005, p 5.
[254] Hunter Water, *Grahamstown WTP CWT & WPS Upgrade*, 3 October 2023, HW 2021-1219/8.005, p 5.
[255] Hunter Water, *Grahamstown WTP CWT & WPS Upgrade*, 3 October 2023, HW 2021-1219/8.005, p 5.
[256] Hunter Water, *Grahamstown WTP CWT & WPS Upgrade*, 3 October 2023, HW 2021-1219/8.005, p 6.
[257] Hunter Water, *Grahamstown WTP CWT & WPS Upgrade*, 3 October 2023, HW 2021-1219/8.005, p 6.

due to the complex nature of the manifold arrangements and the ground conditions (high water table and sandy soils).[258]

A significant failure to the Tomago 1 WPS for three days would cause a supply shortfall with critical consequence during peak demand periods, or major consequence during average demand periods. Specifically, greater than 40,000 customers would be impacted with low pressure after 24 hours and Elemore Vale 1 and 2 Reservoirs would empty after 18 hours of failure.[259]

Hunter Water proposes to address the risk of the current assets and the lack of redundancy in the system by constructing a new 180 ML/d WPS to supplement Tomago 1 WPS, allowing it to be taken offline during low demand periods to replace the existing manifolds and supply pipeline.[260]

Stage 2 filter upgrades ($27.6 million)

The Grahamstown WTP has a two-stage filter process that operates in parallel. In 2019, a condition assessment of the Stage 1 and Stage 2 filters was conducted. Whilst the Stage 1 filters were shown to be in reasonable condition, the Stage 2 filters were found to be generally in poor condition and requiring refurbishment.[261]

In particular, Hunter Water finds that:[262]

- a failure of one or more filters has the potential to significantly affect water quantity and quality supplied to its customers; and
- without intervention, in line with the observed condition of the filters, a failure is likely to occur in the near future as continued deterioration occurs due to limitations in the filter design and as the installed equipment reaches its end of life.

Stage 2 filter upgrades will reduce the risk of pathogens entering the drinking water supply and reduce the current public health risk from medium to low (ALARP) until at least 2050.[263]

We note that Hunter Water has re-assessed the likely cost of the Stage 2 filter upgrades since its pricing proposal and increased its estimate of 2025-30 costs from $27.6 million to $32.3 million (increase of $4.7 million or 17 per cent) due to real cost escalations and contingent risk application. Hunter Water proposes to absorb increased costs within the portfolio with no changes to its proposed expenditure.[264]

Customer engagement

Hunter Water indicates that clean, safe water is a fundamental customer expectation.[265] In addition, Hunter Water is required to maintain a Drinking Water Quality Management system consistent with Australian Drinking Water Guidelines and implement this system to the satisfaction of New South Wales Health.[266]

However, Hunter Water has provided limited information about specific customer engagement regarding this upgrade and there is no clear evidence of engagement about the cost implications of this investment.

[258] Hunter Water, *Grahamstown WTP CWT & WPS Upgrade*, 3 October 2023, HW 2021-1219/8.005, p 6.
[259] Hunter Water, *Grahamstown WTP CWT & WPS Upgrade*, 3 October 2023, HW 2021-1219/8.005, pp 5-6.
[260] Hunter Water, *Grahamstown WTP CWT & WPS Upgrade*, 3 October 2023, HW 2021-1219/8.005, p 6.
[261] Hunter Water, *Grahamstown WTP Stage 2 filters upgrade*, 4 November 2024, MIC2024-11-06/2.002, p 4.
[262] Hunter Water, *Grahamstown WTP Stage 2 filters upgrade*, 4 November 2024, MIC2024-11-06/2.002, pp 4-5.
[263] Hunter Water, *Grahamstown WTP Stage 2 Filter Refurbishment,* 5 November 2024, HW2021-1219/8.009, p 2.
[264] Hunter Water, *Grahamstown WTP Stage 2 Filter Refurbishment – capital project summary,* n.d., HW2021-1219/8.008, p 1.
[265] Hunter Water, *2024 pricing proposal*, September 2024, p 89.
[266] Hunter Water, *2024 pricing proposal*, September 2024, p 89.

Our assessment of prudency and efficiency

In our opinion, Hunter Water has provided sufficient evidence to support the need for the Grahamstown WTP investments, which centre on ensuring clean, safe drinking water and the reliable supply of water.

The drivers of these investments are poor asset condition, which increases the risks of non-provision of clean and safe water and critical shortfalls in the event of a failure. As part of our assessment, we have reviewed significant evidence of poor asset condition. This evidence establishes a clear need for investments to upgrade the Grahamstown WTP.

In addition, we acknowledge that Hunter Water has deferred $60 million in investment to the 2030-35 regulatory period for the removal of algal solids at the Grahamstown WTP, prioritising more urgent works.

6.8 Other capital expenditure

The remaining capital expenditure is shared across the following outcomes:[267]

- $61 million for 'business enabling', including:
  - $36 million for digital applications and infrastructure;
  - $10 million for customer meters;
  - $9 million for land and property management; and
  - $6 million for cybersecurity improvements;
- $29 million for 'value for money and affordability' including:
  - $15 million for onsite generation of renewable energy;
  - $7 million for asset and control systems changes for optimal energy use; and
  - $7 million for modernising digital services;
- $3 million for 'great customer service'; and
- a $41 million deduction for investment efficiency (see section 6.10).

Business enabling refers to improvements to digital technology and workplace equipment to ensure business continuity.[268]

A significant proportion of this capital expenditure will go towards digital applications, ensuring the maintenance of business operations infrastructure, allowing the digital network to operate and provisions, maintaining end-user devices and systems. In addition, cybersecurity investment will protect data and business operations from threats to business continuity and critical infrastructure. The capital expenditure in digital technology will be accompanied by step changes to operating expenditure.[269]

Further expenditure is also proposed for the replacement of residential and commercial revenue meters and land and property management, including investments to protect heritage listed facilities, maintain the functionality and safety of sites and replace fleet.[270]

The majority of Hunter Water's capital expenditure on the outcome 'value for money and affordability' is allocated towards energy reduction initiatives. In particular, Hunter Water has proposed investments into the onsite generation of renewable energy to reduce reliance on purchasing energy, including through the installation of solar panels and wind turbines and energy optimisation projects, by assessing operational

[267] Hunter Water, *2024 pricing proposal*, September 2024, p 114.
[268] Hunter Water, *2024 pricing proposal*, September 2024, p 114.
[269] Hunter Water, *Attachment E – Additional detail on the drivers of investment*, September 2024, pp 24-25.
[270] Hunter Water, *Attachment E – Additional detail on the drivers of investment*, September 2024, p 25.

assets and control systems to identify opportunities to reduce electricity costs. The $4.7 million reduction in operating expenditure associated with these investments is reflected in the operating expenditure efficiency trend.

There is also capital expenditure allocated towards modernising digital services, including investments into data insights systems and smart systems for applying emerging and efficient technology solutions. This expenditure will also drive a $3.4 million operating expenditure step change.[271]

Hunter Water's proposed investment towards 'great customer service' will go towards maintaining core customer engagement experiences, including maintaining core systems, improving privacy controls and safeguarding customer data, to keep pace with basic customer expectations. This capital expenditure will be accompanied with a $6.9 million operating expenditure step change.[272]

The capital expenditure allocated to these three categories appears to be reasonable, on the basis that our assessment of Hunter Water's proposed capital expenditure envelope for 2025-30 excluding the Belmont desalination plant appears to be reasonable.

6.9 Deliverability of capital expenditure

6.9.1 Overview of deliverability

The deliverability of capital expenditure programs is a critical consideration for assessing the prudency and efficiency of capital expenditure.

We understand that Hunter Water has implemented several mechanisms and systems to manage deliverability risks in its capital program, including:

- maintaining a panel of pre-qualified contractors for specific work categories;
- structuring contracts to incorporate performance incentives; and
- engaging major contractors such as John Holland for significant infrastructure projects like the Belmont desalination plant.

Accordingly, Hunter Water has advised us that they are confident with the deliverability of their capital expenditure program, both in 2024/25 and the 2025-30 pricing period.

While Hunter Water has expressed confidence in its ability to deliver its capital expenditure program, broader market conditions warrant further consideration. The New South Wales construction industry is currently experiencing significant demand pressures, with multiple major infrastructure projects competing for resources and contractor capacity.[273]

This market context is particularly relevant given Hunter Water's proposed capital expenditure trajectory, which represents a $437.3 million or 39.2 per cent increase between 2020-25 and 2025-30.[274]

6.9.2 Our assessment of deliverability

Hunter Water has presented evidence of substantial internal preparation for this increased delivery challenge. It has strengthened its project management capabilities, enhanced procurement frameworks and

[271] Hunter Water, *Attachment E – Additional detail on the drivers of investment*, September 2024, pp 26-27.

[272] Hunter Water, *Attachment E – Additional detail on the drivers of investment*, September 2024, p 27.

[273] For example, see: Australian Government, *Building Australia: Infrastructure investment program – Budget 2024-25*, Fact sheet, May 2024.

[274] Hunter Water's 2020-25 capital expenditure includes the capital expenditure incurred in 2024/25, even though a regulatory allowance was not issued for this year. See: Hunter Water, *2024 pricing proposal*, September 2024, pp 108, 130-131.

developed more sophisticated contractor engagement strategies. These organisational improvements demonstrate recognition of the delivery challenges ahead and a structured approach in addressing them.

However, internal capability, while critical, is only one component of successful program delivery. The broader market context presents significant risks, particularly given that Hunter Water subcontracts out a large proportion of its capital and operating expenditure programs.

The Hunter region is experiencing significant infrastructure activity across multiple sectors, creating intense competition for skilled labour, equipment and materials. This regional pressure is compounded by major infrastructure programs being delivered concurrently across New South Wales and other Australian jurisdictions.

Given these market dynamics, we conduct additional analysis to fully understand the deliverability risks facing Hunter Water's capital program. Specifically, we examine competing approved and developing infrastructure programs and their respective resource demands in the Hunter Employment Region,[275] as well as across the broader New South Wales construction industry.

This analysis will help identify potential delivery constraints and inform our assessment of whether Hunter Water's proposed project timelines are realistic in the current market context. The market capacity assessment is particularly important for major projects such as the Belmont desalination plant, where the scale and specialised nature of the works may present specific deliverability challenges.

Construction labour supply in the Lower Hunter Region

To assess construction labour supply in the Lower Hunter Region, we analyse ABS data on employed persons by industry division of main job and labour market region between August 1999 and November 2024.[276] We assess total persons employed within the Hunter Employment Region, which is comprised of the combined SA4s of 106 Hunter Valley (excluding Newcastle) and 111 Newcastle and Lake Macquarie.[277]

Within the Hunter Employment Region, there were approximately 352,100 people employed as at November 2024.[278] Construction was the third largest industry with approximately 34,000 people employed,[279] which accounted for 2.6 per cent of the construction industry within Australia.[280] Of these 34,000 construction workers, 80.1 per cent of workers were employed full-time.[281]

The Hunter Employment Region's construction labour market has demonstrated significant volatility over time, which indicates a high degree of labour mobility – see figure 6.4. For example, while the sector experienced a contraction of 9.4 per cent over the past five years:

[275] The Hunter Employment Region is comprised of the combined SA4s of 106 Hunter Valley (excl. Newcastle); and 111 New Castle and Lake Macquarie.

[276] ABS, *Labour Force, Australia, Detailed, RQ1: Employed persons by Industry division of main job (ANZSIC), Labour market region (ASGS) and Sex, Annual averages of the proceeding four quarters, Year to August 1999 onwards (Pivot Table)*, November 2024.

[277] Australian Government | Jobs and Skills Australia, *Employment Region Industry profile: Hunter Employment Region*, 17 October 2024, p 1

[278] HoustonKemp analysis of ABS, *Labour Force, Australia, Detailed, RQ1: Employed persons by Industry division of main job (ANZSIC), Labour market region (ASGS) and Sex, Annual averages of the proceeding four quarters, Year to August 1999 onwards (Pivot Table)*, November 2024.

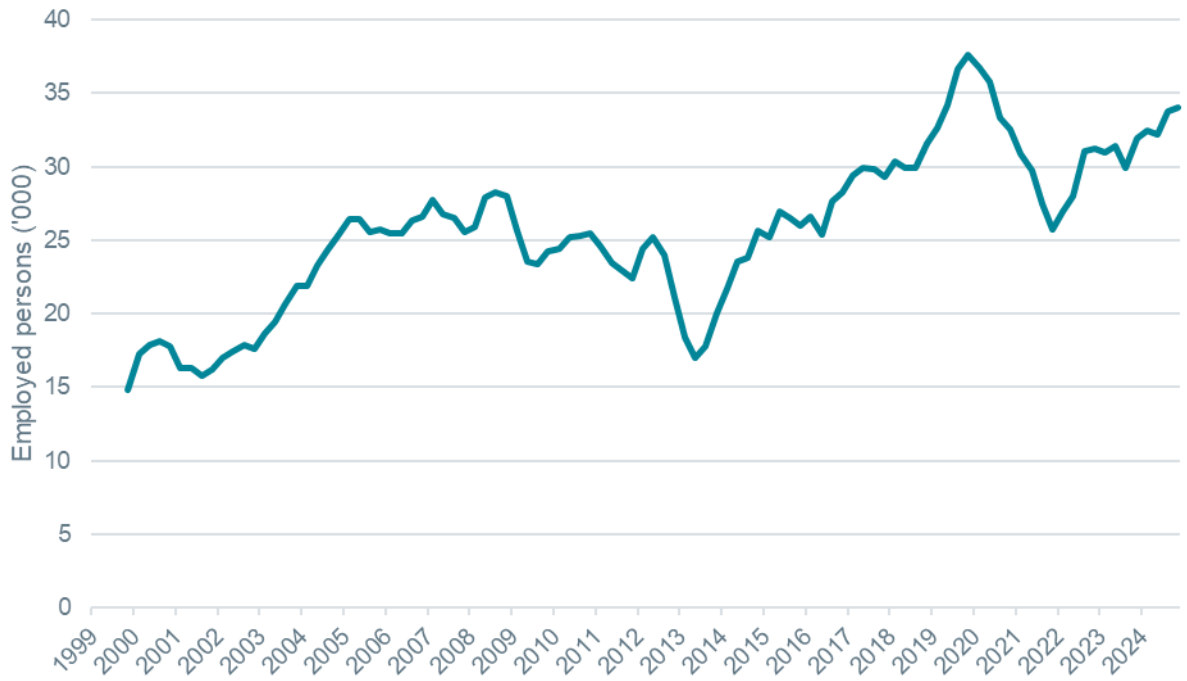
[279] HoustonKemp analysis of employed persons by industry division of main job (ANZSIC). See: Australian Government | Jobs and Skills Australia, *Employment Region Industry profile: Hunter Employment Region*, 17 October 2024, p 1.

[280] HoustonKemp analysis of ABS, *Labour Force, Australia, Detailed, RQ1: Employed persons by Industry division of main job (ANZSIC), Labour market region (ASGS) and Sex, Annual averages of the proceeding four quarters, Year to August 1999 onwards (Pivot Table)*, November 2024.

[281] HoustonKemp analysis of ABS, *Labour Force, Australia, Detailed, RQ1: Employed persons by Industry division of main job (ANZSIC), Labour market region (ASGS) and Sex, Annual averages of the proceeding four quarters, Year to August 1999 onwards (Pivot Table)*, November 2024.

- longer-term trends show significant growth, with the sector exhibiting 32.7 per cent growth (or 2.9 per cent per annum) over the last ten years and 155.8 per cent growth (or 3.8 per cent per annum) over the last 25 years; and
- some periods demonstrate significant rapid growth, such as between August 2018 and November 2019, where construction employment increased from approximately 30,000 to 37,500, representing an annual growth rate of 20.0 per cent.

Figure 6.4: Employed persons within the construction industry (ANZSIC) and Hunter Employment Region (ASGS), annual averages of the preceding four quarters, August 1999 to November 2024



Source: HoustonKemp analysis of ABS, Labour Force, Australia, Detailed, RQ1: Employed persons by Industry division of main job (ANZSIC), Labour market region (ASGS) and Sex, Annual averages of the proceeding four quarters, Year to August 1999 onwards (Pivot Table), November 2024.

Whilst we do not have forecasts of employed persons within the construction industry by labour market region, national projections indicate there will be an approximately 7 per cent increase in construction labour supply over the next five years, or approximately 1.4 per cent per year.[282] This reflects a significant decrease from the historical five-year growth rate of 14.2 per cent, or approximately 2.7 per cent per year,[283] suggesting a cooling in construction labour supply expansion.

Construction labour demand for major projects in the Lower Hunter Region

There are two drivers of construction labour demand, ie:

- a base level of construction labour for 'regular' projects; and
- an additional level of construction labour to deliver major projects.

[282] HoustonKemp analysis of ABS, *Labour Force, Australia, Detailed, RQ1: Employed persons by Industry division of main job (ANZSIC), Labour market region (ASGS) and Sex, Annual averages of the proceeding four quarters, Year to August 1999 onwards (Pivot Table)*, November 2024.

[283] HoustonKemp analysis of ABS, *Labour Force, Australia, Detailed, RQ1: Employed persons by Industry division of main job (ANZSIC), Labour market region (ASGS) and Sex, Annual averages of the proceeding four quarters, Year to August 1999 onwards (Pivot Table)*, November 2024.

We assume this base level of construction labour is relatively stable between years, although we acknowledge a growth trend is likely. We therefore examine the presumably more variable component of construction labour demand by assessing the direct labour demand from major projects.

We assess the projected number of direct jobs created during the construction period for major projects within the Greater Hunter Region between FY2024 and FY2030. We identify major projects through two sources, ie:

- the Australia and New Zealand infrastructure pipeline (ANZIP), which is a public database and resource developed by Infrastructure Partnerships Australia that provides a comprehensive overview of current and upcoming infrastructure projects across Australia and New Zealand;[284] and
- the Hunter Investment Prospectus, which highlights contemporaneous investments and opportunities for the Hunter region.[285]

We then conduct a desktop analysis for the number of direct jobs required for each of the projects identified. For our assessment, we assume that the number of required construction workers for each project is equal to the peak construction labour for that project and is constant over the project's build period.[286] As infrastructure jobs are typically reported by calendar year, we convert these to financial years by taking the simple average of the two calendar years.[287]

The ANZIP categorises projects into seven statuses from least to most progressed, ie, prospective, detailed planning, announced, under procurement, awarded, under delivery and operational.[288] We undertake two assessments, including:

- projects that have been 'announced' or are further developed, which are required to have a firm funding commitment for the full estimated cost or value and a timeline for delivery from a government or private sector proponent – we consider these are a set of 'more certain' projects; and
- all projects, which captures prospective and detailed planning projects which may not have funding commitments and/or timelines for delivery – we consider these are a more fulsome set of potential projects that may occur, particularly in later years of the 2025-30 regulatory period.

We find that construction labour demand on major projects which are announced or further progressed increases from 6,150 in FY2024 to 7,650 in FY2025 and 7,250 in FY2026, before returning to less than 5,000 from FY2027 onwards – see figure 6.5.

[284] ANZIP, *Pipeline Forecast By Labour Demand*, n.d., available at: https://infrastructurepipeline.org/charts-pipeline-forecast/by-labour-demand, accessed 13 January 2025.

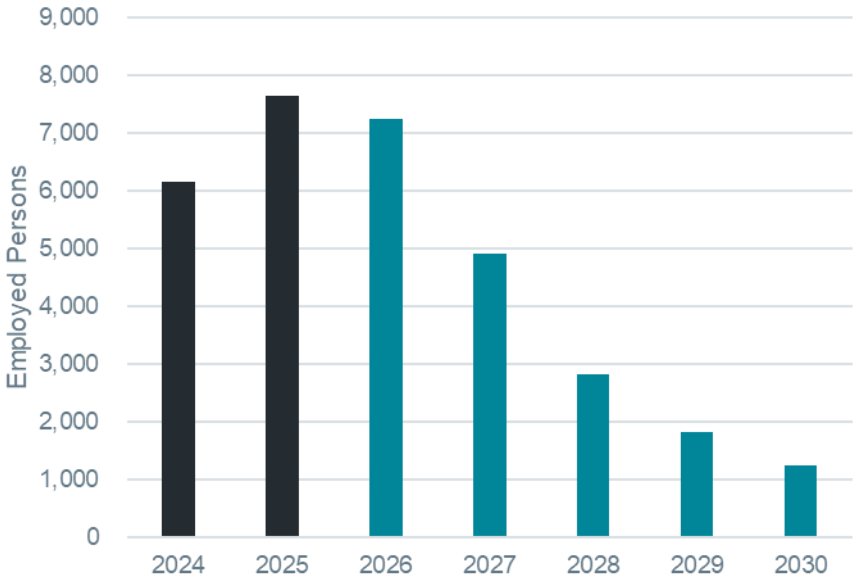
[285] Hunter Business Publications, *Hunter Investment Prospectus: 2024*, 2024; and Hunter Business Publications, *Hunter Investment Prospectus: 2019*, 2019.

[286] Our approach is likely to overstate the total number of jobs created, as it is unlikely that peak construction labour will be required over the life of the project.

[287] For example, this is achieved for the 2024 financial year by adding half of 2023 labour demand and half of 2024 labour demand.

[288] ANZIP, *Status definitions*, n.d., available at: https://infrastructurepipeline.org/status-definitions, accessed 13 January 2025.

Figure 6.5: Projected employed persons on major construction projects in the Hunter Employment Region, announced projects and further progressed



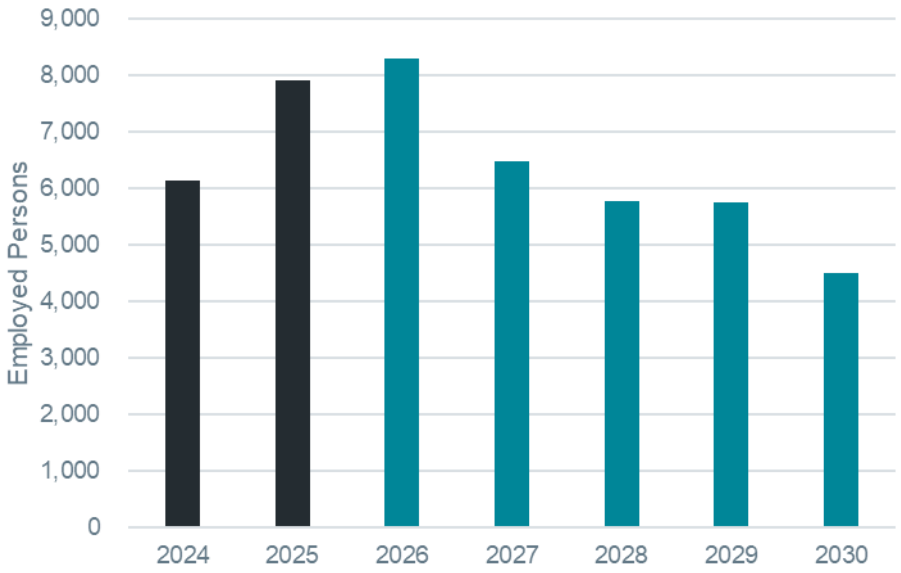
Source: HoustonKemp analysis.

The main driver of future major projects is projects within the Hunter-Central Coast Renewable Energy Zone (REZ). The REZ has received interest in more than $100 billion of potential investment across solar energy, offshore and onshore wind energy, large-scale battery and pumped hydro projects.[289] Several of the projects within the REZ are at the announced or beyond stage.

We acknowledge that projects in later periods are more likely to be earlier in their planning process. As such, we expand our assessment to include all projects with labour demand estimates. We find that construction labour demand on major projects increases from 6,150 in FY2024 to 7,900 in FY2025 and 8,300 in FY2026 before again returning to between 4,500 and 6,500 from FY2027 onwards – see figure 6.6.

[289] EnergyCo, *Hunter-Central Coast Renewable Energy Zone*, n.d., available at: https://www.energyco.nsw.gov.au/hcc-rez, accessed 13 January 2025.

Figure 6.6: Projected employed persons on major construction projects in the Hunter Employment Region, all project statuses



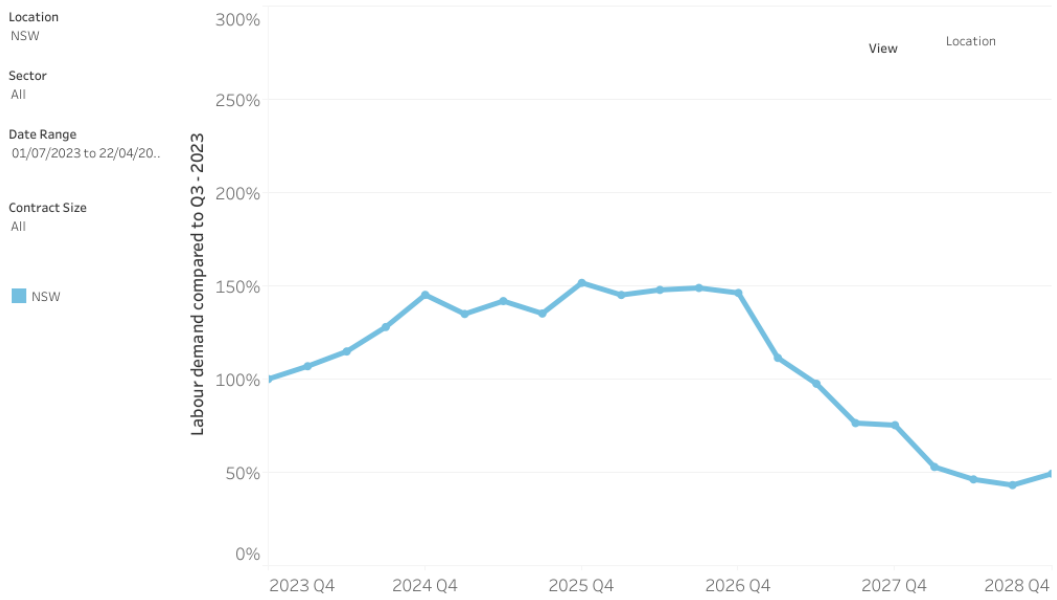
Source: HoustonKemp analysis.

We cross-check our results against construction trends across New South Wales reported by ANZIP, which produces a state-level pipeline forecast of FTEs required by employee type and skill category. Broadly, ANZIP's model allocates the employment per million dollars of expenditure to each project based on its sector and calculates the total number of FTEs required for each construction quarter by multiplying employment per million dollars of expenditure by the forecast expenditure in that quarter.[290]

Consistent with our findings, though more pronounced, ANZIP finds that construction labour demand in New South Wales is higher in FY2025 and FY2026 compared to FY2024, with the market expected to soften in late 2026 – see figure 6.7.

[290] Deloitte, *IPA - ANZIP Algorithm Model Methodology Paper: Infrastructure Partnerships Australia*, 29 November 2021.

Figure 6.7: ANZIP labour demand forecast for New South Wales



Source: ANZIP, Pipeline Forecast by Labour Demand, n.d., available at: https://infrastructurepipeline.org/charts-pipeline-forecast/by-labour-demand, accessed 13 January 2025.

Overall, in our assessment, despite the large increase in expected labour demand in FY2025 and FY2026, historical labour mobility appears to be high in the Hunter Employment Region. This is consistent with what Hunter Water has told us in interviews.

Nevertheless, given the large increase in FTEs required in the Hunter Employment Region for announced and further progressed projects, we expect deliverability to be challenging in the first two years of the 2025-30 regulatory period.

We expect that this might influence IPART's decision on whether or not to approve capital expenditure associated with the Belmont desalination project, of which $224 million is proposed to occur in FY2026.

6.10 Capital expenditure efficiency strategy

Hunter Water proposes a capital efficiency target of $41.2 million over the pricing period, since a 1.0 per cent compounding efficiency factor is inappropriate for capital works that are lumpy in nature.[291] Hunter Water states that this dollar value 'has been identified in alignment' with the 1.0 per cent efficiency target applied to operating expenditure over the 2024-2030 period.[292]

Broadly there are three types of capital expenditure efficiency, ie:

- design efficiency;
- contract delivery efficiency; and
- efficient delay of capital expenditure projects.

[291] Hunter Water, *2024 pricing proposal*, September 2024, p 114.

[292] Hunter Water, *Attachment M - Cost Efficiency Strategy 2025-30,* September 2024, p 13. We note that Hunter Water's proposed operating efficiency factor equates to a 0.9 per cent per annum compounding over the 2025-30 regulatory period.

Design efficiency refers to the optimisation of infrastructure specifications to meet service requirements at minimal cost. This includes ensuring assets are neither over-engineered beyond reasonable requirements nor under-designed such that they fail to meet essential service standards.

Design efficiency may involve value engineering processes, standardisation of components where appropriate and adoption of proven technologies that balance performance with cost-effectiveness.

Contract delivery efficiency relates to the procurement and execution of capital works in a manner that achieves value for money. This encompasses competitive tender processes, appropriate risk allocation between parties and contract management practices that minimise cost overruns while maintaining quality standards.

The selection of delivery models – whether through traditional design and construct, alliance contracting, or other arrangements – should align with project characteristics and market conditions to achieve optimal outcomes. We understand that Hunter Water regularly pursues risk sharing arrangements for construction projects, to incentivise delivery of projects cost effectively.

Efficient delay recognises that the timing of capital expenditure can materially affect its efficiency. This concept acknowledges that there may be circumstances where deferring certain investments can benefit customers without compromising service levels. However, this must be balanced against factors such as long lead times for major water infrastructure investments.

We are convinced from discussions with Hunter Water that they have a culture of pursuing design efficiencies and are highly conscious of the effect of projects on customer bills.

Hunter Water also conduct an ex-post review of major capital expenditure investments, to test whether the project's proposed benefits were realised and to adopt lessons for future projects. We have reviewed evidence of these benefit realisation cases and can confirm they demonstrate a strong culture of seeking opportunities for future efficiencies.

That all said, we are conscious of the challenges of determining an appropriate capital expenditure efficiency factor given that historical outturn capital expenditure can be affected by many factors outside of the direct control of the business (eg, changes in water consumption affecting the timing of supply augmentations).

Given this is the first application of the 3Cs framework, we believe that Hunter Water's capital efficiency target proposal of $41.2 million is modest but appropriate in the prevailing circumstances. It represents a sizeable amount in the context of the overall capital expenditure program and will provide a firm basis for ensuring that the business is focused on finding capital expenditure efficiencies over the 2025-30 regulatory period.

In our opinion, it will be important for Hunter Water to closely monitor its performance against the target, providing the community with clear examples where capital expenditure savings have been made, to provide IPART with a better evidence base to evaluate capital expenditure efficiency opportunities for future regulatory periods.

6.11 Hunter Water's 2030-35 capital expenditure proposal

Hunter Water has identified capital investment to comply with regulatory requirements up until 2035. This investment will largely focus on 'important strategic issues' related to water security, biosolids management and dam safety.[293]

Hunter Water forecasts $1.6 billion in capital expenditure during the 2030-35 period, including:[294]

[293] Hunter Water, *2024 pricing proposal*, September 2024, pp 16 and 107.

[294] Hunter Water, *2024 pricing proposal*, September 2024, p 126.

- $843 million on wastewater, including on biosolids management and wastewater treatment works upgrades;
- $675.8 million on water;
- $88.5 million on corporate; and
- $38.7 million on stormwater.

Hunter Water expects that 54 per cent of the capital expenditure during 2030-35 will be on major projects and programs delivered during the 2025-35 period. The number and scale of major investments in 2025-30 means that expenditure will be prioritised and deferred to the following pricing period, which Hunter Water considers a "realistic and balanced" investment position for that period.[295]

These major projects, amounting to $889 million over 2030-35, include:[296]

- $180 million for Chichester dam safety works, which have largely been deferred from the 2025-30 period while upgrades are planned;
- $180 million for centralised biosolids treatment, to comply with EPA licensing requirements when they arise and to meet population growth demand;
- $122 million for the Burwood Beach sludge treatment upgrade, to complete cessation of waste-activated sludge and comply with EPA licensing requirements when they arise;
- $103 million for the Grahamstown safety works, which have largely been deferred from the 2025-30 period while upgrades are planned;
- $100 million for the Raymond Terrace WWTW stage 4 upgrade, to accommodate future growth;
- $63 million to complete the Chichester Trunk gravity main replacement in 2035, while the most vulnerable section is replaced in the 2025-30 period;
- $62 million for the Kurri Kurri WWTW upgrade, to accommodate future growth;
- $57 million for the completion of Morpeth wastewater treatment upgrade stage 4 in 2033;
- $18 million for the completion of the Burwood Beach WWTW upgrade stage 3 in 2031; and
- $4 million for the completion of the Grahamstown WTP clear water tank in 2031.

Hunter Water has indicated that these major projects disrupt a capital expenditure plan which would otherwise be 'broadly consistent' from 2020 to 2035. In particular, Hunter Water states that the safety upgrades to Chichester dam and Grahamstown dam, the Burwood Beach biosolids and centralised biosolids treatment drive the capital expenditure.[297]

The proposed investments are also relatively uncertain given the further planning and technical investigations required before understanding the total cost and timing of some projects. In particular, Grahamstown dam safety upgrades require further technical investigation to properly evaluate investment options.[298]

Moreover, we understand that proposed capital expenditure is subject to change due to factors such as:

- PFAS regulations governing water treatment and biosolids; and
- hydrogen sulphide safety regulations.

[295] Hunter Water, *2024 pricing proposal*, September 2024, pp 126-127.
[296] Hunter Water, *2024 pricing proposal*, September 2024, p 124.
[297] Hunter Water, *2024 pricing proposal*, September 2024, p 126.
[298] Hunter Water, *2024 pricing proposal*, September 2024, p 127.

Hunter Water has also excluded investment for the Paterson River Connection to the Lostock Dam to Glennies Creek Dam pipeline scheme, which is still in the planning phase. It is likely the next required source augmentation following the Belmont desalination plant.[299]

Hunter Water forecasts that the remaining 47 per cent of proposed capital expenditure will be used on other capital investment, including asset and corporate, raw water, water network and treatment, stormwater and wastewater network and treatment investment. This capital expenditure in 2030-35 is consistent with the 2020-30 period.

It is our understanding that although Hunter Water presented cost estimates over 2030-35 to customers, it did not discuss corresponding bill impacts. Hunter Water's 2030-35 capital expenditure program appears reasonable, but we would encourage greater transparency around bill impacts for customers.

[299] Hunter Water, *2024 pricing proposal*, September 2024, p 127.

7. Assessment of operating expenditure proposal

Hunter Water has adopted IPART's base-trend-step methodology for forecasting operating expenditure for the 2025-30 regulatory period.[300] Under this approach, operating expenditure is forecast by:[301]

- establishing an efficient 'base' year of operating expenditure by normalising for climate variability and removing non-recurring and non-controllable costs;
- applying 'trend' factors to account for expected changes in real input prices, growth in customer numbers and assets and a proposed efficiency factor for ongoing productivity improvements; and
- applying 'step' changes which reflect new obligations, changes in service standards or other material changes in operating costs that are not captured in the base year.

We first evaluate Hunter Water's 2024/25 operating expenditure. We then discuss each of the above factors, in addition to comparing Hunter Water's base year operating expenditure with historical expenditure and assess Hunter Water's 2020-25 service performance against its proposed outcomes, in the remainder of this section. We present all costs in $2024/25 unless otherwise indicated.

7.1 Assessment of 2024/25 operating expenditure

Overview of 2024/25 operating expenditure

IPART's 2020 determination of Hunter Water's prices set operating expenditure for the 2020-24 regulatory period. IPART subsequently accepted Hunter Water's request to extend the pricing period by one year, resulting in no change to Hunter Water's prices and no operating expenditure allowance set for 2024/25.[302]

Hunter Water's expected operating expenditure in 2024/25 is $195.9 million, which is approximately $8 million (4.3 per cent) higher than its average annual expenditure between 2020-24.[303] Hunter Water expects several of the cost drivers for 2020-24 to continue into 2024/25, such as:[304]

- non-recurrent expenditure on major digital transformation projects (such as the field service management (FSM) and geographic information system (GIS));
- increasing digital services costs incurred as operating expenditure;
- non-recurrent project expenditure for the procurement of a new market-tendered treatment operating contract; and
- additional resources to meet stakeholder expectations and reporting requirements related to climate change adaptation and stability.

Hunter Water expects efficiency gains to offset these cost increases, ie:[305]

- $2.5 million offset from a cost efficiency target, as part of 1.0 per cent per year average cost-efficiency target and expected return of recent investment in behind-the meter solar; and
- assumed return to average climate and water demand conditions.

[300] IPART, *Water regulation handbook,* July 2023, p 42.
[301] IPART, *Water regulation handbook*, July 2023, pp 42-44.
[302] Hunter Water, *2024 pricing proposal*, September 2024, p 134.
[303] Hunter Water, *Attachment F: Operating Expenditure in the current pricing period,* September 2024, pp.1 and 4.
[304] Hunter Water, *Attachment F: Operating Expenditure in the current pricing period,* September 2024, pp. 4-5.
[305] Hunter Water, *Attachment F: Operating Expenditure in the current pricing period,* September 2024, p 5.

We note that Hunter Water developed its 2024/25 operating expenditure forecast using a bottom-up approach and retrofitted this to a base-trend-step methodology in its special information return.[306]

Assessment of 2024/25 operating expenditure

In our opinion, it would be reasonable for a business operating in a competitive environment to set its target expenditure based on the revenue it expects to receive from its customers. A prudent and efficient business would make trade-offs on the expenditure it can incur in any given year.

Given that Hunter Water was aware that prices were not increasing, any material increases in average expenditure over the preceding period would require a clear justification. While Hunter Water's forecast 2024/25 operating expenditure is $8 million higher than the 2020-24 average, it is very similar to operating expenditure in 2023/24 – see table 7.1 below. We explain in section 7.2.4 that this increase in operating expenditure in 2023/24 was driven by:[307]

- non-recurrent expenditures on major digital projects, dam safety investigations and pricing proposal preparation; and
- recurrent expenditures due to market conditions, including a new treatment operations contract.

Table 7.1: Hunter Water's 2020-25 operating expenditure ($2024/25, $millions)

	2020/21	2021/22	2022/23	2023/24	2024/25 (forecast)
Hunter Water's operating expenditure	$188.9	$182.3	$185.0	$195.3	$195.9

Source: Hunter Water, Attachment F: Operating Expenditure in the current pricing period, September 2024, pp 1 and 4.

While it would be open to IPART to reduce some of the operating expenditure to be included in the roll forward methodology, in our opinion, this should not occur on the basis that:

- Hunter Water experienced increased cost pressures in 2023/24; and
- Hunter Water's forecast 2024/25 operating expenditure is comparable to that in 2023/24.

7.2 Base operating expenditure

7.2.1 Overview of base operating expenditure

With full-year 2023-24 actual expenditure not available until late-August and a September deadline for its pricing proposal, Hunter Water agreed with IPART to use its 2023/24 quarter three (Q3) forecast as its base year, with total operating expenditure of $190.7 million.[308]

Hunter Water's actual operating expenditure for 2023/24 was $4.6 million or 1.9 per cent higher than its Q3 forecast at $195.3 million.[309] This discrepancy was mostly caused by higher wastewater treatment and maintenance costs due to extreme wet weather conditions, in addition to a $0.9 million reclassification of a data insights capability project from capital expenditure to operating expenditure.[310]

[306] Hunter Water, *Attachment F: Operating Expenditure in the current pricing period,* September 2024, p 4.
[307] Hunter Water, *2024 pricing proposal*, September 2024, p 133.
[308] Hunter Water, *2024 pricing proposal*, September 2024, p 147.
[309] Hunter Water, *2024 pricing proposal*, September 2024, p 147.
[310] Hunter Water, *2024 pricing proposal*, September 2024, pp 147-149.

Hunter Water made the following adjustments to its base year operating expenditure, which we discuss in further detail below:[311]

- addition of $1.3 million to normalise water and wastewater treatment demand to reflect an average climate year;
- removal of $11.4 million in non-recurring expenditure including digital projects, studies and one-off maintenance costs; and
- removal of $5.5 million in non-controllable expenditure relating to land tax and rates, regulatory licenses and bulk water charges.

On these adjustments, Hunter Water proposed base year operating expenditure of $175.2 million.[312]

We understand from Hunter Water that, to estimate its base operating expenditure, it:

- derived expected controllable and recurrent expenditure across various categories for a P50 year; and
- adjusted 2023/24 operating expenditure categories where the costs incurred did not align with the P50 scenario.

7.2.2 Assessment of adjustments to the base year total operating expenditure

We assess the reasonableness of the adjustments Hunter Water has made to base year operating expenditure, including:

- adjusting for climate variability;
- removing non-recurring items; and
- removing non-controllable items.

Climate variability adjustment

Hunter Water adds $1.3 million to its base year operating expenditure, to reflect that the base year had lower-than-average wastewater flows, which were partially offset by higher-than-average water flows.[313] We understand that Hunter Water's expectations of 'average' water and wastewater flows are informed by the 10-year historical average.

Climate is a key driver of Hunter Water's operating expenditure in any given year. In high rainfall years, Hunter Water typically experiences:[314]

- lower water treatment costs;
- higher wastewater treatment costs;
- higher reactive maintenance costs due to more pipe breaks and chokes; and
- reduced ability to undertake routine maintenance.

As such, Hunter Water normalised its base year to the average climate year.[315] We discuss Hunter Water's approach to normalising demand to the average climate year in section 5.2.

[311] Hunter Water, *2024 pricing proposal*, September 2024, p 149.
[312] Hunter Water, *2024 pricing proposal*, September 2024, p 136.
[313] Hunter Water, *2024 pricing proposal*, September 2024, p 149.
[314] Hunter Water, *2024 pricing proposal*, September 2024, pp 142-143.
[315] Hunter Water, *2024 pricing proposal*, September 2024, p 204.

In our opinion, Hunter Water's approach of adjusting its base year operating expenditure to reflect climate variability is reasonable. We have reviewed Hunter Water's methodology for applying a climate adjustment and find that it is well founded and has been appropriately applied.

As such, in our opinion Hunter Water's $1.3 million upwards adjustment to its base year operating expenditure is reasonable.

Non-recurring items

Hunter Water removed several non-recurring items, which reflect one-off or cyclical activities, from its base year expenditure, totalling $11.4 million, ie:[316]

- $3.5 million for digital enhancement projects;
- $3.1 million for major digital projects involving FSM and GIS product replacements/upgrades;
- $1.3 million for water resilience and sustainability strategies;
- $1.0 million for pricing proposal preparation;
- $0.8 million for procurement and legal costs relating to treatment operations contract retendering;
- $0.7 million for a Grahamstown dam investigative study;
- $0.5 million for above average road and path restoration;
- $0.2 million for portfolio management activities; and
- $0.2 million for above average laboratory testing.

Hunter Water's non-recurring adjustment for digital enhancement projects of $3.5 million was largely added back as step changes for 2025-30. These include investments in:[317]

- securing digital foundations through cybersecurity services and digital infrastructure (eg, digital storage); and
- becoming a modern utility by improving data practices and systems to implement new technologies.

The base year included significant digital transformation activity, with expenditure on major projects including FSM and GIS systems.[318] We understand from Hunter Water that these projects enabled the digital planning of daily electrical and maintenance and civil works respectively. This one-off expenditure is not expected to continue in the 2025-30 period.

The base year also included several non-recurring corporate activities, including re-tendering the treatment operations contract which expires in June 2024, preparation of the pricing proposal and dam safety studies. Some of these costs have also been added back as step changes where the activities will continue in a different form during 2025-30.[319]

We have conducted a high-level review of Hunter Water's process for removing non-recurring expenditure from the base year and its associated spreadsheets. In our opinion, Hunter Water's process was robust and likely to have reasonably identified its non-recurring expenditure.

That said, we have not conducted a line-by-line review of the non-recurring expenditure items that Hunter Water has removed from its base expenditure. In our view, in absence of evidence that Hunter Water's base

[316] Hunter Water, *2024 pricing proposal*, September 2024, p 149.

[317] Hunter Water, *2024 pricing proposal*, September 2024, pp 157-158; Hunter Water, *Attachment E: Additional detail on the drivers of investment,* September 2024, p 26.

[318] Hunter Water, *2024 pricing proposal*, September 2024, pp 146 and 149.

[319] Hunter Water, 2024 pricing proposal, September 2024, p 160.

operating expenditure is above efficient levels, it is not necessary to forensically review these non-recurring expenditures.

It follows that, in our opinion, the non-recurring expenditures removed from the base year operating expenditure are reasonable.

Non-controllable costs

Hunter Water removes $5.5 million of costs from the base which it considers non-controllable as they are set by other authorities, ie:[320]

- land tax and rates ($3.8 million) which are determined by the New South Wales Valuer General and local councils;
- regulatory license fees ($1.2 million) which are set by New South Wales government agencies for water extraction and wastewater treatment works operations; and
- bulk water charges ($0.5 million) which are determined through water sharing arrangements with Central Coast Council.

We note that IPART did not consider any of Hunter Water's costs non-controllable in its 2020-25 pricing proposal.[321] This decision was made because IPART believed all of Hunter Water's operating costs were controllable to some extent and because IPART acknowledged economy wide long-term productivity growth is measured across all types of costs. This stance differed from the recommendations of its consultants, Aither.[322]

In our opinion, the identified non-controllable expenditures are reasonable to have been removed from the base operating expenditure.

7.2.3 Assessment of base operating expenditure

Having established that Hunter Water's adjustments to its base year operating expenditure appear to be reasonable, we assess the evidence used by Hunter Water to support the efficiency of its base operating expenditure.

Hunter Water benchmarks its historic performance in Water Services Association of Australia (WSAA) reports and National Performance Reports. Hunter Water states that it was 'one of Australia's lowest cost water utilities' from 2017/18 to 2022/23 according to data from the National Performance Report.[323]

Hunter Water participates in the WSAA's asset management customer-value benchmarking program every two years, which compares the various operating costs of water businesses in Australia. Hunter Water performed well in the most recent WSAA cost benchmarking study, conducted in 2021/22, placing in:[324]

- the top quartile for four key cost categories, ie:
  - wastewater transport;
  - water treatment;
  - retail; and
  - raw water;
- the second quartile for 11 categories;

[320] Hunter Water, *2024 pricing proposal*, September 2024, p 149.

[321] IPART, *Final Report - Review of prices for Hunter Water*, June 2020, p 46.

[322] IPART, *Final Report - Review of prices for Hunter Water,* June 2020, p 46.

[323] Hunter Water, *2024 pricing proposal*, September 2024, p 137.

[324] Hunter Water, *2024 pricing proposal*, September 2024, pp 105, 118, 138-139 and discussions with Hunter Water.

- the third quartile for five categories, ie:
  - finance;
  - water catchment management;
  - human resources;
  - scheduling, dispatch and control; and
  - other;
- the fourth quartile for one category, ie, fleet and property.

As part of our work, we interrogate in detail the underlying benchmark data provided by WSAA and used by Hunter Water and consider the explicit underlying cost benchmarks that have been used for each cost category. During this process, we and Hunter Water identified two discrepancies between the WSAA benchmarks and its pricing proposal, ie:

- Hunter Water reported its water treatment was in the second quartile, but it should have been in the first quartile – this was a drafting error; and
- Hunter Water reported its human resources was in the second quartile, but it should have been in the third quartile – Hunter Water identified that it had incorrectly normalised this expenditure using percentage of total operating expenditure, rather than percentage of operating expenditure per permanent employee.

Hunter Water performed in the top or second quartile for 14 of the 19 cost categories, which represented approximately $153.9 million or 84 per cent of its total operating expenditure in 2021/22.

The National Performance Report compared Hunter Water's performance in 2022/23 to 85 other water providers in Australia. Compared to other 'major' utilities who serve more than 100,000 connected properties, Hunter Water had the lowest operating cost per property for water and wastewater combined at $692 per property, compared to a median of $852.[325] We understand that Hunter Water may have an advantage in the National Performance Report given its vertical integration, but still acknowledge its strong benchmarking performance.

We acknowledge that there are some shortfalls in the comparability of water utilities using WSAA benchmarking. Specifically:

- the WSAA benchmarking was conducted on 2021/22 operating expenditure and so may not be representative of Hunter Water's base year operating expenditure;
- we understand from Hunter Water that for some cost categories it was likely to have performed well in the 2021/22 benchmarking because of the timing of contract renewals, as in 2021/22 Hunter Water still had several low price long-term contracts in place, whereas some utilities may have had these roll over to prevailing market price contracts. This is likely to be reversed in Hunter Water's upcoming period as it renegotiates some of its long-term contracts; and
- WSAA benchmarking only considers the historical performance of water utilities and may not capture the potential for broader sectoral efficiencies.

We also understand the WSAA benchmarking includes expenditure that Hunter Water would have adjusted out of its base and so is not directly comparable with the base. The WSAA benchmarking was conducted on Hunter Water's 2021/22 operating expenditure, ie, $182.3 million in $2024/25.

[325] Hunter Water, *2024 pricing proposal*, September 2024, p 81; BoM, *National performance report 2022-23: urban water utilities,* March 2024.

Nevertheless, we are confident that these benchmarks are a robust basis of evidence to conclude that Hunter Water's base operating expenditure of $175.2 million can be considered efficient as the starting point for the purposes of projecting operating expenditure across the next regulatory period.

In our opinion, if Hunter Water had performed in the third or fourth quartiles for a significant portion of its overall operating expenditure, or in any major cost categories, then this may have been evidence that Hunter Water's base operating expenditure would not be considered efficient as compared to its peers. In this circumstance we would be inclined to make adjustments to the base and/or Hunter Water's efficiency factor to reflect a similar water business operating in the first or second quartiles for those relevant cost categories.

That said, the benchmarking highlights that there are several cost categories where there may be opportunities for Hunter Water to achieve further cost efficiencies, particularly in the fleet and property cost category and in finance. We also note that WSAA does not conduct benchmarking for one subcategory within fleet and property. We consider in section 7.5 the implications of these opportunities for the choice of operating expenditure efficiency factor applied by Hunter Water.

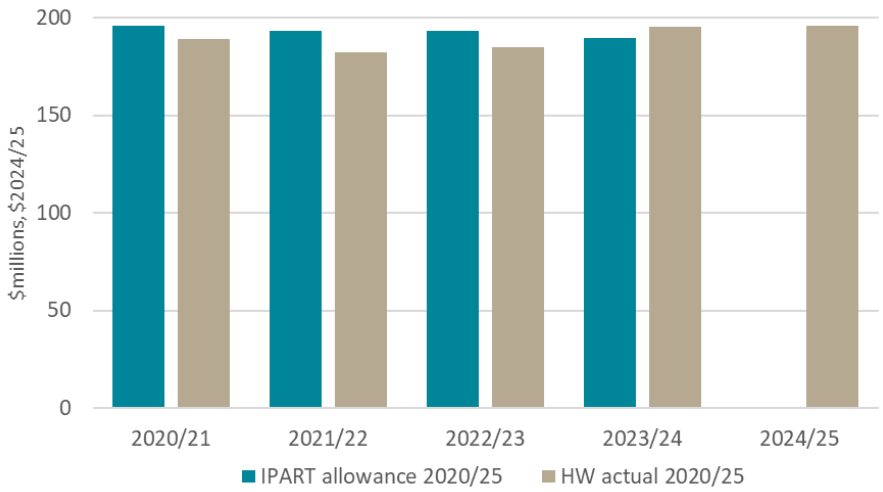
7.2.4 Assessment of base year selection

Hunter Water's operating expenditure in the base year (2023/24) was $190.7 million (Q3 forecast) or $195.3 million (actual), which was higher than its operating expenditure in preceding years, driven by both:[326]

- non-recurrent expenditures on major digital projects, dam safety investigations and pricing proposal preparation; and
- recurrent expenditures due to market conditions, including new treatment operations contract.

Overall, Hunter Water's total actual operating expenditure in the four-year period from 2020-21 to 2023-24 was $751.5 million, being 2.7 per cent lower than its allowance of $772.1 million.[327] However, as shown Figure 7.1 below, 2023/24 was also the only year of the period for which actual operating expenditure ($195.3 million) exceeded the determination allowance. In contrast, operating expenditure in the other three years was an average of $185.4 million.[328]

Figure 7.1: Hunter Water's operating expenditure



[326] Hunter Water, *2024 pricing proposal*, September 2024, p 133.
[327] Hunter Water, *2024 pricing proposal*, September 2024, p 140.
[328] Hunter Water, *2024 pricing proposal*, September 2024, p 140.

Source: Hunter Water, 2024 pricing proposal, September 2024, p 140.

Notwithstanding Hunter Water's overspend in 2023/24, in our opinion there is merit in adopting the most recent year as the base year. Specifically, for the reasons we explain throughout section 7.2 above and highlighting the appropriate adjustments Hunter Water has made to its base operating expenditure to remove non-recurrent expenditure, in our opinion Hunter Water's base operating expenditure is prima facie reasonable.

Accordingly, our assessment is that Hunter Water's selection of the base year is also prima facie reasonable.

7.3 Trend operating expenditure

The next stage in our assessment involves assessing each of the proposed trend modifications to base operating expenditure. In particular, Hunter Water proposes:

- a growth trend factor of 1.3 per cent; and
- real input price change trends for salaries and wages, treatment operations, motor vehicle leases, maintenance expenditure and energy

7.3.1 Methodology

We understand that Hunter Water adopted a top-down approach for estimating operating expenditure, where it applied an overall trend to baseline operating expenditure for dwelling growth, and then applied discrete trends where it identified real input price increases or decreases that it expects to deviate significantly from forecast changes in CPI. Hunter Water's approach to applying a top-down trend to base operating expenditure is consistent with IPART's outlined methodology. That is, Hunter Water has applied a trend component which reflects:[329]

- the proposed efficiency factor for controllable operating expenditure productivity improvement;
- a meaningful measure of output growth (ie dwelling growth); and
- expected real changes in input prices of rolled forward baseline costs, where their combined effect is expected to diverge significantly from forecast changes in the consumer price index.

Hunter Water cross-checked its overall operating expenditure under this approach (and after adding step changes) against a bottom-up forecast of its operating expenditure by individual cost category. This provided it with confidence that its approach, which is consistent with IPART's base trend step methodology, was sensible.

We assess Hunter Water's basis for the proposed output growth trend (ie, dwelling growth) in section 7.3.2. We assess Hunter Water's basis for its proposed real input price changes as components of the overall trend applied to baseline operating expenditure in all subsequent sections.

7.3.2 Growth trend

As set out in section 5.1 above, Hunter Water forecasts annual dwelling growth in the Lower Hunter region of 1.31 per cent over the upcoming pricing period.

Hunter Water states in its pricing proposal that it expects this dwelling growth to drive commensurate cost increases in:[330]

- treatment operations from increased water and wastewater flows;
- energy from increased water and wastewater flows;

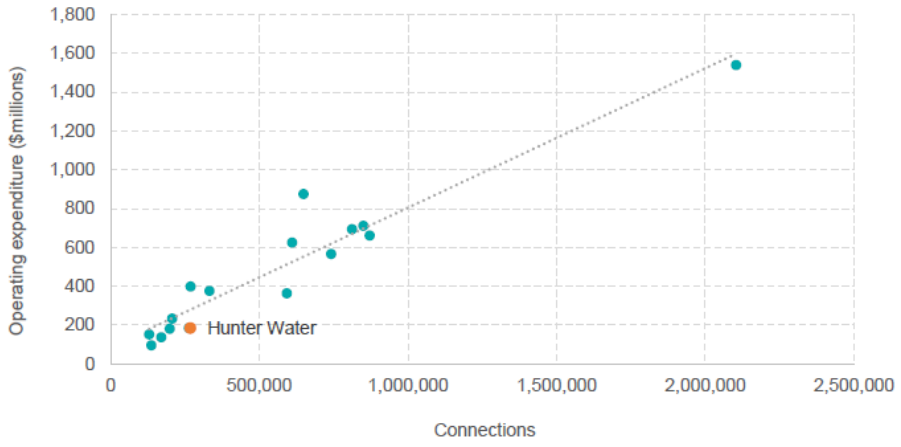
[329] IPART, *Water Regulation Handbook,* July 2023, p 43.

[330] Hunter Water, *2024 pricing proposal*, September 2024, p 152.

- maintenance of a growing network of assets to service additional connections;
- customer service activities, ie, increased frontline customer contacts, billing and communications;
- treatment plant upgrades, ie, operating expenditure outcomes of capital investments for periodic treatment plant upgrades and renewals; and
- corporate activities to support growing services.

Hunter Water finds there is a roughly linear relationship between the number of connections a water utility serves and its operating expenditure – see figure 7.2.

Figure 7.2: Relationship between connections and total operating expenditure



Source: Hunter Water, 2024 pricing proposal, September 2024, p 152.

On this information, in our opinion, Hunter Water's basis for applying a growth trend to operating expenditure is reasonable and consistent with a top-down approach. As such, we will not explore trend growth as part of our deep dive analysis.

Notwithstanding, in our opinion, Hunter Water should more clearly have articulated its approach to calculating the growth trend in its pricing proposal.

7.3.3 Salaries and wages

In 2023/24, Hunter Water had 535 employees and total labour costs of $70.9 million, which made up 36 per cent of its total operating expenditure.[331] Hunter Water proposed a trend increase in salaries and wages that will increase its operating expenditure by $10.6 million over the 2025-30 pricing period.[332]

We understand from Hunter Water that this assumes no changes in full-time equivalent (FTE) staff, which are instead captured within specific projects or programs of work. We refer to salaries and wages assuming no changes to FTEs as 'labour costs' throughout the remainder of this section.

Hunter Water attributed its real increase in labour costs to a combination of:[333]

- remuneration changes under industrial instruments; and
- scientist and engineer regrades.

[331] Hunter Water information return, tab: 'Other', row: 209; Hunter Water, *2024 pricing proposal – Attachment F: Operating expenditure in the current pricing period*, September 2024, p 153.

[332] Hunter Water, *2024 pricing proposal*, September 2024, p 153.

[333] Hunter Water, *2024 pricing proposal*, September 2024, p 153.

As a result of the trend increase, Hunter Water's proposed real labour costs are four per cent higher in 2029/30 relative to 2023/24.[334]

Remuneration changes under industrial instruments

Most of Hunter Water's employees are hired under two industrial instruments, namely:[335]

- the Hunter Water Corporation Employees Enterprise Agreement 2021 (Employees Enterprise Agreement); and
- the Hunter Water Corporation Engineers and Scientists (APESMA) Agreement 2021 (Engineers and Scientists Agreement).

We understand that Hunter Water is expected under the NSW government's policy framework to set bargaining parameters in accordance with the New South Wales Government Fair Pay and Bargaining Policy 2024-25, as directed by the NSW Premier's Memorandum.[336] This framework stipulates a 10.5 per cent increase in remuneration over three years, ie:[337]

:

> Bargaining has commenced for the 2024 iteration of enterprise bargaining, with bargaining parameters approved, including an objective to enter into 3-year agreements. The parameters align with recent correspondence from the Premier's Department regarding the New South Wales Government's Fair Pay and Bargaining Policy (dated June 2024) for a 10.5 per cent increase to remuneration over three years.

To achieve a 10.5 per cent increase in remuneration over three years, Hunter Water proposes to raise remuneration rates by 4.0 per cent in 2024/25 (being prior to the commencement of the 2025-30 period), 3.5 per cent in 2025/26 and 3.0 per cent in 2026/27, including mandatory superannuation escalation.[338] Since Hunter Water assumes annual CPI inflation of 2.5 per cent throughout the pricing period,[339] this represents real increases of 1.0 per cent in 2025/26 and 0.5 per cent in 2026/27. For the remainder of the regulatory period, Hunter Water assumes no real increases in remuneration rates (ie, remuneration rates are assumed to increase at the long-term inflation forecast of 2.5 per cent).[340]

Scientist and engineer regrades

The Engineers and Scientists Agreement includes provisions for additional annual wage increments aligned to the qualifications and experience of individual employees covered under the agreement. The Engineers and Scientists Agreement includes a provision to reflect changes in work value through reclassification reviews, ie, scientist and engineer regrades.[341]

We understand from Hunter Water that, based on historic data, the escalation of employees through pay bands will increase its real labour costs, including after accounting for the retirement of senior employees.

[334] Calculated by dividing the real increase in salaries and wages for 2029/30 ($2.8 million) by total labour costs in 2023/24 ($70.9 million). See: Hunter Water, *2024 pricing proposal*, September 2024, p 153; Hunter Water, *2024 pricing proposal – Attachment F: Operating expenditure in the current pricing period*, September 2024, p 153.

[335] Hunter Water, *2024 pricing proposal*, September 2024, p 153.

[336] Available at: *https://arp.nsw.gov.au/m2025-04-nsw-government-fair-pay-and-bargaining-policy-2024-25/*

[337] Hunter Water, *2024 pricing proposal*, September 2024, p 153.

[338] Hunter Water, *2024 pricing proposal*, September 2024, pp 153-154. Hunter Water refers to the rate of changes in remuneration as 'wage inflation'.

[339] Hunter Water, *2024 pricing proposal*, p 271.

[340] Hunter Water, *2024 pricing proposal*, September 2024, pp 153-154.

[341] Hunter Water, *2024 pricing proposal*, September 2024, p 154.

From our discussions with Hunter Water, we understand that some of the costs associated with regrades are unavoidable as they stem from a remuneration structure defined in the Enterprise Agreement for Scientists and Engineers. Hunter Water typically maintains a budget for regrades for other employees under its Employees Enterprise Agreement, but does not include these escalations as steps or trends, as it has control over these costs.

Benchmarking of increases in labour costs

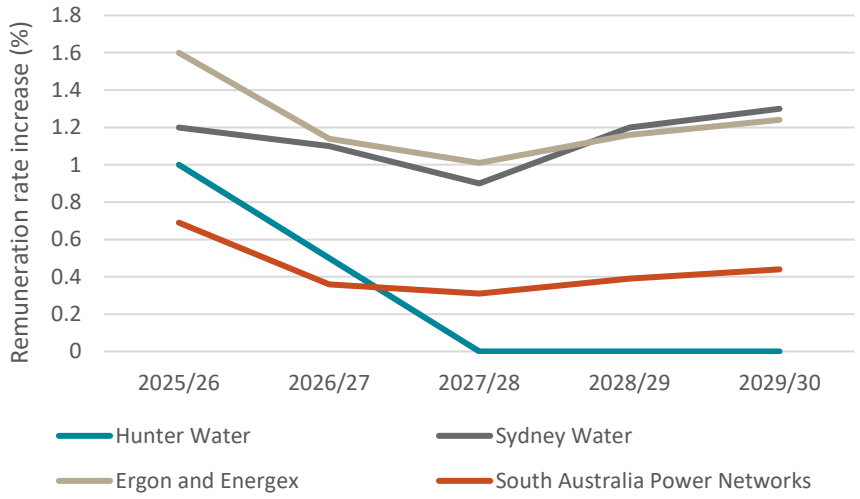
To evaluate Hunter Water's proposed remuneration growth,[342] we have compared the percentage increases against several other comparator utilities, including Sydney Water's proposed remuneration growth and approved remuneration growth for three electricity distribution network providers which have recently been assessed by the Australian Energy Regulator (AER) – see figure 7.3 below.

Hunter Water presents its proposed increase in remuneration rates in nominal terms while each of the comparators expressed their estimates in real terms.

We convert Hunter Water's proposed remuneration rate increases to real terms by applying its assumed annual CPI inflation of 2.5 per cent throughout the pricing period.[343] We consider this to be appropriate because our comparator businesses adopt similar inflation assumptions in developing their labour cost forecasts, ie:[344]

- Oxford Economics adopts 2.7 per cent inflation in 2025/26 and 2.5 per cent for each year thereafter for Ergon, Energex and South Australia Power Networks; and
- Oxford Economics adopts an average annual inflation of 2.6 per cent throughout the period for Sydney Water, although year-by-year values are not publicly available.

Figure 7.3: Hunter Water's proposed real labour cost escalation relative to comparator businesses



Source: HoustonKemp analysis of Hunter Water, 2024 pricing proposal, September 2024, p 154; Sydney Water, 2024 pricing proposal, November 2024, p 185; Ergon, 2025-30 regulatory proposal, January 2024, p 139; Energex, 2025-30 regulatory proposal, January 2024, p 139; SAPN, 2025-30 regulatory proposal - Attachment 6: Operating expenditure, January 2024, p 24.

[342] Hunter Water refers to the rate of changes in remuneration as 'wage inflation'.

[343] Hunter Water, *2024 pricing proposal*, September 2024, p 271.

[344] Oxford Economics Australia, *Input cost escalation: forecasts to 2029/30 – prepared by Oxford Economics Australia for Energy Queensland*, final report, January 2024, p 32; Oxford Economics Australia, *Labour cost escalation: forecasts to 2029/30 – prepared by Oxford Economics Australia for SA power networks*, November 2023, p 24; Sydney Water, *Price proposal 2025-30*, September 2024, p 184.

Ergon, Energex and South Australia Power Networks

Consistent with the AER's preferred approach, the energy businesses estimate the growth rate of remuneration rates[345] by taking the average of:[346]

- a forecast commissioned by the AER and expected to be undertaken by KPMG; and
- a forecast by Oxford Economics Australia (OEA).

The KPMG forecast escalation rates for Queensland[347] were unavailable before Ergon Energy and Energex's respective proposals were published. Therefore, the Queensland businesses instead relied on the national rate as a placeholder.[348] Conversely, South Australia Power Networks used KPMG's utilities sector real labour price growth forecasts as a placeholder for the AER's forecast.[349]

Meanwhile, OEA identified the Electricity, Gas, Water and Waste Services wage price index (EGWWS WPI) within the relevant state as the most appropriate measure of an energy business's remuneration rates.[350]

Sydney Water

Sydney Water's recently released pricing proposal adopts EGWWS WPI forecasts from OEA to estimate real remuneration growth over the upcoming period.[351]

There are several reasons why Hunter Water's remuneration rates may not change at the same rate as Sydney Water's or the electricity businesses, including the location of Hunter Water, types of people employed and tightness of the local labour market. Nevertheless, we find that Hunter Water's proposed labour cost escalation, while consistent with the NSW Premier's Memorandum and NSW Government's Fair Pay and Bargaining Policy, is relatively modest compared to our comparator businesses.

We note that Hunter Water assumes zero real growth in remuneration rates from 2027/28, whereas Sydney Water and the energy businesses rely on external forecasts of the wage price index (WPI) for electricity, gas, water and waste services (EGWWS) to inform their projections.[352] As such, Hunter Water's estimates are lower than our comparator set.

Oxford Economics WPI forecast

Our findings from our comparator set analysis are consistent with the historical performance of the Australia all industries WPI and the Australia EGWWS WPI, which have historically outperformed CPI by 0.28 per cent and 0.68 per cent respectively – see figure 7.4. In addition, OEA forecasts Australian EGWWS WPI to average 3.68 per cent over the 2025-30 regulatory period,[353] which compares to forecast inflation of 2.62 per cent,[354] reflecting an expected outperformance of 1.06 per cent.

[345] The energy businesses refer to the rate of changes in remuneration as 'labour costs'.

[346] Ergon, *2025-30 regulatory proposal*, January 2024, p 139; Energex, *2025-30 regulatory proposal*, January 2024, p 138; South Australia Power Networks, *2025-30 regulatory proposal – Attachment 6: Operating expenditure*, January 2024, p 24.

[347] OEA produced a single report for Energy Queensland that was used by both Energex and Ergon Energy.

[348] Ergon Energy, *Ergon Energy network regulatory proposal 2025-30*, January 2024, p 139; Energex, *Energex regulatory proposal 2025-30*, January 2024, p 138.

[349] South Australia Power Networks, *2025-30 regulatory proposal – Attachment 6: Operating expenditure*, p 24.

[350] Oxford Economics Australia, *Input cost escalation: forecasts to 2029/30 – prepared by Oxford Economics Australia for Energy Queensland*, final report, January 2024, p 25; Oxford Economics Australia, *Labour cost escalation: forecasts to 2029/30 – prepared by Oxford Economics Australia for SA power networks*, November 2023, p 20.

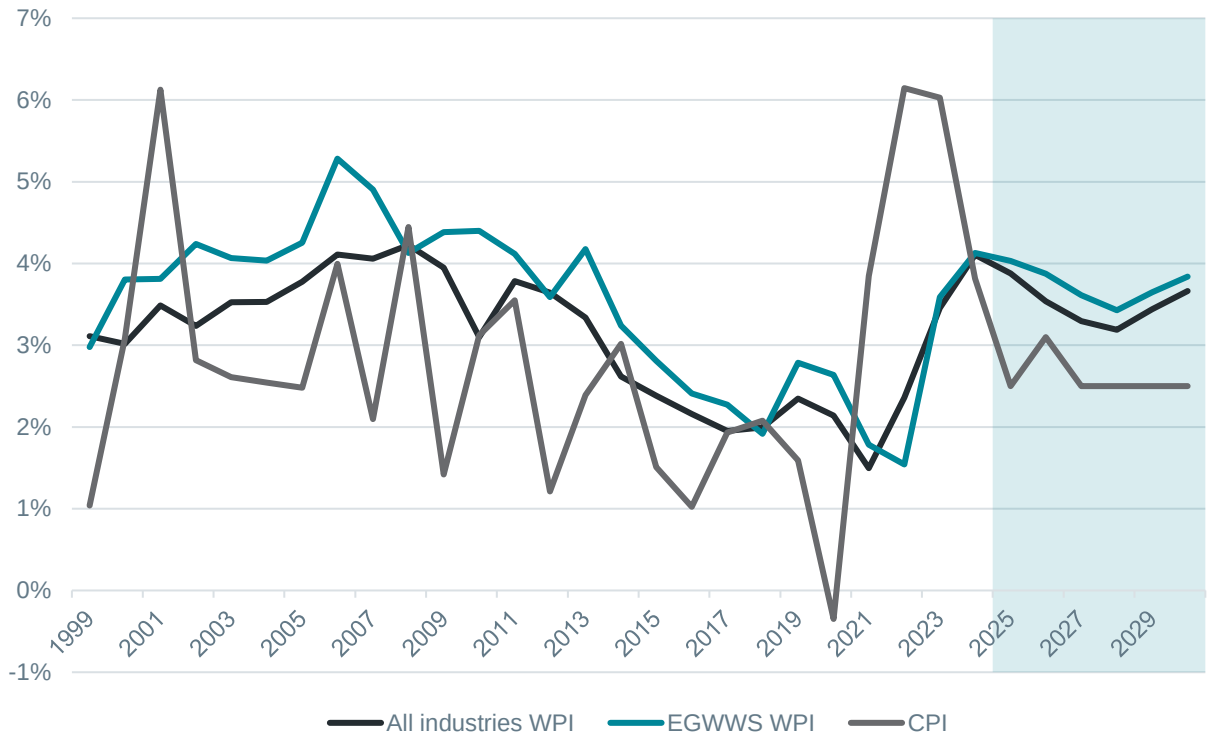
[351] Sydney Water, *Price proposal 2025-30*, September 2024, p 184.

[352] Hunter Water, *2024 pricing proposal*, September 2024, p 154; Sydney Water, *2024 pricing proposal*, November 2024, p 184.

[353] HoustonKemp analysis of Oxford Economics, *JGN New South Wales: Labour Escalation Forecasts to 2029/30*, April 2024, p 21.

[354] HoustonKemp analysis of RBA, *Statement on Monetary Policy*, November 2024, p 55. We assume inflation equals the midpoint of the RBA's target range (ie, 2.5 per cent) from June 2027 onwards.

Figure 7.4: WPI and CPI history and forecasts



Source: ABS, Oxford Economics WPI forecasts, HoustonKemp analysis of RBA for CPI forecasts.

Our assessment of labour costs

In our assessment, consistent with OEA's forecast of Australian EGWWS WPI, labour escalation rates approved by the AER for Ergon and Energex and labour escalation rates proposed by Sydney Water, it is likely that labour costs will remain above CPI by approximately 1.0 per cent across the 2025-30 regulatory period.

While we accept that costs associated with scientist and engineer regrades are outside Hunter Water's control, it is likely that its proposed remuneration escalation estimates are conservative, as:

- Hunter Water's proposed real remuneration growth rates are lower than estimates by our comparators and OEA's forecast WPI; and
- Hunter Water has applied a zero real remuneration growth rate from 2027/28.

Specifically, Hunter Water's assumption that nominal remuneration rates will increase in line with CPI inflation beyond 2027/28 is unusual among our comparator set, who adopted indices such as the EGWWS WPI to estimate remuneration growth instead of assuming a reversion to CPI inflation.

Accordingly, in our opinion, we recommend that IPART adjusts Hunter Water's proposed labour escalation rate to 1.0 per cent per annum in real terms. This equates to a labour cost trend of $16.5 million over the 2025-30 regulatory period, ie, $5.9 million more than Hunter Water proposed – see table 7.2.

Table 7.2: Labour cost trend (including scientist and engineer regrades) ($2024/25, $millions)

	2025/26	2026/27	2027/28	2028/29	2029/30	**Total**
Hunter Water's proposed labour trend	$1.2	$1.9	$2.2	$2.5	$2.8	$10.6
HoustonKemp proposed labour trend – upper bound	$1.3	$2.2	$3.3	$4.3	$5.4	$16.5
Adjustment – upper bound	$0.1	$0.3	$1.1	$1.8	$2.6	$5.9

Source: HoustonKemp analysis.

However, we note that Hunter Water's real labour cost escalation assumes no changes in workforce size. In our opinion, Hunter Water should have considered the effect of workforce size and potential workforce efficiencies on its total labour costs, in formulating its efficiency factor. In general, we would expect increases in salaries and wages to be offset in part or in full by gains in labour productivity.

7.3.4 Treatment operations

Overview of treatment operations

We understand from Hunter Water that treatment operations expenditure comprises 16 per cent of the proposed 2025-30 operating expenditure, ie, around $157 million or approximately $31.4 million per year.

Hunter Water's six water treatment plants cumulatively produce more than 200 million litres of drinking water per day,[355] while its 19 wastewater treatment works treat wastewater from connections across the network including residential properties, schools, commercial premises and hospitals.[356]

Since 2015, Hunter Water has outsourced the operation and maintenance of its 25 water and wastewater treatment works to Veolia Water Australia.[357] This contract expired in June 2024 before a one-year extension was negotiated under revised prices.[358] Hunter Water is currently partway through the procurement process for a new contract.[359]

We understand from Hunter Water that, other than labour, the main costs of treatment operations within outsourced plant operation and maintenance contracts are chemical and fuel costs.

Veolia sought recovery for substantial and unavoidable input price increases over and above contract cost escalations in the one-year extension (ie, 2024/25), due to:[360]

- chemical costs, driven by rising chemical production input costs for fuel and gas due to geopolitical tensions and the war in Ukraine; and
- fuel costs, driven by the fuel levy applied for transportation of biosolids.

Hunter Water reflected these cost increases in its entirety in its one-year contract extension for 2024/25. Hunter Water has only included 50 per cent ($0.7 million per year) of these price increases in the 2025-30 regulatory period due to uncertainty associated with future pricing. Hunter Water has advised us that it

[355] Hunter Water, *Water treatment processes*, available at: https://www.hunterwater.com.au/our-water/water-supply/water-quality/how-we-protect-our-water-supply/water-treatment-processes, accessed on 21 November 2024; Hunter Water, *Water treatment plants*, available at: https://www.hunterwater.com.au/our-water/water-supply/water-quality/how-we-protect-our-water-supply/water-treatment-plants, accessed on 21 November 2024.

[356] Hunter Water, *Wastewater treatment works*, available at: https://www.hunterwater.com.au/our-water/wastewater-systems/wastewater-treatment-plants accessed on 21 November 2024.

[357] Hunter Water, *2024 pricing proposal*, September 2024, pp 154 and 164.

[358] Hunter Water, *2024 pricing proposal*, September 2024, p 154.

[359] Hunter Water, *2024 pricing proposal*, September 2024, p 154.

[360] Hunter Water, *2024 pricing proposal*, September 2024, p 154.

believes this approach is conservative, as early indications from its procurement process suggest costs will be much higher than the projections currently included in its pricing proposal.[361]

We understand from discussions with Hunter Water that the current contract has the treatment plant operator bearing all cost risk and efficiency benefits and that this is unlikely to continue in a revised contract as market participants are no longer willing to bear these risks. As such, we understand that Hunter Water is likely moving to an alliance model, with risk and efficiency sharing arrangements between the treatment plant operator and Hunter Water.

Our assessment of treatment operations

Our analysis of the 2021/22 WSAA benchmarking study highlights that Hunter Water performs well in the treatment operations category compared to its peers - placing in the top quartile.

However, the evidence for the Veolia one-year contract extension and Hunter Water's additional advice suggest that its treatment operation costs are likely to increase, potentially relative to peers as well, due to differences in contract retender timings.

Despite the uncertainty associated with chemical cost projections, some water businesses forecast a reduction in real chemical costs over the coming years, including Sydney Water[362] (2025-30) and Icon Water[363] (2023-28). However, it is unclear whether these are from an equivalent starting point relative to Hunter Water.

Although there is no publicly available information on chemical cost projections, historical data indicates that the cost index for basic chemical and chemical product manufacturing increased by 3.7 per cent per year between the second quarter of 2020 and the second quarter of 2024, but has since decreased, while the cost index for basic chemical manufacturing increased by 1.1 per cent per year over the same period.[364] Figure 7.5 below depicts each of these price indices.

It follows from the above that the observed price increases in the past may be lessening in the near future.

In our opinion, Hunter Water's approach to apply only 50 per cent of treatment price increases is a reasonable approach given the prevailing evidence.

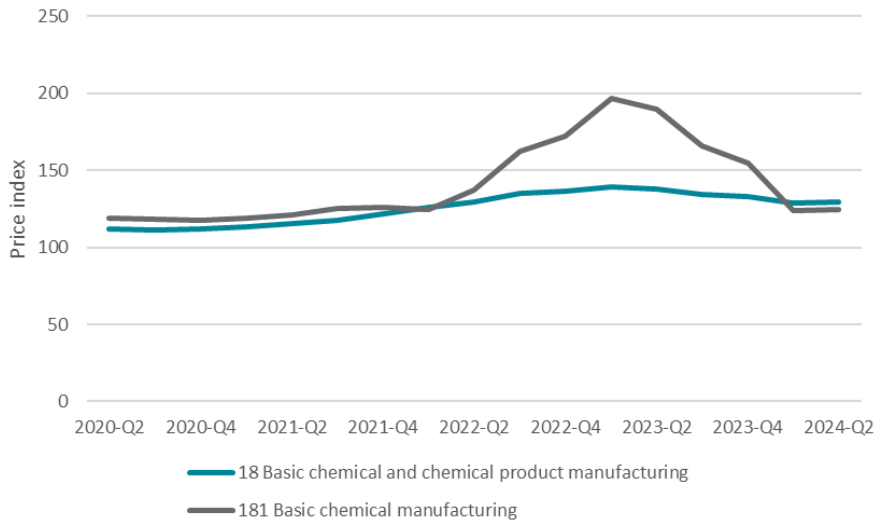
[361] Hunter Water, *2024 pricing proposal*, September 2024, p 154.

[362] Sydney Water, *Price proposal 2025-30*, September 2024, p 185.

[363] Icon Water revised pricing proposal 2023-28, *Attachment 1: Operating expenditure*, December 2022, p 16.

[364] Australian Bureau of Statistics, *Producer price indexes by industry,* index 18 (basic chemical and chemical product manufacturing) and index 181 (basic chemical manufacturing), available at: https://dataexplorer.abs.gov.au/, accessed on 17 December 2024.

Figure 7.5: Chemical cost indices, 2020 Q2 to 2024 Q2



Source: Australian Bureau of Statistics, Producer price indexes by industry, index 18 (basic chemical and chemical product manufacturing) and index 181 (basic chemical manufacturing), available at: https://dataexplorer.abs.gov.au/, accessed on 17 December 2024.

7.3.5 Motor vehicle leases

Overview of motor vehicle leases

Hunter Water has 33 ageing fleet vehicles (5 to 7 years old) with expiring leases that require either buyout or replacement. Of these, 25 new fit-for-purpose replacement trucks have been on order for up to two years due to supply chain delays.[365]

The new vehicle leases will cost substantially more than current rates, largely due to higher interest rates (7 to 7.3 per cent versus the previous 3 to 4 per cent).[366] Hunter Water proposed an additional $1.1 million per year from 2025-30 to cover these increased lease costs and vehicle modifications.[367]

Our assessment of motor vehicle lease costs

Hunter Water identifies that its current fleet and property expenditure compares less favourably against its peers in benchmarking by WSAA, ranking in the bottom quartile of all water businesses.[368] However, our review of WSAA benchmarking data revealed that these benchmarks only relate to corporate vehicles (for which Hunter Water has 8 vehicles) and so is not a relevant benchmark for considering its proposed increase motor vehicle lease costs for special purpose vehicles.

We understand from our review of the WSAA benchmarking data that Hunter Water's specialist fleet vehicles will be allocated to operating expenditure categories based on their role. For example, maintenance vehicles will likely be allocated to the asset management category.

We also understand from Hunter Water that their maintenance fleet has become highly specialised and are akin to 'mobile workshops', which has improved their fleet's operating ability considering the relatively large

[365] Hunter Water, *2024 pricing proposal*, September 2024, p 154.
[366] Hunter Water, *2024 pricing proposal*, September 2024, p 154.
[367] Hunter Water, *2024 pricing proposal*, September 2024, p 153.
[368] Hunter Water, *2024 pricing proposal – Attachment M: Cost efficiency strategy 2025-30*, September 2024, pp 10-11.

area of coverage, but also limited Hunter Water's opportunities to change vehicle types or lease arrangements.

In our opinion, Hunter Water's proposed trend increase in motor vehicle lease expenditure appears to be reasonable given the relatively small size of the proposed trend increase and Hunter Water's generally good WSAA benchmark performance.

Our conclusion is supported by Hunter Water's plans to undertake a comprehensive review of its opportunities for efficiencies on motor vehicle leases, which we understand it explicitly considered in developing its efficiency factor.

7.3.6 Maintenance expenditure

Overview of maintenance expenditure

Hunter Water's maintenance operating expenditure was $93.1 million ($2024-25) over the 2020-24 period, some $12 million below its determination allowance. This amounts to an average annual spend of $23.3 million. The underspend was explained by:[369]

- favourable long-running contract terms that acted as a temporary inflation shield – Hunter Water states that several of these contracts were retendered in 2023/24 with significant price increases;
- job counts over the period being 33 per cent lower than the determination assumption due to wet weather limiting Hunter Water's ability to undertake maintenance work and a lower number of breakdown jobs;
- reduced need for cleaning and maintenance due to the COVID-19 working environment, eg, work from home arrangements; and
- ongoing continuous improvement to manage spoil more efficiently, partially offsetting the impacts of continued customer and network growth.

Our discussions with Hunter Water revealed that maintenance expenditure is expected to remain relatively flat at around $25 million per year through the 2025-30 pricing period, but will face a one-off trend increase compared to 2023/24 levels driven by escalating maintenance contract costs that amount to $0.7 million in real terms.[370]

Hunter Water contracts out services to maintain its land and grounds. In June 2024, a 10-year contract was competitively tendered and awarded with a 100 per cent price increase on the previous long-dated contract.[371]

Hunter Water informed us that it had internally challenged its long-term costs by reducing the scope of contract services that do not affect network performance. For example, Hunter Water reduced the maintenance schedules and scope of work of its land and grounds maintenance contract and so will not pass on the entirety of the price increase to customers.[372]

Hunter Water also tendered a contract for the disposal of spoil material which led to a 25 per cent price increase relative to the preceding contract.[373]

Hunter Water did not include any increased maintenance provision for operating at a higher risk appetite.

[369] Hunter Water, *2024 pricing proposal - Attachment F: Operating expenditure in the current pricing period,* September 2024, pp I.2-I.3.
[370] Hunter Water, *2024 pricing proposal*, September 2024, p 153.
[371] Hunter Water, *2024 pricing proposal*, September 2024, pp 154-155.
[372] Hunter Water, *2024 pricing proposal*, September 2024, pp 154-155 and 163.
[373] Hunter Water, *2024 pricing proposal*, September 2024, p 155.

Hunter Water states that it has pursued a maintenance services productivity strategy since 2014, which has achieved significant efficiencies to date. It plans to identify new opportunities to drive and support productivity across the next pricing period, estimating it will be able to absorb $1 million in growth or 50 per cent of its overall growth estimate.[374]

Our assessment of maintenance expenditure

Our review of the 2021/22 WSAA benchmarking study confirms that Hunter Water performed favourably against peer water businesses in terms of maintenance expenditure efficiency.

For example, we have confirmed that Hunter Water ranked:

- second out of 23 in normalised maintenance expenditure for wastewater treatment;
- in the first quartile in the wastewater network category, which was driven largely by the fact that Hunter Water undertakes a very limited amount of 'proactive maintenance' in this space – most maintenance jobs are reactive, ie, carried out in response to short-term, urgent needs; and
- in the second quartile in the asset management category, which includes maintenance activities.

Hunter Water acknowledged that maintenance expenditures are expected to rise in the upcoming period due to increases in contract prices.

Hunter Water has undertaken competitive tendering processes for maintenance contracts and sought cost savings that are unlikely to impact on near-term network performance.

In addition, we have been informed by Hunter Water that it expects to achieve efficiency improvements through:

- a targeted maintenance productivity program (benchmarking, process improvement and best practice job assessment and scheduling);
- increased use of technology to better identify network blockages;
- improved spoil reuse and disposal practices;
- the new FSM technology for electrical and maintenance; and
- mechanical maintenance delivery.

On this collective information, in our opinion, Hunter Water's proposed trend change in maintenance operating expenditure appears to be reasonable.

7.3.7 Energy

Overview of energy expenditure

Hunter Water's total energy operating expenditure was approximately $60 million over the four years from 2020/21 to 2023/24, ie, an average of $15 million per year over the period. Annual spending during this time showed notable variation, ranging from $13 million in 2021/22 to around $17.5 million in 2022/23. We understand from Hunter Water that its historical cost volatility reflects weather-driven changes in energy consumption, changes in its contracting approach and fluctuating market energy prices. Hunter Water projects energy operating costs of just over $15 million in 2024/25.

Hunter Water informed us that its total forecast energy operating expenditure for the upcoming five-year period is approximately $87 million, ie, an average of over $17 million per year or around $2 million (13.3 per cent) higher than the average annual energy operating expenditure during 2020-24 period.

[374] Hunter Water, *2024 pricing proposal – Attachment M: Cost efficiency strategy 2025-30*, September 2024, p 23.

According to Hunter Water's pricing proposal, changes to energy costs in the 2025-30 period will be driven by:

- the growth trend of 1.3 per cent per year applied to total operating costs (consistent with dwelling growth);[375]
- a new 6.5-year fixed price contract with AGL that is expected to be higher than CPI for the first two years of the period and lower than CPI for the last two years of the period;[376] and
- renewable energy initiatives at the Belmont desalination plant, which were implemented following customer consultation.[377]

We understand from discussions that Hunter Water previously contracted energy on a progressive purchasing basis from Momentum Energy. However, Hunter Water's energy costs faced a substantial and sustained increase from less than $50 per MWh in 2021 to up to $270 per MWh in 2022 due to the onset of the Ukrainian war. To mitigate risks arising from future volatility in market prices, Hunter Water has moved to a long-term fixed price contract.[378]

We also understand that energy intensive plant upgrades will further contribute to rising energy operating expenditure.

The pricing proposal does not incorporate the change in Ausgrid's network charges that took effect in July 2024[379] and, based on our discussions, are expected to impose an additional $1 million in yearly energy costs on Hunter Water.

Hunter Water has lowered energy costs through several actions, including:[380]

- implementing smart integrated pump scheduling technology which incorporates time-of-use pricing and saved $1.2 million over the current period;[381]
- installing 6,000 behind the meter solar panels across 12 sites, which saved $1.6 million across the current pricing period and are expected to save $9 million over the next five years – the largest of these installations will double Hunter Water's renewable energy generation capacity and supply renewable energy to the Grahamstown water treatment plant; and
- adopting the Hubgrade Performance Plant, a digital solution to improve the performance of existing infrastructure – installation at the Belmont wastewater treatment works in 2023 resulted in energy savings that enabled the deferral of $10 million in capital investment for 10 years.

Our assessment of energy operating expenditure

Hunter Water negotiated a six-and-a-half-year fixed price energy contract with AGL, effective from 1 January 2025 to 30 June 2031.[382] We understand that this contract was negotiated in January 2024 at $125.23 per MWh and assume that the price will increase in line with CPI.

We first assess the reasonableness of this price against wholesale energy futures as of January 2024 (when the contract was signed, so as not to apply hindsight bias). We consider wholesale energy futures prices in

[375] Hunter Water, *2024 pricing proposal*, September 2024, pp 151-152.

[376] Hunter Water, *2024 pricing proposal*, September 2024, pp 153 and 155.

[377] Hunter Water, *2024 pricing proposal*, September 2024, pp 69 and 157.

[378] Hunter Water *2024 pricing proposal*, September 2024, p 155.

[379] Hunter Water, *2024 pricing proposal*, September 2024, pp 133-134.

[380] Hunter Water, *2024 pricing proposal*, September 2024, p 146; discussions with Hunter Water.

[381] We note that the shift to flat usage pricing for energy under its new contract means that savings associated with scheduled pumping are not likely to be achieved over the next regulatory period.

[382] Hunter Water *2024 pricing proposal*, September 2024, p 155.

New South Wales, provided by the Australian Stock Exchange and retrieved from the Bloomberg Terminal (ticker code *WllV4 Comdty*). Specifically, we:

- retrieve quarterly energy futures prices from 2025 to 2027 with a settlement date of 1 January 2024; and
- adopt the mean price across four quarters in a given year as the forecast average price for that year, being:
  - $103.01 per MWh for 2025;
  - $110.55 per MWh for 2026; and
  - $115.63 per MWh for 2027.[383]

Based on this data, it appears that Hunter Water's fixed price of $125.23 per MWh under the AGL contract represents a modest markup on forecast wholesale energy prices over the period of the contract.

Next, to understand the relationship between retail and wholesale energy prices, we compare AGL's default electricity rates for large customers in New South Wales during select periods over the last three years with volume-weighted average quarterly wholesale electricity spot prices over the same periods. We find that, whilst the retail mark-up on the wholesale price varies significantly, it is in excess of 50 per cent for AGL customers in three of the four observed years – see table 7.3 below.

Table 7.3: Comparison of AGL electricity rates for large customers and wholesale energy prices in New South Wales

Quarter	Off-Peak default rate ($ / MWh)	Peak default rate ($ / MWh)	Volume-weighted default rate ($/MWh)[384]	Wholesale price ($ / MWh)	Retail mark-up on wholesale price
Oct-Dec 2021[385]	77.40	121.01	105.18	65	62%
Oct-Dec 2022[386]	89.34	133.02	117.16	121	-3%
Oct-Dec 2023[387]	141.62	225.87	195.29	72	171%
Oct-Dec 2024[388]	162.8	250.97	218.96	142*	54%

**This value is for the Jul-Sept quarter.*
Sources: AGL, AGL large customer electricity default rates New South Wales, October 2021, p 1; AGL, AGL large customer electricity default rates New South Wales, January 2022, p 1; AGL, AGL large customer electricity default rates New South Wales, October 2023, p 1; AGL, AGL large customer electricity default rates New South Wales, October 2024, p 1; AER, Q3 2024 Wholesale markets quarterly – data_1.xls, worksheet 'Figure 1 – Average Quarterly Prices in the NEM (VWA)'; AEMO, CNew South Wales_RefYear_2023_STEP_CHANGE_POE50_OPSO_MODELLING*.xls, sheet CNew South Wales_RefYear_2023_STEP_CHANGE_P, 2024.*

Assuming a weighted average forward price of $109.73 (calculated as the simple average of the three forward prices above), the retail mark-up would only have to be 14.1 per cent to be equal to Hunter Water's fixed price of $125.23. Given that retail margins have been significantly in excess of this, in our view, Hunter Water's proposed energy costs under the contract appear to be reasonable.

[383] We note that energy futures data with a settlement date of 1 January 2024 are not available beyond the fourth quarter of 2027.

[384] AEMO, *CNew South Wales_RefYear_2023_STEP_CHANGE_POE50_OPSO_MODELLING*.xls, sheet CNew South Wales_RefYear_2023_STEP_CHANGE_P, 2024.

[385] AGL, *AGL Large Customer Electricity Default Rates New South Wales*, October 2021, p 1.

[386] AGL, *AGL Large Customer Electricity Default Rates New South Wales*, January 2022, p 1.

[387] AGL, *AGL Large Customer Electricity Default Rates New South Wales,* October 2023, p 1.

[388] AGL, *AGL Large Customer Electricity Default Rates New South Wales,* October 2024, p 1.

In addition, Hunter Water's proposed energy operating expenditure does not include revised Ausgrid network charges announced in May 2024, which are expected to impose an additional $1 million per annum on Hunter Water's energy operating expenditure.

As such, Hunter Water's proposed annual energy operating cost increase of approximately $2 million appears to be reasonable.

7.4 Step changes in operating expenditure

Hunter Water has proposed step changes in operating expenditure amounting to $40.7 million over the upcoming pricing period, including:[389]

- $10 million to deliver customer outcome commitments based on community panel recommendations;
- $3.5 million for the operation of the Belmont desalination plant;
- $22.4 million for the shift in digital solutions from capital to operating expenditure; and
- $4 million to deliver projects to meet regulatory requirements.

7.4.1 Customer outcome commitments

Hunter Water has proposed $10 million in step changes for customer outcome commitments arising from its community consultation.

Hunter Water delivered its community engagement program in three stages, ie:[390]

- first, Hunter Water heard the concerns and expectations of around 900 community members through workshops, interviews, focus groups and surveys;
- next, Hunter Water distributed surveys to more than 5,500 community members to understand their primary topics of interest; and
- finally, a community panel of 30 representative customers and community members was selected to make recommendations on selected topics.

The community panel recommended several investments centred around securing water resources for both future generations and periods of scarcity, eg, fixing leaks and improving water efficiency.[391]

In line with its community panel recommendations, Hunter Water has proposed to spend $8 million to improve leakage performance by nearly 40 per cent, which would place it among industry leaders in leakage reduction.[392] This would involve a fix leaks program, water efficiency management plans and essential plumbing assistance.[393]

In addition, the community panel agreed that Hunter Water should meet the New South Wales government targets regarding carbon emission of net-zero by 2050, although opinions were mixed on the timing and scope of emissions reductions. Hunter Water has committed $1.2 million to running the Belmont desalination plant on renewable energy over the upcoming pricing period.[394]

Finally, the community panel recommended addressing repeat service issues which currently affect approximately 1 per cent of customers. Hunter Water has committed an additional $0.8 million to fixing at

[389] Hunter Water, *2024 pricing proposal*, September 2024, p 156.
[390] Hunter Water, *2024 pricing proposal*, September 2024, pp 37-40.
[391] Hunter Water, *2024 pricing proposal*, September 2024, p 45.
[392] Hunter Water, *2024 pricing proposal*, September 2024, p 65.
[393] Hunter Water, *Attachment E: Additional detail on drivers of investment,* September 2024, p 2.
[394] Hunter Water, *2024 pricing proposal*, September 2024, pp 36, 46, 65, 156 and 157.

least 1,000 repeat service issues for customers – by comparison, Hunter Water has addressed hot spots affecting an average of 40 customers per year for the last four years.[395]

Hunter Water calculated the bill impact of implementing the changes as $28.50 per household over the period, ie:[396]

> Our responses to the Community Panel's recommendations require an increase of around $36 million of expenditure over the pricing period. This adds $1.90 per year, every year to a typical household bill (without inflation):
>
> • Carbon reduction $0.26 per year, every year
>
> • Conserving water $0.94 per year, every year
>
> • Hot spots $0.70 per year, every year
>
> The $1.90 increases year-on-year reaching $9.50 by 2030. That's a total bill impact of $28.50 per typical household over the five years.

In our assessment, Hunter Water's proposed expenditure on customer service outcomes based on its community consultation is reasonable. In forming this opinion, we acknowledge Hunter Water's transparent engagement with consumers on the bill impacts of their recommendations, including going back to the Community Panel to gauge their responses to the proposed changes given cost-of-living pressures.[397]

7.4.2 Belmont desalination plant operation

Hunter Water has proposed $3.5 million in step changes for the operation of the Belmont desalination plant, set to commence from 2027/28 onwards. Most expenditure will be capitalised during the performance guarantee period (until March 2030). However, a proportion of these plant testing and optimisation costs will also be expensed.[398]

Hunter Water has outlined the service need for the Belmont desalination plant and categorised the step change as one driven by committing to customer outcomes. The plant will improve water security by reducing the region's reliance on rainfall and the risk of running out of water, providing Hunter Water with more time to respond to droughts when they occur.[399]

We explain in section 6.3.1 that, in our opinion, it would be open for IPART to conclude that there is an opportunity to stage (ie, defer) some components of Hunter Water's proposed water security investments, including some components of the Belmont desalination plant.

If IPART considered that deferring some components of the Belmont desalination plant were appropriate, this operating expenditure would also be avoided.

However, if IPART considered that constructing the Belmont desalination plant was appropriate, in our opinion, on the grounds that IPART considered that capital expenditure on the Belmont desalination plant was reasonable, this operating expenditure is also reasonable.

[395] Hunter Water, *2024 pricing proposal*, September 2024, pp 45, 65 and 156.

[396] Hunter Water, *2024 pricing proposal*, September 2024, p 46.

[397] Insync, *Hunter Water Close the loop report,* September 2024, pp 9, 11, 13 and 20.

[398] Hunter Water, *2024 pricing proposal*, September 2024, pp 156 and 158.

[399] Hunter Water, *Attachment D: The Lower Hunter Water Security Plan,* September 2024, p 8; Hunter Water, *2024 pricing proposal*, September 2024, p 156.

7.4.3 Capital to operating expenditure reallocations

Hunter Water has proposed $22.4 million in step changes for the reallocation of capital expenditure to operating expenditure. All these changes concern digital systems, including:[400]

- $12.1 million for securing digital foundations, ie:[401]
  - $5.9 million for cybersecurity;
  - $3.8 million for digital infrastructure; and
  - $2.4 million for applications;
- $6.9 million for providing great customer service; and
- $3.4 million for becoming a modern utility.

On digital expenditure, Hunter Water's capital and operating expenditure split is principally driven by which services are cloud-hosted and expensed rather than hosted on-premises.

Cybersecurity expenditure is largely driven by the shift to cloud-hosted services. The market shift towards software-as-a-service will involve growing operating expenditure costs to maintain software licenses and support to protect data and business applications.[402] Hunter Water highlighted to us that investment in cybersecurity is vital because customers' water bills can be used as proof of identification.

Digital infrastructure operating expenditure includes maintaining and upgrading digital systems that allow the network, communication, storage and computing to operate. Hunter Water stated that this would include the operating of a data centre, wide area network, unified communications and cloud connectivity infrastructure.[403]

Applications operating expenditure is for ensuring that Hunter Water can maintain operations, including new field services technology, core engineering programs, GIS replacements and upgrades, corporate applications and billing systems. There will also be upgrades to the enterprise resource planning (ERP) platform known as Ellipse.[404]

Customer service operating expenditure of $6.9 million will focus on maintaining customer engagement experiences, improving privacy controls and safeguarding customer data. While customers were 'generally satisfied' by Hunter Water's services, Hunter Water indicated that customer service performance will deteriorate without continual investment to implement fixes, updates and new solutions, as well as recurrent operating expenditure to licence and support these solutions.[405]

Modern utility operating expenditure of $3.4 million is largely focused on improving data insights and smart systems platforms, to ensure Hunter Water's future decision-making processes are data driven. Data insights work will improve organisation-wide data practices by providing a data platform as a single source of operational insights. Smart systems expenditure will focus on applying emerging and efficient technology solutions.[406]

Based on discussions with Hunter Water, in our opinion, these step changes appear to be reasonable.

[400] Hunter Water, *2024 pricing proposal*, September 2024, p 156.

[401] Hunter Water, *Attachment E: Additional detail on drivers of investment,* September 2024, p 24.

[402] Hunter Water, *2024 pricing proposal*, September 2024, p 157; Hunter Water, *Attachment E: Additional detail on drivers of investment,* September 2024, p 24.

[403] Hunter Water, *Attachment E: Additional detail on drivers of investment,* September 2024, p 24.

[404] Hunter Water, *Attachment E: Additional detail on drivers of investment,* September 2024, p 24; Hunter Water, *2024 pricing proposal*, September 2024, p 291.

[405] Hunter Water, *Attachment E: Additional detail on drivers of investment,* September 2024, p 27.

[406] Hunter Water, *Attachment E: Additional detail on drivers of investment,* September 2024, p 26.

7.4.4 Regulatory requirements

Hunter Water has proposed $4 million in operating expenditure step changes to deliver projects that align with regulatory requirements. These include:[407]

- $2.9 million for water quality; and
- $1.1 million for the IPART pricing proposal.

Hunter Water has indicated that, on water quality, it is increasing its reliance on its water treatment protection barrier and adopting a higher risk to minimise bill increases for customers:[408]

> To keep bills as low as possible, we are not able to do as much to protect and reduce risks in our drinking water catchments as we may have liked, increasing our reliance on our water treatment protection barrier. The proposed Hunter Water's 2024 pricing proposal step change represents a small incremental investment to ensure a multiple barrier approach through prudent management of our catchments.

These activities may include investing in research and education programs and partnering with landholders to improve farm runoff quality.[409]

Hunter Water's proposed step change for pricing proposals is $1.1 million.[410] Hunter Water states that it is 'challenging [itself] to be more efficient' in the development of its pricing proposals. It further states that its proposed step change for the costs associated with developing pricing proposals is lower than the base adjustment for pricing proposals.[411] We understand from Hunter Water that it spent more than $1.1 million on its pricing proposal for the 2025-30 period, of which $1.0 million was incurred in 2023/24.

Given that these expenditures are relatively small and necessary to meet regulatory requirements, we believe that these expenditure proposals are reasonable.

7.5 Operating expenditure efficiency strategy

In its operating expenditure proposal, Hunter Water has incorporated an efficiency framework that targets cost reductions through both identified initiatives and ongoing productivity improvements.

The framework applies an efficiency factor averaging 1.0 per cent per year from 2024/25 to 2029/30,[412] with yearly variations as shown in table 5.2.[413] Over the five-year regulatory period (2025/26 to 2029/30), this translates to an average efficiency factor of 0.9 per cent per year, delivering total forecast operating expenditure efficiencies of $36.4 million.[414]

[407] Hunter Water, *2024 pricing proposal*, September 2024, p 156.
[408] Hunter Water, *2024 pricing proposal*, September 2024, pp 158-159.
[409] Hunter Water, *2024 pricing proposal*, September 2024, p 158.
[410] Hunter Water, *2024 pricing proposal*, September 2024, p 156.
[411] Hunter Water, *2024 pricing proposal*, September 2024, p 159.
[412] Hunter Water, *2024 pricing proposal*, September 2024, p 150; Hunter Water information return, tab: 'SIR Opex 2 bts', row: 676.
[413] Hunter Water information return, tab: 'SIR Opex 2 bts', row: 676.
[414] Hunter Water, 2024 pricing proposal – Attachment M: Cost efficiency strategy 2025-30, September 2024, p 20.

Table 7.4: Annual operating expenditure efficiencies, 2024/25-2029/30

Year	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Efficiency factor	1.4%	0.8%	0.9%	0.8%	0.9%	1.0%

Source: Hunter Water information return, tab: 'SIR Opex 2 bts', row: 676.

We understand from discussions with Hunter Water that this efficiency factor consists of two distinct components, ie:

- a 'bottom up' component identifying specific cost saving opportunities ie:[415]
  - digital;
  - operating expenditure savings from capital investment;
  - cost rationalisation;
  - enterprise workforce;
  - workplace facilities;
  - maintenance; and
  - targeted actions from WSAA benchmarking; and
- a 0.8 per cent 'top down' efficiency factor applied to the remainder of the operating expenditure, to reflect Australia's long-term multi factor productivity.

The methodology used by Hunter Water appears generally robust and well-structured. The combination of specifically identified efficiency initiatives with a broader productivity factor represents good practice. The key question is whether Hunter Water's proposed operating expenditure efficiency factor is reasonable given the prevailing circumstances.

In our opinion, Hunter Water's target 1 per cent annual efficiency saving between 2024 and 2030 appears to be conservative, particularly given the potential opportunities and growing cost pressures on customers. While Hunter Water has emphasised its current efficiency as limiting its opportunities for future cost savings, we understand from Hunter Water that it expects to perform worse in its next round of WSAA benchmarking, due in part to the timing of its contracts.

In addition, some of Hunter Water's peers like Barwon Water and South East Water are targeting two per cent annual savings. Below we extract from Hunter Water's proposal a summary of efficiency factors applied by other water businesses, which range from zero to two per cent.

[415] Hunter Water, 2024 pricing proposal – Attachment M: Cost efficiency strategy 2025-30, September 2024, p 20.

Regulator decisions

Our target of 1% is compared with decisions from other regulators over the past couple of years in Table 3. These targets range from 0% up to 2% for some water businesses in Victoria.

Table 3: Recent regulator decisions on efficiency targets

Year	Regulator / business	Sector	Target p.a cumulative	Comment
2024	ESCOSA / SA Water	Water	0.8%	ESCOSA refers to this target as being in line with long-term multi-factor productivity growth outcomes for the market sector.
2024	ESC / Greater Western Water	Water	1.4%	The final decision refers to the expectations of Victorian water businesses
2023	ICRC / Icon Water	Water	1.2%	
2023	ESC / Yarra Valley Water	Water	1.7%	
2023	ESC / Barwon Water	Water	2.0%	
2023	ESC / South East Water	Water	2.0%	
2023	ESC/ East Gippsland Water	Water	1.0%	
2023	ESC / South Gippsland water	Water	1.4%	
2022	OTTER / TasWater	Water	1.5%	
2022	QCA / Seqwater	Water	0%	QCA noted that there was a credible efficiency program to reveal efficient costs over the regulatory period which it considered superior to an efficiency target.

Source: Hunter Water

In our opinion, a business in Hunter Water's position would attempt to identify greater operating expenditure efficiencies in the 2025-30 regulatory period, particularly given cost of living pressures, trend increases in labour and treatment expenditure and the opportunities presented by technology. In our opinion, an average annual operating expenditure efficiency factor of 1.5 per cent would be more appropriate, given the current landscape. Specifically, including a higher efficiency factor could help to offset upward adjustments to wages and salaries that we believe are warranted, as we discuss in section 5.2.2.

We present recalculated efficiency factors in table 7.5, noting that we have maintained Hunter Water's 'bottom-up' efficiencies and adjusted the 'top down' efficiency factor. We have also not amended Hunter Water's proposed efficiency factor for 2024/25.

Table 7.5: Revised annual operating expenditure efficiencies, 2024/25-2029/30

Year	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
Efficiency factor	1.38%	1.42%	1.52%	1.42%	1.52%	1.62%

Our recommended efficiency factor adjustment would result in operating expenditure savings of $53.2 million, which is $16.8 million of cumulative operating expenditure savings compared to Hunter Water's proposal, ie, an additional $1.1 million per year in 2025/26, growing to an additional $5.6 million per year by 2029/30.

Table 7.6: Revised annual operating expenditure efficiencies, 2024/25-2029/30

Year	2025/26	2026/27	2027/28	2028/29	2029/30	Total
Savings from Hunter Water's proposed efficiency factor	$4.0	$5.7	$7.1	$8.9	$10.7	$36.4
Savings from HoustonKemp's efficiency factor – lower bound	$5.1	$7.9	$10.5	$13.3	$16.3	$53.2
Efficiency factor adjustment – lower bound	-$1.1	-$2.2	-$3.4	-$4.5	-$5.6	-$16.8

7.6 Assessment of 2020-25 service outcomes

Hunter Water's 2019 pricing proposal identified the following target outcomes:[416]

- providing quality drinking water;
- offering safe and reliable services;
- delivering positive customer service;
- managing environmental impacts and natural resources; and
- valuing water conservation while providing sufficient water to customers.

Hunter Water states that it achieved these aims in the 2020-24 period with respect to meeting the minimum required thresholds for maintaining their Operating Licence. However, Hunter Water also identified areas for further improvement, particularly regarding improving the reliability of services and reducing water leakage.[417]

7.6.1 Providing quality drinking water

In line with the Australian Drinking Water Guidelines, Hunter Water is required to provide safe drinking water to customers. While Hunter Water was compliant with these guidelines and customer satisfaction in water quality was above average in 2017, it identified strategic priority areas to continue providing good quality water, including catchment management, investment into disinfection systems and preventing drinking water contamination.[418]

In the 2020-24 period, Hunter Water's management system remained compliant with the requirements for its Operating Licence despite 'minor shortcomings' in implementation, which were largely administrative non-compliances that did not compromise the operation of the system.[419] Hunter Water also achieved the required performance measures concerning drinking water critical control points, performance standards for microbiological detections and health and aesthetic requirements.[420]

7.6.2 Offering safe and reliable services

Hunter Water has conditions in its Operating Licence to minimise unplanned disruption to services, provide customers with reasonable water pressure and minimise wastewater overflows. In 2019, Hunter Water met the required thresholds for these conditions and aimed to continue improving the quality of its services with investments to reduce flooding risk from burst water pipes and for replacements of existing network components.[421]

In the 2020-24 period, Hunter Water continued to meet the minimum system performance standards for water continuity, water pressure and wastewater overflows, well within the required thresholds for its Operating Licence. However, Hunter Water experienced more than the median number of water main breaks, bursts and leaks each year among water service providers in Australia and had one of the highest rates of unplanned water interruptions per property. Though these results are variable due to weather

[416] Hunter Water, *Pricing proposal*, July 2019, p ix.

[417] IPART, *Hunter Water operating licence,* 2022; Hunter Water, *Appendix B: Service performance in the current pricing period,* September 2024, p 1.

[418] Hunter Water, *Pricing proposal*, July 2019, pp 17-19; IPART, *Hunter Water operating licence,* 2022, p.8.

[419] For example, the omission of reference to key stakeholders in reporting, omission of risk treatment plans when required in reporting, outdated communications. See: IPART, *Hunter Water 2021 operational audit: Report to the Minister,* March 2022, pp 7-8.

[420] Hunter Water, *Appendix B: Service performance in the current pricing period,* September 2024, p 4.

[421] Hunter Water, *Pricing proposal*, July 2019, pp. 12-14; Hunter Water, *Technical Paper 2 Service Levels,* 2019, pp 30, 35, 42; IPART, *Hunter Water operating licence,* 2022, pp. 9-10.

conditions as well as asset conditions, Hunter Water has emphasised the provision of safe and reliable services as a key point of improvement.[422]

We have reviewed Hunter Water's compliance with its water pressure standard, water continuity standard and wastewater overflow standards from its annual compliance reports. Hunter Water has met or exceeded each of these standards in each year from 2020/21 to 2023/24.[423]

Assessing Hunter Water's provision of safe and reliable services against observable community opinion similarly highlights this service outcome as a point of improvement. The community panel recommended prioritising ongoing service issues even though they affected only around 1 per cent of customers.[424] We have also not identified any observable issues raised by newspapers and general media regarding the reliability of services in the 2020-24 regulatory period.

7.6.3 Customer Service

Hunter Water aimed to be a utility with which customers found it 'easy to do business.'[425] This encompassed improving the efficiency of its processes and customer experience and maintaining a procedure for handling complaints, per its Operating Licence. Until 2017, Hunter Water performed poorly in customer experience among major urban water utilities, with over six complaints per 1,000 properties per year. This fell to 3.5 complaints per 1,000 properties in 2019.[426]

In the 2020-24 period, Hunter Water achieved consistent levels of customer satisfaction as per its indicators of success. These measures included customer experience pulse checks, the speed of resolving issues and keeping customers informed about the progress of enquiries. Customer complaints continued to reduce to less than two per 1,000 properties in 2022-23, however increased to approximately 2.5 per 1,000 properties in 2023/24.[427]

Hunter Water states that the downturn in customer satisfaction affected the entire industry and was primarily driven by:[428]

- water quality complaints relating to taste and odour due to the detection of naturally occurring compounds at wastewater treatment works; and
- bill complaints due to cost-of-living pressures.

In our assessment, Hunter Water's customer service outcomes were largely achieved in the 2020-24 regulatory period, although we note the downturn in customer satisfaction in 2023/24. However, we acknowledge that customer dissatisfaction calls due to bill impacts are likely to increase in times with higher cost of living pressures.

We have undertaken a desktop review of customer service sentiment from online reviews and in news media and have not identified any particular concerns. We note that in Hunter Water's Quarterly Community Survey in August of 2023, survey participants further rated 'improving customer service experiences' as an outcome requiring the least focus from Hunter Water, other than keeping public spaces green.[429] Accordingly, it

[422] Hunter Water, *Appendix B: Service performance in the current pricing period,* September 2024, pp 1 and 3.

[423] HoustonKemp analysis of Hunter Water, *Compliance and Performance Report: 2023-24,* September 2024; Hunter Water, *Compliance and Performance Report: 2022-23,* September 2023, Hunter Water, *Compliance and Performance Report: 2021-22,* September 2022, Hunter Water, *Compliance and Performance Report: 2020-21,* September 2021.

[424] Hunter Water, *2024 Pricing Proposal,* September 2024, p 45.

[425] Hunter Water, *Pricing proposal*, July 2019, p 15.

[426] Hunter Water, *Technical Paper 2 Service Levels,* 2019, p 14; IPART, *Hunter Water operating licence,* 2022, p.17.

[427] Hunter Water, *Appendix B: Service performance in the current pricing period,* September 2024, pp 7-8.

[428] Hunter Water, *Appendix B: Service performance in the current pricing period,* September 2024, pp 7-8.

[429] Hunter Water, *2024 Pricing Proposal,* September 2024, p 40.

appears that customer service was a relatively lower priority for customers in 2023/24, despite the uptick in dissatisfaction calls.

7.6.4 Managing environmental impacts and natural resources

Another of Hunter Water's customer outcome targets was to manage environmental impacts and use natural resources wisely. This largely involved ensuring compliance with environmental regulations and meeting community expectations and maintaining an environmental management system consistent with its Operating Licence.[430]

In 2019, Hunter Water had eight wastewater treatment works which were non-compliant with EPA conditions due to equipment malfunctions, biosolids disposal and storm power failures. Hunter Water aimed to be fully compliant with these conditions to minimise harm to human health, primarily by upgrading wastewater network and treatment plants.[431]

In the 2020-24 period, the number of wastewater treatment works non-compliant with EPA conditions typically ranged from zero to five, with one month (April 2021) where eight wastewater treatment works were non-compliant.[432] The number of reportable environmental incidents also decreased from 134 in 2017/18 to less than 80 in 2023/24.[433] On these measures, Hunter Water improved their management of environmental impacts in the 2020-24 period.

We have reviewed Hunter Water's annual compliance reports to assess its environmental compliance over the 2020-24 period. On 5 May 2022, Hunter Water received an official caution from the EPA in relation to a wastewater overflow that occurred at Nelson Bay on 25 June 2021.[434] Hunter Water states that, following the incident, it has implemented numerous actions to prevent reoccurrence.[435] Otherwise, Hunter Water reported no environmental compliance incidents in the 2020-24 period.

We also undertook a desktop review of news media for information on Hunter Water's environmental compliance. We find no evidence of any major environmental concerns associated with Hunter Water from the community. On this information, we do not believe there are any concerns with Hunter Water's environmental compliance.

7.6.5 Water Conservation

Hunter Water was the poorest performer among major utilities in Australia in water loss per connection in 2016. Hunter water targeted a 15 per cent reduction in leakage by 2022, relative to 2016 levels.

Hunter Water must maintain and implement a water conservation program as per the requirements of its Operating Licence.[436] Hunter Water must develop and submit a water conservation plan for the following five year, which covers the Operating Licence. Hunter Water's five-year water conservation plan for 2022-27 has four focus areas: integrated water management, alternative sources, water efficiency and water loss.[437]

In line with its five-year plan, Hunter Water plans to reduce customer drinking water consumption by 17 per cent over the next 10 years and reduce leakage from 69 litres per connection per day to 50 litres over the

[430] Hunter Water, *Pricing proposal*, July 2019, pp 12-14; Hunter Water, *Technical Paper 2 Service Levels,* 2019, p 60; IPART, *Hunter Water operating licence,* 2022, p 12.

[431] Hunter Water, *Pricing proposal*, July 2019, pp 12-14; Hunter Water, *Technical Paper 2 Service Levels,* 2019, p 60; IPART, *Hunter Water operating licence,* 2022, p 12.

[432] Hunter Water, *Appendix B: Service performance in the current pricing period,* September 2024, p 6.

[433] Hunter Water, *Appendix B: Service performance in the current pricing period,* September 2024, p 5.

[434] Hunter Water, *Annual Report: 2022,* 2022, p 19.

[435] Hunter Water, *Annual Report: 2022,* 2022, p 19.

[436] IPART, *Hunter Water operating licence: 2022-27,* rule 12.

[437] Hunter Water, *Five Year Water Conservation Plan,* December 2023, p 6.

next five years.[438] For the 2020-25 pricing period, Hunter Water proposed investments into leak detection and leak repair assistance and demand and pressure management.[439]

Real water losses fell from around 80 litres per service connection per day in 2018/19 to less than 65 litres per service connection per day in 2020/21, reflecting an improvement in water leakage. However, performance deteriorated in 2022/23 primarily due to flooding in 2022, where over 80 litres per service connection per day were lost.

Hunter Water states that it is heading in the right direction again, with community support to invest in leakage reduction for the upcoming period.[440] Hunter Water aims to further reduce leakage to 50L/connection/day during the 2025-30 regulatory period.

7.7 Efficient costs by service category

In our opinion, Hunter Water's proposed expenditure by service category (corporate, water, wastewater and stormwater) is reasonable.

Consistent with our discussion in section 7.2.3, we consider Hunter Water's base operating expenditure to be efficient, assessed against the WSAA cost benchmarking. Because the operating expenditure categories in the WSAA benchmarking study are arranged by service category, we understand the baseline operating expenditure by service category to be efficient.

Consistent with our discussion in section 7.3.1, Hunter Water applies a consistent top-down growth trend to its baseline operating expenditure for all service categories. Consistent with the base-trend-step approach, Hunter Water also applies discrete trends and steps where it expects real input price changes or a step-change in the efficient level of recurring controllable operating expenditure. In our assessment, Hunter Water's proposed trend and step changes are reasonable.

We present Hunter Water's proposed operating expenditure by service category in table 7.7.

Table 7.7: Hunter Water's proposed operating expenditure by service category ($2024/25, $millions)

Service category	2025/26	2026/27	2027/28	2028/29	2029/30	Total
Corporate	62.0	62.7	63.6	63.1	62.7	314.2
Water	64.0	64.2	65.4	66.8	66.2	326.6
Wastewater	65.0	65.3	65.9	65.9	65.9	328.0
Stormwater	2.0	2.0	2.0	2.0	2.0	10.0
Total	**193.0**	**194.2**	**197.0**	**197.8**	**196.9**	**978.8**

Source: Hunter Water, 2024 Pricing Proposal, September 2024, p 134.

We present our adjusted lower bound operating expenditure by service category in table 7.8.

[438] Hunter Water, *Five Year Water Conservation Plan,* December 2023, p 8.

[439] Hunter Water, *Five Year Water Conservation Plan,* December 2023, pp 26-31.

[440] Hunter Water, *Appendix B: Service performance in the current pricing period,* September 2024, pp 1-2; Hunter Water, *Annual Report 2023,* 2023, p 20.

Table 7.8: Adjusted lower bound operating expenditure by service category ($2024/25, $millions)

Service category	2025/26	2026/27	2027/28	2028/29	2029/30	Total
Corporate	61.7	62.0	62.6	61.9	61.3	309.6
Water	63.6	63.5	64.0	64.3	64.3	319.7
Wastewater	64.7	64.8	65.3	65.2	65.0	325.0
Stormwater	2.0	2.0	2.0	2.0	2.0	9.9
Total	**192.0**	**192.3**	**193.9**	**193.4**	**192.7**	**964.3**

We present our adjusted upper bound operating expenditure by service category in table 7.9.

Table 7.9: Adjusted upper bound operating expenditure by service category ($2024/25, $millions)

Service category	2025/26	2026/27	2027/28	2028/29	2029/30	Total
Corporate	62.0	62.8	64.1	64.0	64.0	317.0
Water	64.0	64.3	65.7	67.3	67.0	328.4
Wastewater	65.0	65.4	66.1	66.3	66.5	329.3
Stormwater	2.0	2.0	2.0	2.0	2.0	10.0
Total	**193.1**	**194.5**	**198.0**	**199.6**	**199.4**	**984.6**

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