

5

Operating expenditure



Technical Paper 5

- ✎ We forecast a net variance of \$23.4 million or 4.1% in operating expenditure over the current regulatory period compared with IPART's 2016 Determination: \$6.1 million lower in 2016-17, \$7.5 million higher in 2017-18, \$10.9 million higher in 2018-19 and \$11.2 million higher in 2019-20.
- ✎ We have partially offset these increases with efficiency programs such as civil maintenance productivity, energy management and spoil management.
- ✎ We have maintained our position as a low-cost water provider, with the third lowest operating cost per property of 15 major Australian water utilities in the most recent National Performance Report (2017-18).
- ✎ We use a 2019-20 base year to establish operating expenditure budgets over the next price period. We forecast expenditure of \$156 million in 2019-20 compared with IPART's allowance of \$144.7 million.
- ✎ We have set our operating expenditure using bottom-up budgets by product, process, location and expense type. We have chosen central, P50 estimates.
- ✎ Hunter Water's proposed expenditure for the next price period is \$9.5 million (1.2 per cent) higher than the equivalent 2019-20 expenditure extrapolated for five years. This is a 0.3% increase per year in real terms.

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1. Overview

Hunter Water has consistently been a low-cost service provider. In 2015-16 and 2016-17, we had the lowest operating cost per property for water and sewerage services of any major utility in Australia.

We maintained our position as a low-cost water provider in the most recent National Performance Report (NPR 2017-18, released in February 2019): we had the third lowest operating cost per property of 15 major Australian water utilities.

This leading low-cost position has come with a relatively high level of operational risk. NPR results show that in 2015-16, our:

- Chokes per 100km of sewer main were amongst the highest of major water utilities.
- Leakage per connection was the worst of any major water utility. Leakage had progressively escalated since 2012-13.
- Annual residential water supplied per property is higher than most major utilities and typically 10 per cent higher than water customers in Melbourne.

Over the last two years, we have increased our focus on understanding risks in the operating environment including the impacts of regulatory changes. Our Board has developed and refined a comprehensive enterprise risk management (ERM) framework enabling Hunter Water to better understand our appetite and tolerance for risk. We have committed to invest in activities that will result in risk reduction in areas currently outside of risk appetite, thereby ensuring services continue to be provided in-line with community expectations and meet safety, environmental and compliance requirements.

IPART's 2016 Determination set an allowance for efficient regulated operating expenditure of \$144.7 million in 2019-20. During the current price period we have experienced considerable cost pressures driving expenditure increases. For example, during the current price period, we expect to incur higher costs than forecast in 2016 in areas including:

- long-cycle preventative maintenance (\$5.2 million)
- electricity (\$2.8 million)
- laboratory costs (\$1.7 million)
- spoil (an extra \$1 million in 2018-19 compared to previous years)
- labour - a large proportion of the \$7.7 million increase in net labour costs are driven by the need to address safety, environmental and compliance risks.

Since 2016, we are investing significantly to reduce water losses from our system and water demand across our customer base. This includes active leak detection activities, additional maintenance expenditure to respond to leaks sooner, and water network monitoring using new technologies to identify leaks faster and before they become visible on the surface. Our Love Water campaign involves engaging with the community about the value and scarcity of water. The campaign is helping drive community behaviour change at scale.

The benefits of this investment include avoidance or deferral of high capital expenditure (such as major source augmentation) that may be required in a compressed timeframe if a reactionary solution is required. Our expenditure on reducing water leakage has successfully reduced our real losses by 17 per cent. The investment in leakage reduction is economically efficient, satisfying Hunter Water's Economic Level of Conservation.

Prudent investments to address risk, including outcomes from the forward capital program, have been explicitly incorporated in our operating cost expenditures. This has resulted in increases to our expenditure profile from historically low levels. Upgrades to our facilities to improve compliance outcomes have added new costs, due to increased electricity, chemicals, maintenance and specialised labour.

Hunter Water's business continues to grow with population growth and as more customers move to the Lower Hunter. This will increase costs in real terms, with variable cost of sales increasing with the increases in volume of water and wastewater treated and transported within the network. Our investment is, in part, driven by a need to meet the market in relation to services provided to customers.

We continue to focus on productivity and efficiency programs across both the current and next price period in areas such as energy-use reduction, optimising field maintenance and workforce planning, and improving customer experience. Efficiency programs have delivered operational savings and will continue to do so in future years, building on Hunter Water's history of efficient operating expenditure.

IPART allowed an efficient level of regulated operating expenditure of \$572.4 million (\$2019-20) over the four years from 2016-17 to 2019-20. We forecast that operating expenditure for the current price period will be \$596.0 million (\$2019-20). This is \$23.6 million (or 4.1 per cent) above IPART's allowance.

During the next price period, operating costs are expected to increase by 0.3 per cent per year in real terms.

2. Introduction

In this Technical Paper, we:

- Establish that we are an efficient and low-cost service provider with a mature approach to managing risk (sections 3 and 4).
- Explain the categories that we use to describe our expenditure (section 5).
- Compare our regulated operating expenditure in the current price period to IPART's 2016 Determination allowance (section 6).
- Present our proposed operating expenditure for the next price period: 2020-21 to 2024-25 (section 7).
- Describe our planning, budgeting and forecasting processes (section 8).

3. Low-cost operator

Hunter Water is one of Australia's lowest cost water utilities.¹ In 2016-17, we had the lowest combined operating costs for water and sewerage per property (indicator F13) amongst the 15 major utilities in our National Performance Report (NPR) cohort (>100,000 connections). In 2017-18, we had the third lowest operating costs per property (\$638) of major utilities (see Figure 3.1) and one of the lowest of all participating utilities (ranked 9 out of 80).

During the current regulatory period we have focused on providing services to customers in a prudent and efficient manner with a view to achieving a high level of regulatory compliance and providing adequate service levels to customers.

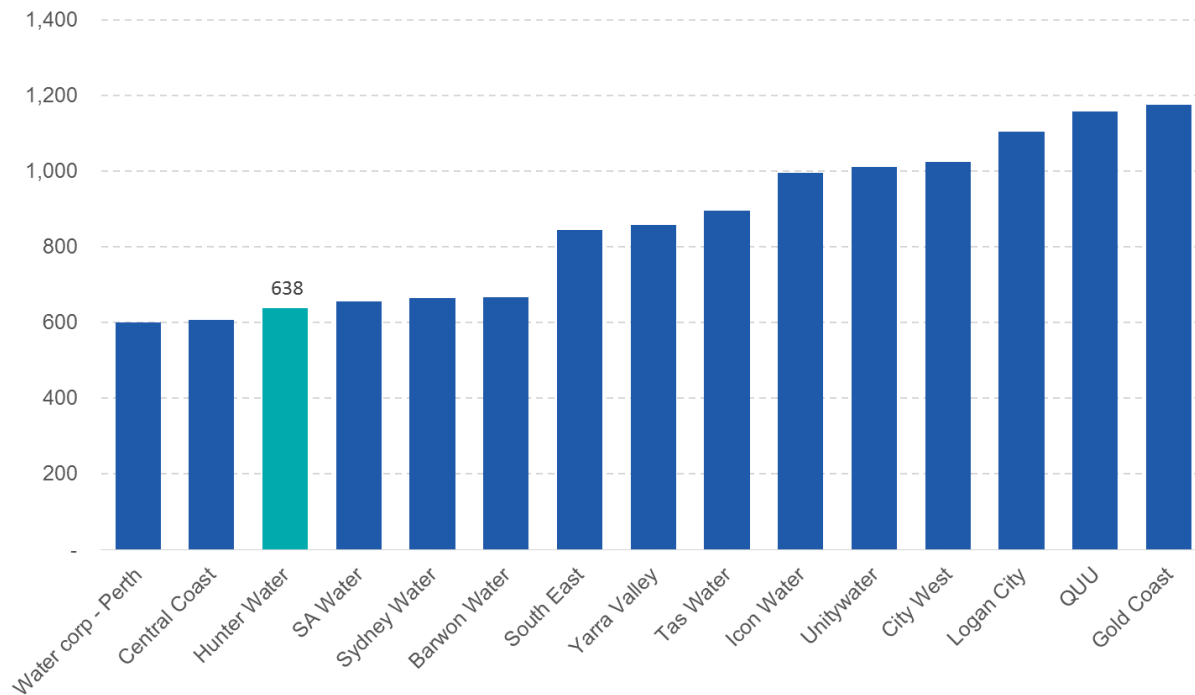
Hunter Water faces cost challenges in that we provide services across a large geographic area of operations with low population density relative to other major metropolitan water utilities. This means we have longer lengths of water and wastewater main per property connection (Figure 3.2 and Figure 3.3).

These characteristics should result in comparatively higher operations and maintenance requirements per property than most other water utilities. However, our operating cost performance is comparable to other major NSW water utilities and leading relative to water utilities across Australia (Figure 3.4).

Meeting these challenges at the same time as achieving low costs per property demonstrates our high level of efficiency, but also reveals underlying compliance risks in the areas of safety, assets, customers and the environment (see Technical Paper 2).

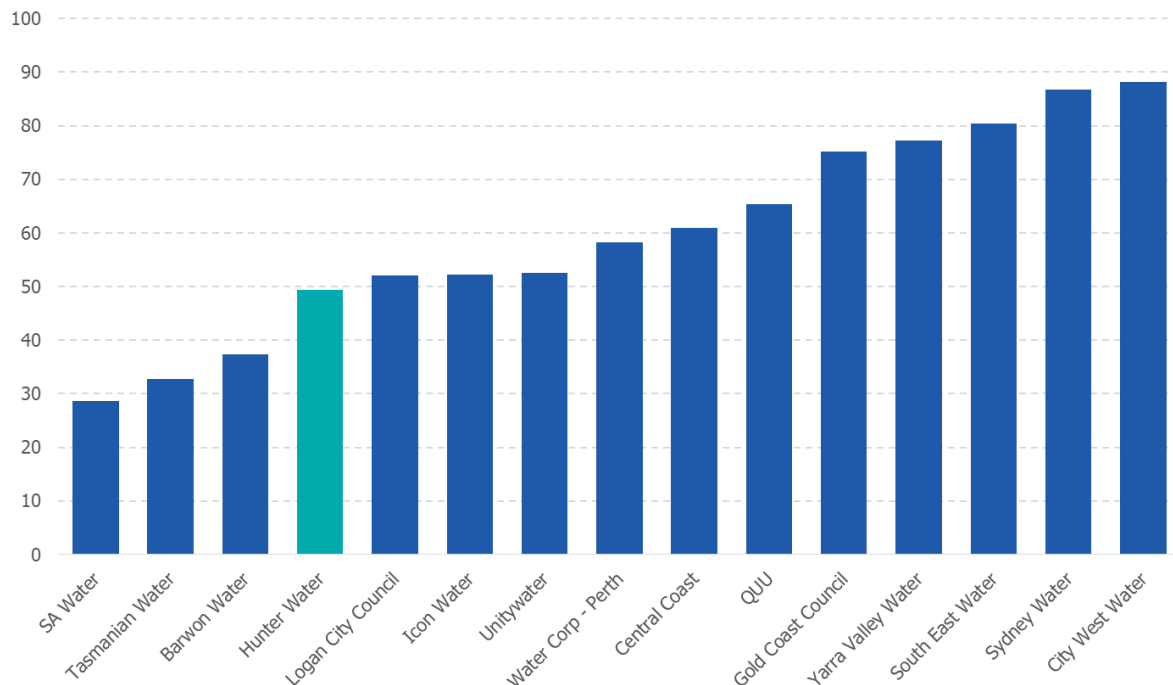
¹ BOM, 2019, National Performance Report 2017-18, Part A, Indicator F13: Combined operating costs: water and sewerage (\$ per property), p. 81

Figure 3.1 NPR Indicator F13: Operating cost per property (all major utilities), 2017-18 (\$)



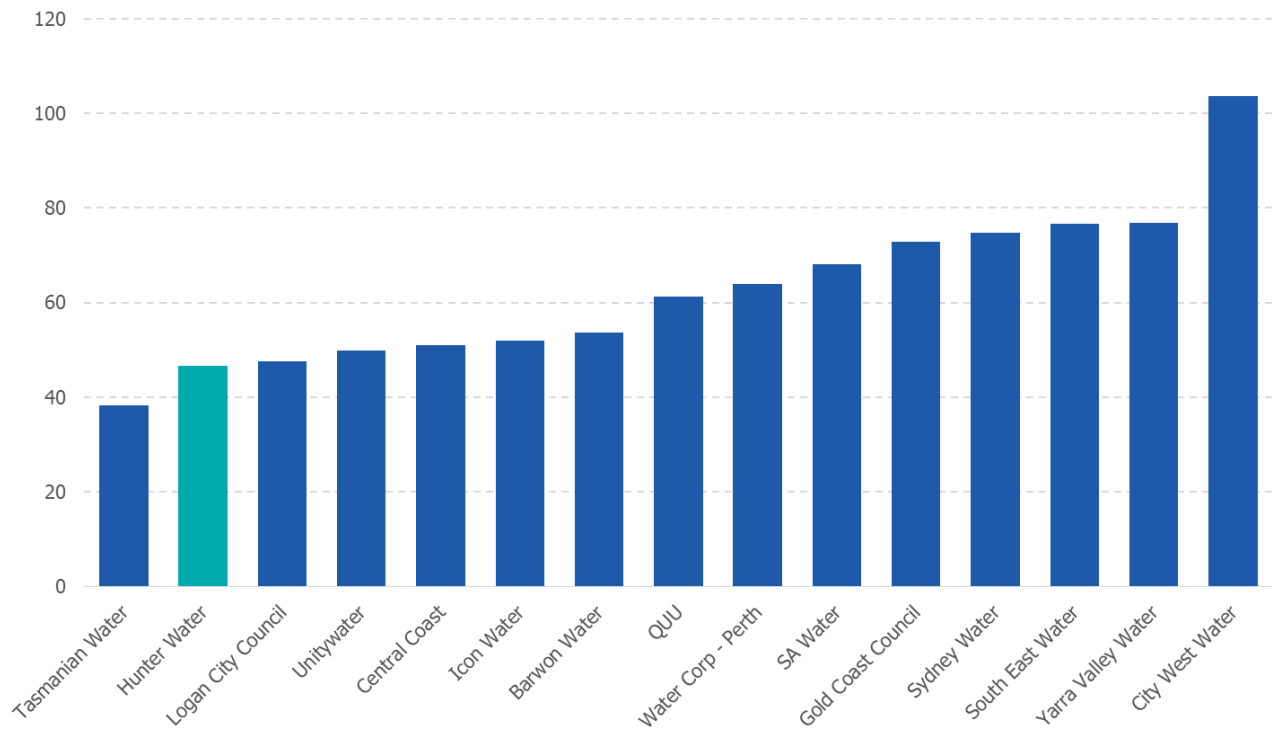
Source: National Performance Report 2017-18.

Figure 3.2 NPR Indicator A3: Properties served per km of water main (number/km)



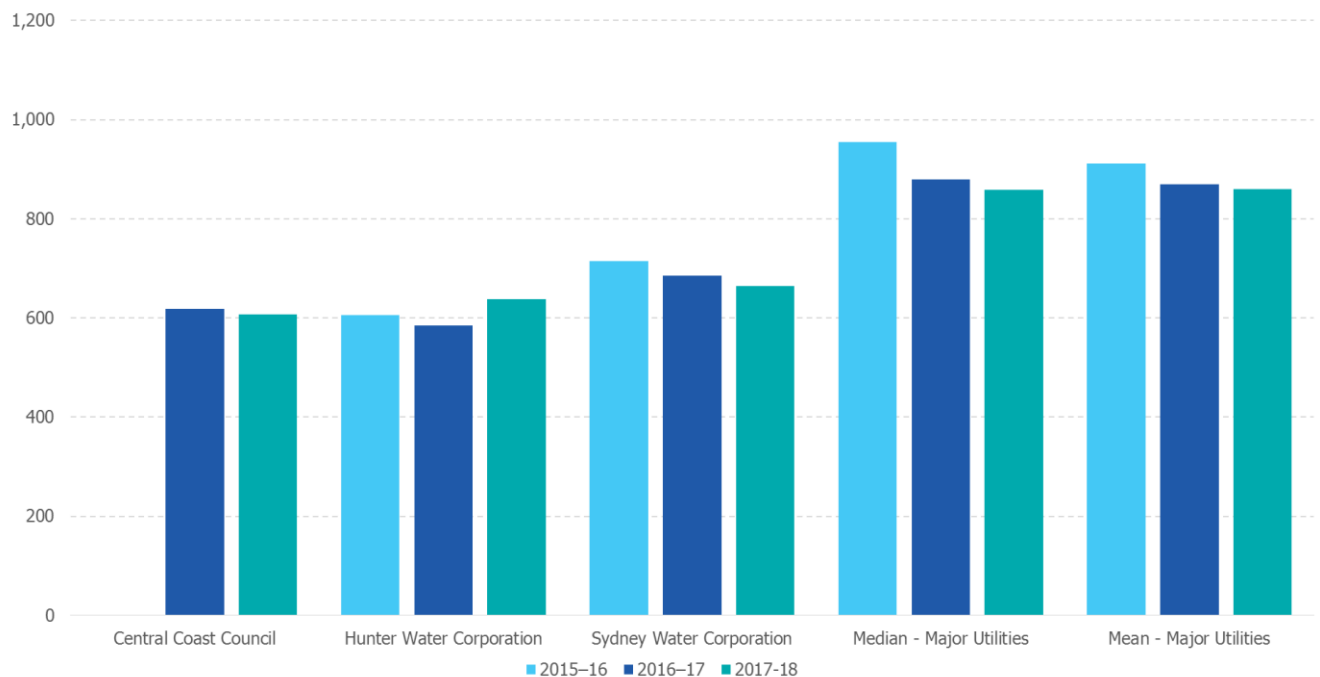
Source: National Performance Report 2017-18.

Figure 3.3 NPR Indicator A6: Properties served per km of sewer main (number/km)



Source: National Performance Report 2017-18.

Figure 3.4 NPR Indicator F13: Operating cost per property (major NSW utilities)



Source: National Performance Report 2017-18.

4. Responding to risks

In 2016-17, Hunter Water undertook a comprehensive risk assessment of the organisation, developing deeper understanding of:

- The risks that we face in delivering our required services
- Our performance in relation to safety, environmental and other compliance activities, and
- Our role in the community and the challenges and opportunities we will face in the years ahead.

The list of likely challenges and opportunities included: population growth, a changing planning environment, carbon and electricity cost impacts, technological change, climate change, price and cost pressures and meeting the expectations of customers, consumers and the community.

A number of legacy issues were identified relating to business systems, knowledge management, asset reliability, safety, environmental performance and customer experience.

We also dedicated time and resources to advance and refine our Enterprise Risk Management (ERM) and accompanying risk appetite statements (described in Technical Paper 2). We have assessed our risk exposure relative to our risk appetite, including compliance with regulatory requirements. This work was used to prioritise investment in areas with the greatest need.

This body of work resulted, in part, to the development of a new strategic direction for our organisation. Our 2017+3 Strategy placed a greater emphasis on risk differentiation and mitigation, financial and environmental sustainability, and how we interact with the community. The additional investment in these areas of work started in 2017-18 and is reflected in operating expenditure from that year forward into the next regulatory period.

Organisational structure improvements

The operational capacity and capability of the organisation was reviewed in 2017 with a view to better support the delivery of desired outcomes in relation to risk, operations, safety, environmental and strategic objectives.

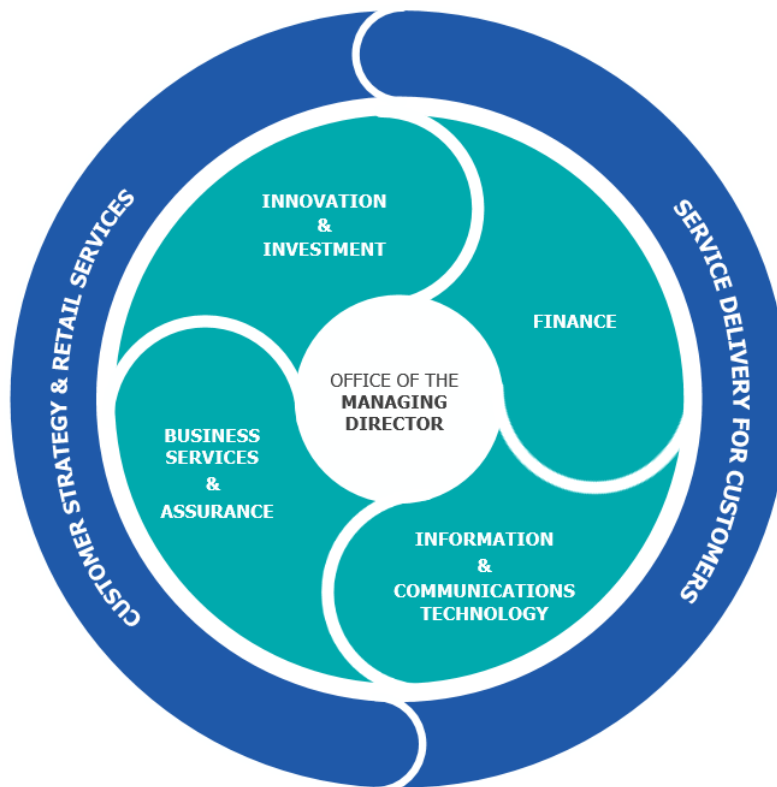
External benchmarking data (NPR 2015-16) informed consideration of the need for a new operating model and organisational structure. We were performing poorly in key aspects of our operations, and investment and expenditure were relatively low.

We needed to focus more on future technology enablement opportunities, energy efficiency, leakage, water conservation, resource recovery and reuse from wastewater, and understanding customer values and preferences.

We implemented an organisational restructure in October 2017. The key principles of the restructure were:

- Shifting resources to customer-facing services to increase the focus on meeting customer needs.
- Consolidating developer functions to improve engagement and enable good development.
- Grouping short-term planning functions to deliver support necessary to customer-facing teams.
- Grouping planning functions to consider longer-term infrastructure options and service levels.
- Reorganising non-customer facing functions to better support customer-facing teams.

The new organisational structure is shown in Figure 4.1.

Figure 4.1 Organisational structure, October 2017

Source: Hunter Water.

The key organisational changes included:

- The addition of resources focused on the water resilience program, Lower Hunter Water Plan and non-revenue water program. This resulted in an increase in engineering, planning, economics and maintenance resources, including contracted services and contract labour.
- The introduction of small teams dedicated to developing and assessing strategies for: energy efficiency, resource recovery from wastewater and recycling, efficient treatment of biosolids with the potential for waste to energy, and incremental adaptive pathway planning for water resilience.
- The addition of customer engagement resources, including to develop and guide programs in water resilience and sustainable wastewater.
- The addition of resources to identify and trial technologies with a view to improving efficiency and customer service and experience.
- The addition of management capability in customer engagement to improve engagement and expand the choice of communication techniques to influence customer water-use behaviour.
- The addition of resources focused on key account management to identify and reduce unnecessary water consumption by non-residential customers and to improve metering accuracy.
- Moving from one Chief Operating Officer to one Executive Manager, Service Delivery for Customers and one Chief Investment Officer.

Since this major organisational redesign, we have continued to develop our organisational structure, making changes such as:

- Merging the roles of General Counsel and Executive Manager Corporate and Legal Services
- Merging the risk function into the investment and innovation functions
- Merging the procurement function into the Finance function
- Merging the safety, health and wellbeing function into the Human Resources function, and
- Merging the Executive Assistant / administration functions to break the previous silos and foster team work, with a reduction in the number of roles from six to four.

Increased investment and organisational redesign has, and continues to, resolve historic operational performance issues, provide necessary operational focus and help us establish the capability and capacity to deliver more and to better achieve our objectives.

The organisational changes have helped us to achieve a number of positive outcomes:

- Leakage has reduced by 20 per cent since 2015-16.
- Modelling reveals customer consumption in 2018-19 was 3 to 4 per cent lower than it would otherwise have been without the activities we have undertaken.
- More investigation and investment in energy management and solar energy is providing opportunities to reduce energy costs and greenhouse gas emissions.
- Our customers are helping to shape our future investment plans based on their values, preferences and willingness to pay.

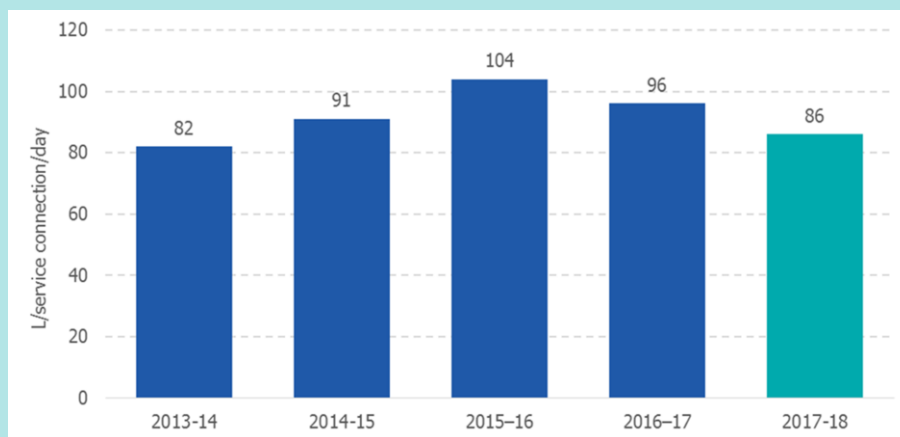
In addition to efficiency, the organisational change was also driven by the need to reduce risk, particularly relating to harm to people or the environment. Increased resourcing in the field workforce, including the need for additional supervisor positions (to reduce the span of control per supervisor) was directly related to these essential areas of risk reduction and ensuring everyone is working safely. As a result, the frequency of hazard identification has increased significantly (a lead indicator of improved safety) and the total recordable injury frequency rate for staff and contractors has decreased towards the lowest of major water utilities.

Box 1 - Leakage reduction program

Hunter Water has focused heavily on reducing leakage across the water network as part of a broader water resilience program. We have spent more since 2016 to reduce water loss. This includes active leak detection activities, additional maintenance costs responding to leaks sooner and monitoring of the water network using new technologies to identify leaks faster and before they become visible on the surface.

We achieved positive outcomes from this increased investment (Figure 4.2). Leakage has decreased by 17 per cent or 18 litres per service connection per day from 2015-16 to the end of 2017-18. Leakage decreased by 10.4 per cent between 2016-17 and 2017-18.

**Figure 4.2 2017-18 NPR Indicator A10: Real water losses
(L/service connection/day)**



Source: NPR 2017-18, Table A16 – Indicator A10: Real losses (p97)

Source: National Performance Report, 2017-18.

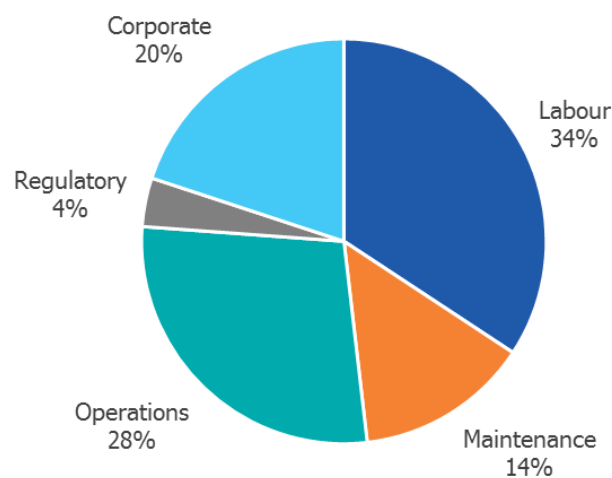
5. Operating expenditure by category

5.1 Overview

Hunter Water categorises regulated operating expenditure into five main areas: labour, maintenance, operations, regulatory, and corporate.

This categorisation reflects the nature of the expenditure and the grouping of costs with similar drivers. The following sections detail the nature and types of expenditure included in each category. Operating expenditures by cost category based on actual costs incurred in 2017-18 (last full year of actual data) are shown in Figure 5.1. Labour costs were the largest category, accounting for 34 per cent of all expenditure. This was followed by expenditure on operations (28 per cent) and corporate costs (20 per cent).

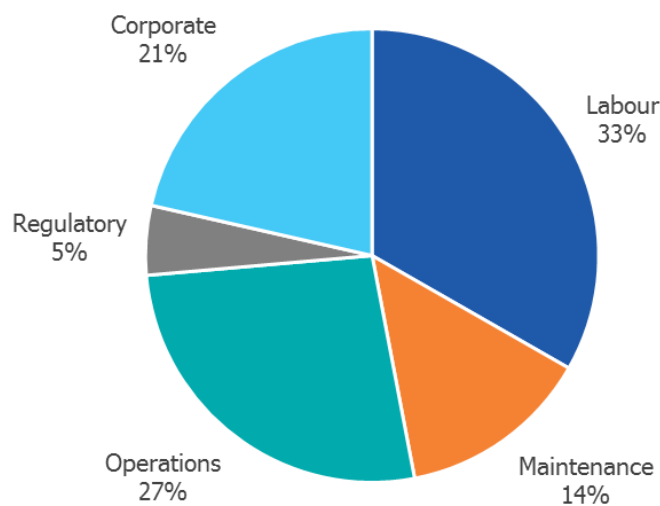
Figure 5.1 Operating expenditure by operating cost category, 2017-18 (actual)



Source: Hunter Water analysis.

We forecast the proportions of expenditure in 2019-20 to be similar (see Figure 5.2).

Figure 5.2 Operating expenditure by operating cost category, 2019-20 (forecast)



Source: Hunter Water analysis.

5.1.1 Labour

The labour cost category includes costs associated with Hunter Water employees who are paid on payroll.

Internal labour costs include the total costs of employment:

- Wages and salaries
- Annual leave and long service leave accrued by employees, and
- Payroll tax, superannuation contributions, defined benefit contributions and all other expenditure incurred by Hunter Water in relation to internal employees.

Internal labour costs are expressed net of capitalised labour. Capitalisation of internal labour occurs where Hunter Water employees work on activities associated with developing and delivering capital projects. The costs associated with work on capital projects is transferred to capital work-in-progress and then capitalised as an asset when the project is complete.

Generally, external contractor costs that are not captured in another category are also included in the labour cost category. Hunter Water uses a portion of external contractor labour and internal labour as substitutes in some planning and operational areas. This gives us the flexibility to recruit specialist resources with critical skills for particular projects, and provides the ability to scale-up or scale-down depending on work-flows within and across years. Our categorisation of labour (and contractor costs) ensures that there is no overlap or double counting of cost categories.

5.1.2 Maintenance

The maintenance cost category includes expenditure on preventative and reactive maintenance for electrical and mechanical assets, civil assets and corporate assets. We use external service providers to support the performance of our maintenance activities and to supplement internal resources for some activities.

External service providers are engaged using competitive procurement processes. Examples of external service providers include engagements for plant hire, contractors engaged to complete both civil and electrical/mechanical maintenance, road and path restorations, traffic control, spoil management and consumables as a result of maintenance activities.

A large proportion of expenditure relates to ongoing maintenance work on water mains and sewer mains. The majority of treatment plant maintenance costs are included in operations, consistent with the contracting arrangement with Veolia (described in section 6.1.2).

5.1.3 Operations

Operations costs includes the expenditure required to operate infrastructure, including: water and wastewater treatment plants, water and wastewater pumping stations, energy costs, chemical costs, and laboratory costs to monitor water and wastewater quality.

Hunter Water follows mature and comprehensive procurement processes in the tendering of major contracts associated with operations expenditure. This includes the award of the treatment operations contract to Veolia in 2014 to operate and maintain water and wastewater treatment plants for a period of eight years. Contracts for laboratory services and energy are procured via competitive tender.

5.1.4 Regulatory

The regulatory cost category specifically refers to cost items that are required to directly meet regulatory requirements, including:

- Internal and external audit fees as required under our regulatory framework
- Land tax and council rates for land holdings
- Environmental and water extraction license costs, and
- Expenditure on government-specified activities including strategic studies and long-term planning (e.g. the Lower Hunter Water Plan).

5.1.5 Corporate

Corporate operating expenditure contains a number of sub-categories:

- property management
- external service providers for asset planning and development activities
- financial and customer areas
- people and development
- information and telecommunications
- general expenses.

Property management

Property management includes expenditure in relation to property that we own or lease to support our regulated services. This includes the head office lease, insurance, waste disposal, security and cleaning expenses. This also includes motor vehicle lease costs, motor vehicle insurance, registration, and fuel costs.

Lease costs

With the introduction of (Australian Accounting Standard) *AASB 16: Leases*, effective 1 July 2019, Hunter Water will recognise all operating lease costs as an asset and liability on our balance sheet and additional interest and depreciation expenses will be shown through the income statement.

We have operating lease agreements for our head office and motor vehicles. We have previously recorded these costs as operating costs for regulatory and accounting purposes.

Hunter Water has worked with IPART to determine the appropriate regulatory treatment of operating leases for our 2019 Price Submission. IPART agreed that cash outflows related to operating leases should remain as operating costs for the purpose of revenue and tariff modelling, as the nature of the expenditure has not changed.

We have included these lease costs as regulated operating expenditure. This is different to the accounting treatment of this expenditure in annual financial statements and future annual reports.

External service providers

External service providers includes the engagement of specific technical specialists who provide advisory services. This is primarily in relation to investigation into future strategies that underpin capital works and other asset development programs. These specialist consultants provide advice or support for longer-term projects and asset development, typically in areas such as engineering, ICT, environment and economics.

Financial and customer expenditure

This category includes costs for providing billing to customers including: reading customer meters, bill preparation, printing and postage. It also includes bank charges as a result of providing different payment options for customers.

People and development expenditure

This category includes:

- Recruitment of new employees
- Ongoing professional development of existing employees
- Work, health and safety programs and initiatives to ensure employee and community safety, and
- Training focused on compliance activities including mandatory training requirements for field-based employees to ensure a high level of safety awareness and practice.

Information and communication expenditure

ICT expenditure covers costs required to support and maintain existing business systems:

- Software and hardware support and maintenance costs
- Telecommunication costs
- Implementation services, including training costs, and
- Additional services like printer and photocopier leases.

General expenses

This cost category covers:

- Expenditure on insurance premiums
- Legal fees
- Advertising, community sponsorships and other programs including education programs, charity partners, community grants and scholarships, and
- Other miscellaneous costs such as travel, accommodation and event expenses.

6. Operating expenditure 2016-17 to 2019-20

To describe our operating expenditure performance over the current regulatory period, we:

- Compare our actual/forecast expenditure to IPART's 2016 allowance, providing breakdowns by product (i.e. water, wastewater, stormwater and corporate) and cost category (section 6.1).
- Explain the drivers and reason for variances in costs over the four year period (section 6.1).
- Describe the efficiency programs that we have undertaken and plan to undertake (section 6.2).
- Establish the 'base year' (2019-20) used to project expenditure for the next price period. The base year expenditure is established with reference to our last full year of actual costs: 2017-18 (section 6.3).

6.1 Expenditure compared to IPART Determination

IPART's 2016 Determination allowed for an efficient level of regulated operating expenditure of \$572.4 million (\$2019-20) over the four year price period. We forecast that operating expenditure for the current price period will be \$596.0 million (\$2019-20) – \$23.6 million or 4.1 per cent above IPART's allowance.

Hunter Water's actual operating expenditure was below IPART's annual allowance in 2016-17 and above the allowance in 2017-18. We forecast that we will exceed IPART's annual allowance in 2018-19 and 2019-20 (see Table 6.1 and Figure 6.1).

Table 6.1 Regulated operating expenditure 2016-17 to 2019-20 (\$millions)

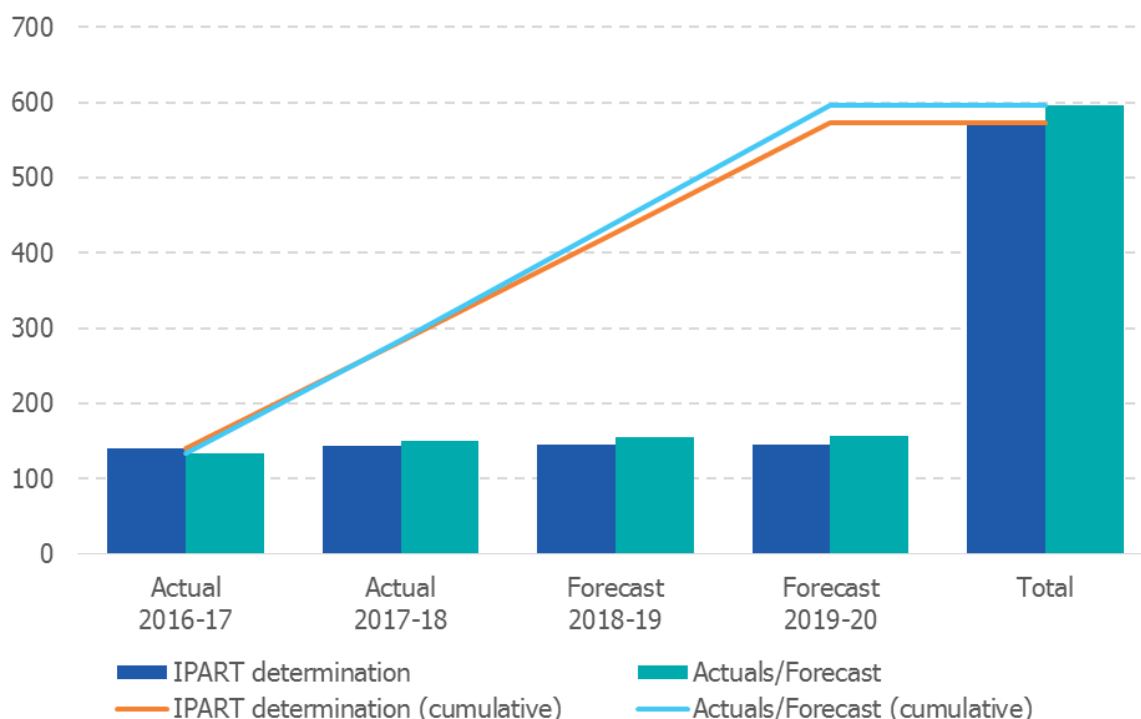
| | 2016-17 | 2017-18 | 2018-19 | 2019-20 | Total | Total |
|---------------------|---------------|-------------|-------------|-------------|-------------|-------------|
| | \$nominal | \$nominal | \$nominal | \$nominal | \$nominal | \$2019-20 |
| IPART Determination | 131.2 | 136.4 | 140.9 | 144.7 | 553.2 | 572.4 |
| Actual/Forecast | 125.1 | 143.8 | 151.8 | 156.0 | 576.7 | 596.0 |
| Variance \$ | (6.1) | 7.5 | 10.9 | 11.2 | 23.4 | 23.6 |
| Variance % | (4.7%) | 5.5% | 7.7% | 7.8% | 4.2% | 4.1% |

Notes:

1. Total actuals/forecast includes regulated expenditure only (excludes recycled water).
2. 2019-20 forecast includes operating lease expenses (\$5.1 million) shown as operating costs as per determination allowance. Changes to accounting standard AASB 16 *Leases* from 1 July 2019 require operating leases to be recognised on the Balance Sheet as a liability and associated depreciation and interest charges on liability payments recognised on the Income Statement and not operating expenditure. Refer to section 5.1.5 for more details on lease treatment.
3. Amounts have been rounded in table above to nearest \$0.1 million. Totals for product splits in Table 6.2 below have also been rounded to match year and total price period amounts.
4. 2016-17 and 2017-18 reflect actual expenditure, whilst 2018-19 and 2019-20 are forecast expenditures.

Source: Hunter Water AIR/SIR, SIR Opex 1.

Figure 6.1 Regulated operating expenditure compared to IPART's allowance (\$millions, \$2019-20)



Source: Hunter Water AIR/SIR, SIR Opex 1.

Table 6.2 compares Hunter Water's actual/forecast expenditure against IPART's 2016 allowance by product category. We expect operating expenditure on water and stormwater to be below IPART's allowance during each year of the price period. We forecast higher costs to deliver wastewater services in each year of the price period. Corporate expenditure shows the highest variance to IPART's 2016 allowance – above the allowance in three of the four years.

Hunter Water has undertaken a number of risk reduction activities across the majority of our wastewater treatment plants since 2017-18. This included (unbudgeted) long-cycle preventative maintenance (LCPM) activities (see section 6.1.2); a deliberate shift from reactive to preventative maintenance in our asset management approach.

Increasing LCPM leads to higher costs in the short-term by taking a planned approach and avoiding the cost impacts of unforeseen expensive reactive responses. Our asset management approach was driven by:

- An ageing asset base that requires more frequent maintenance to delay essential upgrades
- Closer monitoring from the EPA, and
- Tightening of environment licences.

The LCPM program was developed jointly by Hunter Water and Veolia in 2017. Some of the early works included the cleanout of the Cessnock digester; the cleanout of emergency sludge lagoons at Edgeworth, Toronto and Raymond Terrace; and the Cessnock maturation pond. By completing these works within the current price period, Hunter Water has a better understanding of where to target LCPM expenditure in future years.

Energy expenditure for wastewater was higher than expected due to:

- Higher unit costs of energy following the tendering of a new electricity contract which started in January 2018 (see section 6.1.4).
- Changes to wastewater treatment processes resulting in more energy-intensive treatment.

Table 6.2 Regulated operating expenditure, by product category (\$millions, \$2019-20)

| | | 2016-17 | 2017-18 | 2018-19 | 2019-20 | TOTAL |
|-------------------------|-----|---------|---------|---------|---------|--------|
| Water | | | | | | |
| IPART Determination | \$m | 47.4 | 48.4 | 49.7 | 50.1 | 195.6 |
| Actual/Forecast | \$m | 43.8 | 46.3 | 46.6 | 49.3 | 186.0 |
| \$ Variance | \$m | (3.6) | (2.1) | (3.1) | (0.9) | (9.6) |
| % Variance | % | -7.6% | -4.3% | -6.2% | -1.7% | -4.9% |
| Wastewater | | | | | | |
| IPART Determination | \$m | 47.8 | 49.4 | 49.6 | 50.2 | 197.1 |
| Actual/Forecast | \$m | 49.3 | 54.5 | 54.3 | 54.2 | 212.4 |
| \$ Variance | \$m | 1.5 | 5.2 | 4.7 | 4.0 | 15.3 |
| % Variance | % | 3.1% | 10.5% | 9.5% | 7.9% | 7.8% |
| Stormwater | | | | | | |
| IPART Determination | \$m | 1.5 | 1.5 | 1.5 | 1.4 | 6.0 |
| Actual/Forecast | \$m | 0.7 | 0.9 | 0.7 | 1.1 | 3.5 |
| \$ Variance | \$m | (0.8) | (0.6) | (0.8) | (0.3) | (2.5) |
| % Variance | % | -51.7% | -40.9% | -52.3% | -19.9% | -41.6% |
| Corporate | | | | | | |
| IPART Determination | \$m | 43.6 | 43.6 | 43.6 | 42.9 | 173.7 |
| Actual/Forecast | \$m | 40.0 | 48.9 | 53.9 | 51.3 | 194.1 |
| \$ Variance | \$m | (3.6) | 5.3 | 10.3 | 8.4 | 20.4 |
| % Variance | % | -8.3% | 12.2% | 23.6% | 19.5% | 11.7% |
| Total | | | | | | |
| IPART Determination | \$m | 140.4 | 142.9 | 144.4 | 144.7 | 572.4 |
| Actual/Forecast | \$m | 133.8 | 150.7 | 155.6 | 156.0 | 596.0 |
| \$ Variance | \$m | (6.6) | 7.8 | 11.2 | 11.2 | 23.6 |
| % Variance | % | -4.7% | 5.5% | 7.7% | 7.8% | 4.1% |
| Total cumulative | | | | | | |
| IPART Determination | \$m | 140.4 | 283.2 | 427.6 | 572.4 | 572.4 |
| Actual/Forecast | \$m | 133.8 | 284.5 | 440.1 | 596.0 | 596.0 |
| \$ Variance | \$m | (6.6) | 1.3 | 12.4 | 23.6 | 23.6 |
| % Variance | % | -4.7% | 0.4% | 2.9% | 4.1% | 4.1% |

Source: Hunter Water AIR/SIR, SIR Opex 1.

Corporate costs are higher as a result of higher labour expenditure to support the revised business strategy following the business restructure. Expenditure in relation to external service providers was also higher than IPART's 2016 allowance. This expenditure supported the delivery of new business initiatives including the strategy, delivery and analysis of the non-revenue water/leakage reduction program. We also established teams dedicated to developing and accessing strategies for energy efficiency and renewables, resource recovery from wastewater and recycling, efficient treatment of bio-solids with the potential for waste to energy, and adaptive pathway planning for water resilience.

Table 6.3 provides a breakdown of operating expenditure by cost category. The forecast variance is comprised of net additional expenditure across four of the expenditure categories: labour, maintenance, operations and corporate.

Table 6.3 Regulated operating expenditure, by expense category (\$millions, \$2019-20)

| 2016 IPART Determination | | | | | | |
|---------------------------------------|---------|---------|---------|---------|-------|-----------------------|
| Category | 2016-17 | 2017-18 | 2018-19 | 2019-20 | Total | |
| Labour | 50.8 | 48.7 | 48.9 | 48.6 | 197.0 | |
| Maintenance | 19.7 | 19.7 | 19.6 | 19.6 | 78.6 | |
| Operations | 36.7 | 39.0 | 39.4 | 40.1 | 155.1 | |
| Regulatory | 7.1 | 7.2 | 7.3 | 7.5 | 29.0 | |
| Corporate | 26.2 | 28.3 | 29.2 | 28.9 | 112.6 | |
| TOTAL | 140.4 | 142.9 | 144.4 | 144.7 | 572.4 | |
| Actual/forecast operating expenditure | | | | | | |
| Category | 2016-17 | 2017-18 | 2018-19 | 2019-20 | Total | Variance vs allowance |
| Labour | 48.6 | 51.6 | 54.3 | 52.0 | 206.5 | 9.5 |
| Maintenance | 20.5 | 21.0 | 21.4 | 21.6 | 84.4 | 5.8 |
| Operations | 35.2 | 42.3 | 42.2 | 41.5 | 161.2 | 6.0 |
| Regulatory | 4.9 | 5.8 | 7.7 | 7.6 | 26.1 | (2.9) |
| Corporate | 24.5 | 30.0 | 30.0 | 33.3 | 117.8 | 5.3 |
| TOTAL | 133.8 | 150.7 | 155.6 | 156.0 | 596.0 | 23.6 |

Source: Hunter Water analysis, derived from Hunter Water AIR/SIR, SIR Opex 1.

The forecast variance over the price period is broadly driven by:

- Mitigation activities in order to address risks that were identified across the business, and
- Unforeseen and uncontrollable costs.

Additional expenditure on these activities began in 2017-18 and is forecast to continue across the remainder of the current price period and into the next regulatory period.

Table 6.4 highlights the major variances across the current price period against IPART's 2016 operating expenditure allowance. The variance comprises actual and forecast operating expenditures that were previously:

- Underestimated or overestimated
- Not included, or
- Included, but have not been incurred.

Table 6.4 Key regulated operating expenditure variances, by expense sub-category

(\$million, \$2019-20)

| | |
|--|--------------|
| IPART's 2016 allowance for current price period | 572.4 |
| External contract labour | 14.2 |
| Operations variations (treatment contract) | 5.2 |
| Dungog drinking water project | 3.1 |
| Site remediation | 2.9 |
| Energy costs | 2.8 |
| Head office lease | 2.1 |
| Laboratory costs | 1.7 |
| Restructure expenses | 1.7 |
| Drought response activities | 1.6 |
| Motor vehicle lease and maintenance expenses | 1.6 |
| Postage costs (billing) | 1.4 |
| Spoil | 0.8 |
| Other | 0.6 |
| Employee training and development | 0.5 |
| Information technology and telecommunications costs | (1.1) |
| Land tax and council rates | (4.5) |
| Licence fees (water extraction and environmental) | (4.7) |
| Internal labour | (6.5) |
| Actual/forecast for current price period | 596.0 |

Source: Hunter Water analysis, derived from Hunter Water AIR/SIR, SIR Opex 1.

6.1.1 Labour costs

Labour expenditure across the regulatory period is higher than IPART's 2016 allowance by a net \$7.7 million. This reflects higher expenditure on external contract labour (\$14.2 million), due to:

- Additional labour resources to support risk-driven operational activities and longer-term planning work. New positions were required in a number of areas: water operations, infrastructure management, maintenance delivery, science and innovation, sustainable wastewater planning, water resilience planning and community engagement (see section 4).
- A high vacancy rate in internal labour positions, as shown by lower internal labour costs against IPART's 2016 allowance. External contract labour was used to fill these vacant internal positions. External contract labour is typically higher cost, per role, in the short-term than equivalent internal labour.
- Additional resources were also required for project development within the expanded capital program, including both physical infrastructure and ICT projects.

Enterprise bargaining agreements

Hunter Water, as a NSW State Owned Corporation, is required to follow the requirements of the NSW Public Sector Wages Policy. This wages policy stipulates that public sector employees may be awarded increases in remuneration or other conditions of employment that do not increase costs by more than 2.5 per cent per year.

The wages policy was considered as part of the enterprise workplace agreements that we entered into during 2018 and forms the basis of future wages growth. The two previous enterprise agreements, one covering engineers and scientists and the second covering all other employees, expired on 31 May 2018. The two 2018 agreements negotiated will expire 30 June 2021 and 31 May 2021, respectively.

During the 2018 negotiation period, Hunter Water and employee representatives committed to work collaboratively during the bargaining process. A key objective was to reduce the amount of low-value work and redirect effort to higher-value activities. The engagement and collaborative approach will contribute to Hunter Water's program of work to streamline processes, systems and ways of working.

The final enterprise agreements contain provisions for:

- Increases to salaries and wages underpinned by the agreements at 2.5 per cent per year
- Continued employee development, and
- Greater flexibility in the way work is completed.

Outcomes of the new enterprise agreements

The enterprise bargaining process and agreements focussed on productivity and organisational performance metrics in the civil maintenance area. The shared interest was the capacity to maintain an internal civil maintenance workforce and ensuring high customer service and environmental outcomes.

Hunter Water commissioned analysis and modelling of the various rostering and staffing arrangements being considered in relation to civil maintenance. The modelling provided independent assessment of the various changes being considered including salary and shift models. Some of the key outcomes from the new enterprise agreements include:

- All employees moving to a 1 in 5 roster over a 50-week cycle. This introduced consistency, improves fatigue management, and closes the gap in roster coverage – a saving of around \$80,000 per year in additional overtime.
- Introducing a late start roster to improve operational availability (especially in the late evening and silent hours) and improve fatigue management.
- Establishing eight additional higher level positions including an additional crew leader and seven plant operators, resulting in a higher-skilled and more versatile workforce. The new positions will:
 - Facilitate variable crew-sizing, allowing a reduction in typical crew size in line with other utilities in the water sector
 - Lower costs per job, and
 - Lower overall expenditure on contractors.
- Establishing six additional first response employee positions, improving customer service through faster response capabilities, increasing service level compliance from around 80 to 85 per cent. This will eventually increase to 90 per cent when the workforce management project is fully operational (described in section 7.3).
 - The increase in first response positions will drive down average costs per job and increase the amount of preventative maintenance completed.
- We will manage the enterprise agreement changes through a detailed transition plan, developed to ensure activities are completed in a timely manner.

We are on track to implement all of the changes described above, including all training activities, in 2019-20.

6.1.2 Operations variations (treatment contract)

The operation of our 25 water and wastewater treatment plants is currently contracted to Veolia Water Australia (see Box 2). Treatment operations expenditure in the current price regulatory period was \$5.2 million above IPART's 2016 allowance. Cost variations included:

- Improved management of compliance risks relating to operational performance of treatment plants and potential impacts to service reliability, safety, environmental obligations and public health (e.g. disinfection optimisation and enhanced coagulation).
- Implementation of a maintenance optimisation program focused on increased LCPM activities. LCPM aims to improve asset reliability, optimise the asset life of treatment plant infrastructure and reduce lifecycle asset costs. This is a change from the previous reactive approach to asset maintenance. We expect this higher up-front expenditure to defer future capital investment and ensure that we meet our compliance requirements.
- Periods of unacceptable trace contaminant levels, such as cadmium or ammonia. We closely monitor contaminant levels and respond immediately if they exceed EPA accepted levels.
- Capital investments in treatment plants to meeting compliance requirements has resulted in higher operating costs. Examples include:
 - More energy-intensive treatment as a result of new technology (membrane bio-reactor) at Farley wastewater treatment plant.
 - Upgrades to improve effluent quality discharged from Dungog wastewater treatment plant into the Williams River to meet Environment Protection Licence (EPL) conditions.

We expected treatment plant operating costs to remain around current levels throughout the next regulatory period given the renewed focus on LCPM and the program of major capital works at a number of treatment plants.

Box 2 - Treatment operations contract

In 2014, Hunter Water tendered a contract on the open market to operate and maintain our 25 water and wastewater treatment plants with a view to improve operational performance and maintain high standards of service for customers.

In June 2014, Veolia Water Australia was awarded an eight-year contract worth \$279 million. This represented a \$23 million cost saving and resulted in lower prices for customers. This is the largest contract ever awarded by Hunter Water and was overseen by independent procurement specialists.

Veolia is one of the world's leading global water companies. The engagement of Veolia has helped improve the reliability of our treatment plants and delivered better compliance outcomes.

Hunter Water and Veolia have executed an environmental improvement program and a disinfection optimisation strategy, resulting in improved water quality outcomes.

6.1.3 Unforeseen and uncontrollable costs

Dungog drinking water project

The Chichester Trunk Gravity Main (CTGM) transports raw water from Chichester Dam to the Dungog water treatment plant where it undergoes treatment prior to delivery to customers. There are 71 customers that take raw, untreated water directly from the CTGM north of the Dungog water treatment plant. All these customers have had a connection to the pipeline for over 15 years and many do not have a suitable drinking water alternative.

We are currently completing a project designed to deliver safe drinking water for these customers. This involves providing on-site water solutions, including filtration systems, water tanks and associated infrastructure (guttering, down-pipes and plumbing). We expect to incur the majority of these costs (\$3.1 million) in 2018-19 and 2019-20. The costs of this project were not included in IPART's 2016 allowance.

Site remediation

During 2016-17 and 2017-18, we incurred a number of unexpected, additional costs relating to site remediation – an extra \$1.4 million. Site remediation costs were driven by environmental and safety requirements:

- Remediating a contaminated site at Dungog
- Disposing of contaminated bio-solids at Farley wastewater treatment plant, and
- Demolition of several unused assets due to safety risks.

6.1.4 Energy costs

Hunter Water's typical energy expenditure is approximately 10 per cent of total regulated operating expenditure. We have traditionally purchased electricity through fixed-rate, variable-load contracts for large sites. The current contract expires at the end of December 2019.

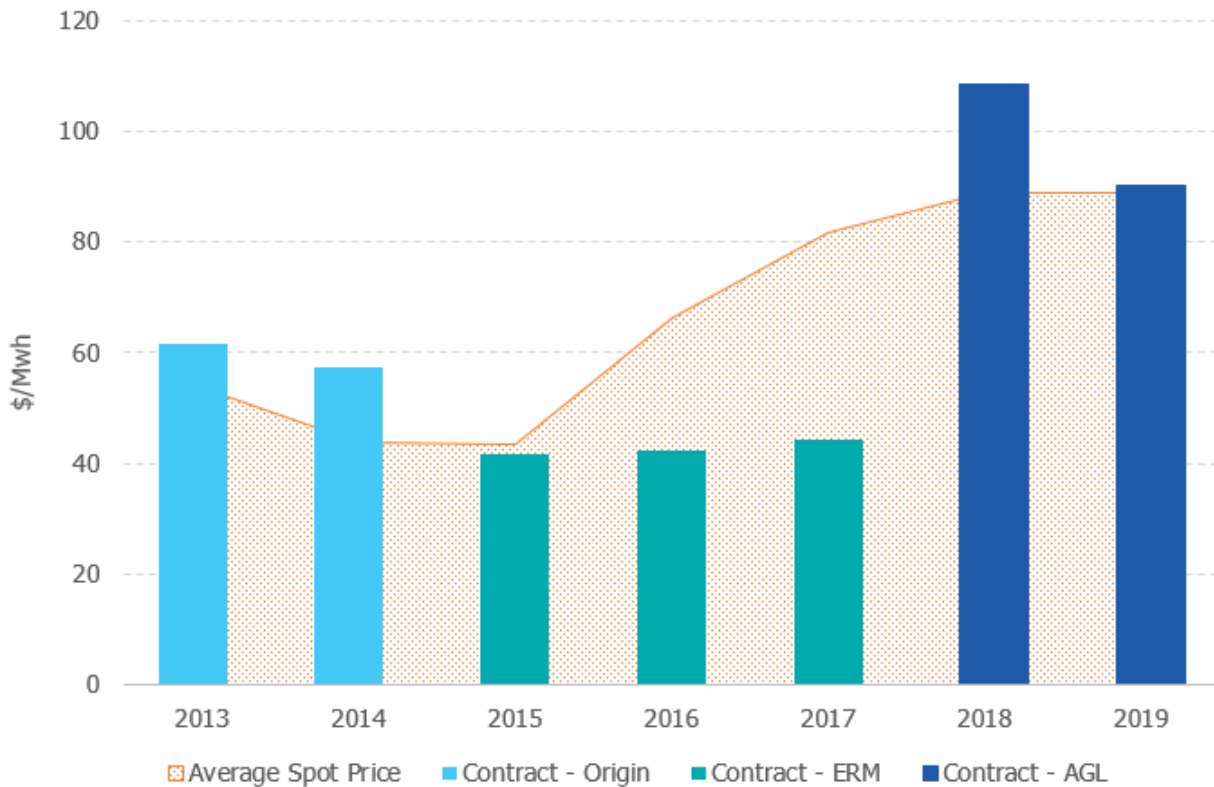
At the time of IPART's 2015-16 price review, Hunter Water had a three-year electricity supply contract with ERM Power (see Figure 6.2). We benefited from a period of low contract rates, relative to actual wholesale prices at the time, until the contract expired at the end of 2017.

Hunter Water entered into a new two-year agreement with AGL at the start of 2018. The new rates were competitively tendered during a period of high spot-price volatility. The higher contracted rates and higher than forecast consumption have driven much higher energy costs (\$2.8 million) over the current price period, relative to IPART's 2016 allowance.

The \$2.8 million variance reflects a cost saving of \$1.3 million in 2016-17, with unfavourable variances of \$0.5 million, \$3.1 million and \$0.6 million in 2017-18, 2018-19 and 2019-20, respectively.

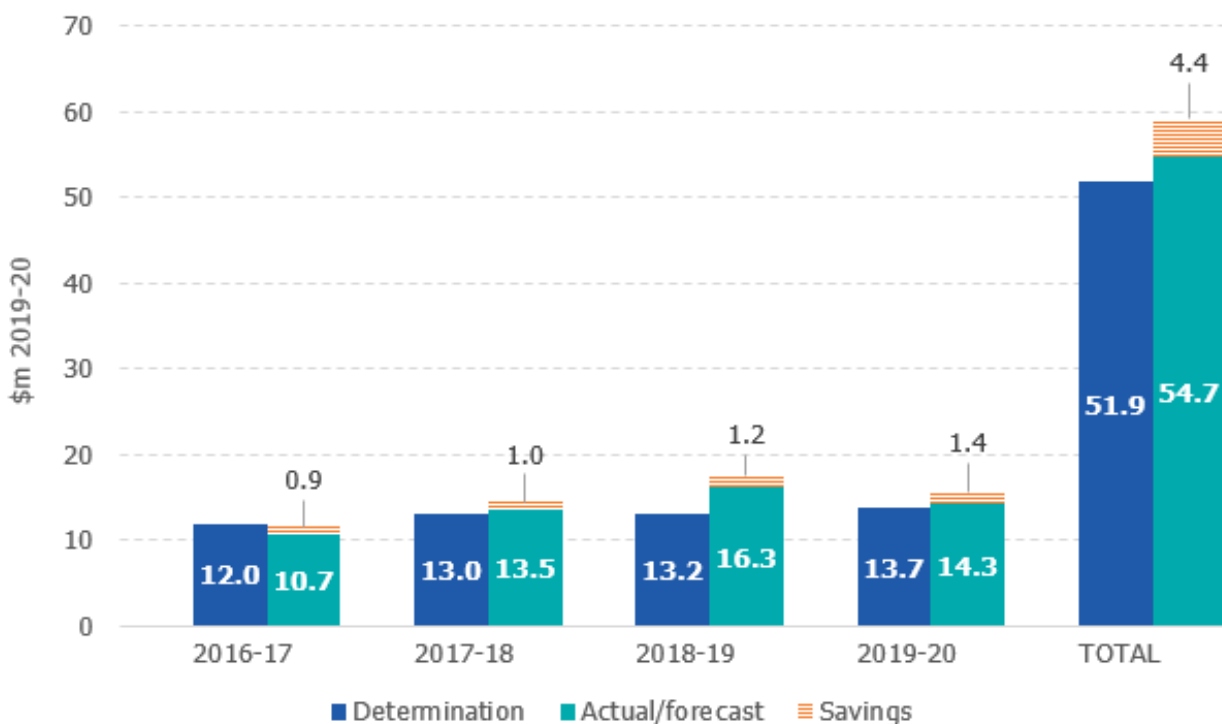
Hunter Water has undertaken a series of energy efficiency initiatives to reduce energy consumption and energy costs (see section 6.2). For all initiatives and capital projects, we measure and verify the savings over time to ensure that the benefits of energy efficiency are being realised. This has allowed us to robustly measure the efficiency savings from these initiatives over the current price period (see Figure 6.3). The forecast variance relative to IPART's 2016 allowance would be \$7.2 million unfavourable if not for the \$4.4 million of savings realised in the current price period. These savings have been built into our projected operating expenditure and we expect to see further savings from new initiatives (see section 7.3).

Figure 6.2 Average electricity price (\$/MWh) – contract versus average spot price



Note: The chart above shows calendar year data which is more reflective of changes in contract provider, with contracts typically beginning on 1 January and ending on a 31 December date.
Source: Hunter Water analysis.

Figure 6.3 Energy costs in current price period



Source: Hunter Water analysis.

6.1.5 Head office lease costs

Hunter Water sold the head office building in Newcastle in 2014 and entered into a 10-year lease agreement. This decision was part of a broader NSW Government asset recycling program aimed at improving our credit metrics and financial position. IPART's 2016 Determination did not allow the full recovery of Hunter Water's subsequent lease costs in the operating expenditure allowance.

Head office lease costs for the current price period represent a variance of \$2.1 million relative to IPART's 2016 allowance.

Hunter Water's annual lease cost for the head office building will be \$2.6 million (including outgoings of approximately \$260,000) in 2019-20.

We engaged an independent valuer to provide a valuation of report for the head office building, as at May 2019. The report references market valuations using recent sales information and comparable rental data for 'A-grade' office accommodation in the Newcastle CBD.

The independent valuation report calculates a 'fair and reasonable estimate' of the rental value in 2018-19 using a number of valuation techniques:

- \$2.34 million per year plus outgoings: using comparable per meter rental values and comparable car park costs per space.
- \$2.35 million per year plus outgoings: using a current estimate of the building value and annual yield of 7.75 per cent based on market evidence.

Using current market sales and rental data, Hunter Water considers that the rental costs in the current office lease reflect the efficient costs of providing modern and fit-for-purpose office accommodation in Newcastle. Hunter Water will provide the independent valuation report to IPART and IPART's consultants as part of the detailed review of operating expenditure in the second half of 2019.

6.1.6 Laboratory costs

Laboratory costs are forecast to be \$1.7 million above IPART's 2016 allowance over the four-year period, driven by a number of unexpected and uncontrollable events:

- High rainfall events in 2016-17 and 2017-18.
- Environmental incidents, including an outbreak of blue-green algae in 2018-19.
- Contamination from per- and poly-fluoroalkyl substances (PFAS) at several sites, as recognised by the EPA.
- We have introduced routine testing for PFAS in trade waste, domestic wastewater, all water catchments and the water network to ensure that our water system remains contamination free.

6.1.7 Restructure expenses

Hunter Water completed a significant organisational restructure during the current price period to better align organisational structure with our activities (see Figure 4.1). In addition to better outcomes for customers, we expect that the restructure will deliver efficiencies through better collaboration and workforce productivity. The restructure involved one-off, additional costs of \$1.7 million including redundancies.

6.1.8 Drought-response activities and water resilience

Since the Lower Hunter Water Plan (LHWP) was developed in 2014, we have made considerable progress in drought-response activities and long-term planning for a secure water future. This has involved:

- A focus on reducing non-revenue water and leakage.
- Forming a water resilience team to undertake short-term and long-term planning related to water conservation and security, and development of the 2020 Lower Hunter Water Plan.
- Adding and refining drought-response measures that will provide either a degree of water saving or provide additional water from an alternate source.

In 2018, the combined level of Hunter Water's water storages went below 70 per cent while much of NSW was experiencing drought conditions. To mitigate risks related to service continuity, Hunter Water initiated a range of activities at a cost of \$1.6 million:

- Development of drought-response strategies and new drought-response measures.
- Pre-planning for possible water restrictions.
- Media engagement relating to current storage levels, water resilience and conservation. The engagement was aimed at improving community understanding of the role we all have to play in conserving water.
- Increased inter-regional transfers with Central Coast Council.

6.1.9 Motor vehicle lease and maintenance

The 2018 enterprise bargaining agreement introduced a series of rostering improvements. These changes required additional maintenance vehicles and some larger vehicles for crews. These vehicles will allow us to respond to all service faults and interruptions in a timelier manner. We also experienced higher costs due to additional mobile plant repairs. In total, these changes led to an unfavourable variance of \$1.6 million relative to IPART's 2016 allowance.

6.1.10 Postage costs

Australia Post has increased the cost of sending paper bills and notices to customers over the last few years. We had previously forecast postage costs to remain constant throughout the price period. The net result is an unfavourable variance of \$1.4 million.

Hunter Water is introducing electronic billing to improve customer experience and business efficiency. This will also reduce our exposure to postage costs (see Technical Paper 2).

6.1.11 Spoil

Changes to waste regulations and a continued focus on worker safety have placed upward pressure on spoil disposal costs. We are increasing the use of hydro-excavation for underground assets to reduce the safety risk for workers involved in pipeline maintenance activities, however this excavation method results in increased spoil that cannot be reused.

We expect an unfavourable variance in spoil disposal costs of \$1.2 million across 2018-19 and 2019-20, resulting in a net variance of \$0.8 million for the current price period.

6.1.12 Employee training and development

We have increased our expenditure on a range of compliance training activities for employees. We also introduced a leadership development program that provides current and future leaders with the tools to improve their communication and lead more effectively, as well as improving employee engagement and retention.

Employee training and development costs are forecast to exceed IPART's 2016 allowance by \$0.5 million over four years.

6.1.13 Information and communications technology (ICT)

Hunter Water made ICT savings of \$2.75 million across 2016-17 and 2017-18. The savings were associated with project deferrals and rationalising contracts, along with cost reductions from the re-negotiation of rates and short-term vendor concessions.

We expect that these savings will be partially offset by a variance of \$1.7 million in 2019-20. This variance is driven by the cost of delayed projects and development costs for key technology projects including the workforce management project (see section 7.3) and intelligent networks (see section 7.3).

We expect to achieve net savings of \$1.1 million across the current price period.

ICT strategy and investment

Our ICT investment strategy over recent regulatory periods focused on extending asset lives beyond typical upper limits. We only replaced key ICT assets when there has been a near-term risk of operational failure. Several core systems remained largely untouched, using technology from a decade or more ago – our billing system, field job management, document management solution and plan management system. The Integrum system that manages our quality and many risk areas was built on technology first developed in 1989, with global use declining rapidly since the early 2000s.

Our overall strategy was effective in deferring capital costs, but our operating costs have increased as a result. The strategy also introduced a range of ongoing challenges:

- Some systems are in such a fragile state that even minor maintenance result in extended periods of the asset being unavailable.
- Finding skilled technicians to maintain the system and make changes due to changing business requirements and mandatory standards means we are paying a service premium each time. Performing minor upgrades to maintain some level of currency in the systems can result in project delays of several weeks while vendors source skills to complete the work.
- Given the lack of asset replacement, the organisation was becoming increasingly exposed and impacted by security incidents related to various forms of malware (e.g. viruses, ransomware).

The strategy also failed to keep pace with modern business standards and customer expectations. The level of electronic interaction we have with customers and external stakeholders places us significantly behind the most basic expectations of a business of our size delivering a retail service. We do not provide electronic billing, a significant number of transactions are completed via paper forms and we have a high reliance on the call centre channel. Our field job management system impedes our ability to become more productive in the way we schedule, track and complete field maintenance activities.

Information technology is characterised by constant change – better and faster ways of doing things – with short technology lifecycles. Many technologies are being offered as cloud 'subscription' solutions with the majority of vendors offering cloud-only services. In recent years, vendors have extended this concept into ICT hardware where many typical hardware outcomes are now delivered via the cloud in an 'as-a-service' model.

In the past, a customer would purchase perpetual licenses and hardware assets, a capital expenditure, and then pay ongoing support and maintenance costs for continued use and updates. The change in delivery through subscription services is resulting in higher operating costs. We now 'lease' access to technology solutions. Cloud-based subscription costs are typically more expensive – an ongoing annual operating cost.

We are constantly changing the way we work and where we work. Employees are more mobile, performing many previously office based functions in the field using remote devices. The demand on effective networks and broader telecommunications has increased as a result. Coupled with the move to cloud-based solutions, our data and telecommunication usage has increased by over 50 per cent in the past three years – making us reliant on higher bandwidth telecommunications networks. At the same time, we need to manage the volatility in the telecommunications market given the extended and unreliable National Broadband Network rollout and operation.

Hunter Water recognised that we were falling behind in meeting a range of customer and stakeholder expectations. We adopted an organisation-wide digital utility strategy in 2017-18 that uses new and emerging digital technologies to help improve business practices and meet market expectations – catching up to our peers in the water sector. This strategy will improve outcomes in employee safety, customer experience and compliance with environment obligations. The digital strategy focuses on four digital programs: Service and Experience (Customer), Field Service Model and Intelligent Networks, and Go Digital.

At the same time, we will maintain our core ICT infrastructure and business systems using our established operating model, supplemented with specific programs that maintain and re-establish prior capabilities, and incrementally improve technology components. We have focused on information security as part of aligning with NSW Government policy, expected changes in our operating licence requirements and as good industry practice. We will deliver core ICT infrastructure services through five technology programs: End User Computing; Applications; Network and Communications; Storage and Compute; and Information Security.

6.1.14 Land tax and rates

We expect land taxes and council rates to have a favourable variance of \$4.5 million over the four years.

6.1.15 Licence fees

We expect to achieve a saving of \$4.7 million in licence fees over the current price period, due to the EPA's 2015 changes to risk-based licensing and lower water extraction fees.

6.2 Efficiency programs 2016-2020

Hunter Water has achieved savings and delivered operational efficiencies in a range of core functions.

Civil maintenance productivity program

Hunter Water's maintenance productivity program has realised efficiency gains and improved outcomes for the business and the community. We established an efficiency and continuous improvement program for our maintenance activities in 2016. We used industry benchmarking data to compare our civil maintenance performance to other water utilities and set productivity targets of 10 per cent.

Training and support for managers, supervisors and employees has helped us improve planning, workforce scheduling and rostering. We achieved our productivity targets by June 2017. We also improved safety outcomes, with new ways of working embedded in the business.

We have further strengthened our civil maintenance performance and productivity since mid-2017. Recent benchmarking shows Hunter Water has improved compared to industry peers and now ranks in the first quartile for civil maintenance activities. We have identified further process-based opportunities that we are implementing.

Enterprise Bargaining Agreement negotiations considered the civil maintenance efficiency program. The negotiations were collaborative and resulted in positive outcomes, including a more versatile workforce.

During the current price period, we are investing in a workforce management project (described in Technical Paper 2) that will replace our 20-year old system for managing civil maintenance activities. This investment will facilitate a step change in productivity by improving the effectiveness of maintenance works planning, scheduling, dispatch, mobility, delivery, and reporting systems. Full implementation of this system will take some time, however, we have assumed expected efficiencies from this system in future operating budgets.

Energy management

Energy management has been a focus area of the business and realised savings of \$4.4 million across the current price period. Key initiatives include:

- Installing variable speed drives (VSDs) on water and wastewater pump stations – timed, where possible, with switchboard renewals.
- Standardising control schemes at water and wastewater pump stations to reduce energy use.
- Shifting energy load from high to low tariff periods, and curtailing energy load, where possible.
- Evaluating diagnostics in order to find and rectify poorly performing or inefficient pumps.
- Configuring and modifying our network infrastructure to minimise water and wastewater pumping. An example of this is a recent project to modify the water network and bypass a pump station at Toronto.
- Carefully reviewing energy bills in order to rectify billing errors.
- Assessing the scope for energy efficiency improvements when planning all capital upgrades. For example, decisions relating to electrical costs (e.g. pump stations) and whether to use high or low voltage electricity supply.
- Actively managing energy consumption during high-demand periods to avoid consumption spikes that will be used by the energy retailer to set capacity charges for a 12-month period.

Box 3- Smart Integrated Pump Scheduling (SIPS)

The Smart Integrated Pump Scheduling (SIPS) project will optimise the operation of water network pumps and valves to reduce electricity costs and improve energy efficiency.

The SIPS system utilises real-time operational data to forecast water demand throughout the network for up to 48 hours in advance. Once this demand is known, a pump and valve operation schedule delivers a least cost solution taking into account physical constraints around supply reliability and operational limits within the water network.

We expect this project to yield ongoing annual energy savings of \$400,000 to \$500,000 per year.

Box 4 - Configuring our networks to save energy

The recent Central Coast Regional Transfer Project provided an opportunity to redesign the way that water is transported to the west side of Lake Macquarie.

We modified a series of pump stations and trunk mains and overhauled the control systems, enabling southbound flows to bypass a series of higher level reservoirs and pump stations.

We expect this project to save around 900 MWh of energy, 800 tonnes of carbon dioxide (equivalent) emissions and \$120,000 every year.

Spoil management

We have invested in a dedicated spoil management officer tasked with minimising spoil waste disposal. Total spoil costs have increased over time due to higher costs of disposing of hazardous material; however, total spoil disposal volume is less than 10,000 tonnes per year or about 40 per cent lower than 2014-15 volumes.

We continue to maximise reuse and minimise spoil going to waste by:

- Reusing soil on site (whenever possible).
- Establishing satellite depots with designated spoil storage facilities to increase capacity to separate waste to minimise volume of spoil.
- Seeking EPA exemptions to increase the volume that can be used for site rehabilitation.
- Establishing a drying bed to reduce the weight of spoil requiring disposal.

Security expenditure

We have realised efficiency savings each year by:

- Improving the way technology is used to monitor assets, including increased use of CCTV monitoring.
- Performing a risk review relating to alarm-responses and the need for security guard call-outs, identifying efficiencies in how call-outs are determined.
- Changing our security service provider.

Meter reading contract

During the current price period we achieved efficiencies by market-testing our existing meter reading contract and the methodology that is employed to read meters. As a result, we engaged a new service provider. This resulted in lower costs, but also changes in the routes taken when reading meters, creating further efficiency gains in how we manage this part of our billing process.

Development services

Restructuring the organisation allowed us to consolidate key processes and people that provide input into our development-related services. This has made us more efficient and delivered improved customer experience. We describe the transformation of our Development Services group in Technical Paper 2, including the outcomes of efficiency initiatives that we have undertaken during the current price period.

6.3 Setting the base year for price period 2020-25

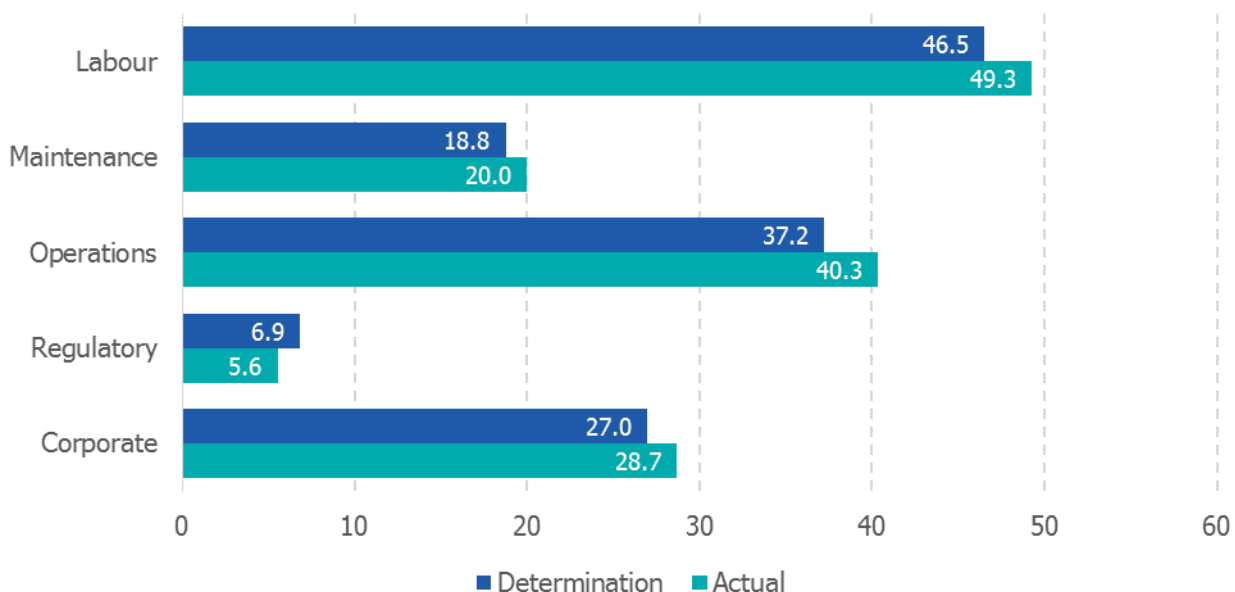
We have used a base year of 2019-20 (the last year of the current price period) to project operating expenditure over the next price period (July 2020 to June 2025). However, at the time of preparing our 2019 Price Submission, the last full year of actual expenditure was 2017-18. We consider it is more reliable and auditable to establish a base year in reference to a full year of actual expenditure. Full-year actual expenditure for 2018-19 will not be available until after the close of the financial year.

Our planned base year expenditure will be justified by showing that 2017-18 actual expenditure was prudent and efficient and outlining the reasons why it exceeded IPART's 2016 Determination. We then roll this actual expenditure base forward to 2019-20 and outline the cost drivers and changes over time.

6.3.1 Actual operating expenditure 2017-18

Operating expenditure in 2017-18 was higher than the IPART allowance by \$7.5 million or 5.4 per cent (\$nominal) (see Figure 6.4) – total costs of \$143.8 million (\$nominal) compared to an allowance of \$136.4 million.

Figure 6.4 2017-18 expenditure by category compared to IPART allowance (\$nominal)

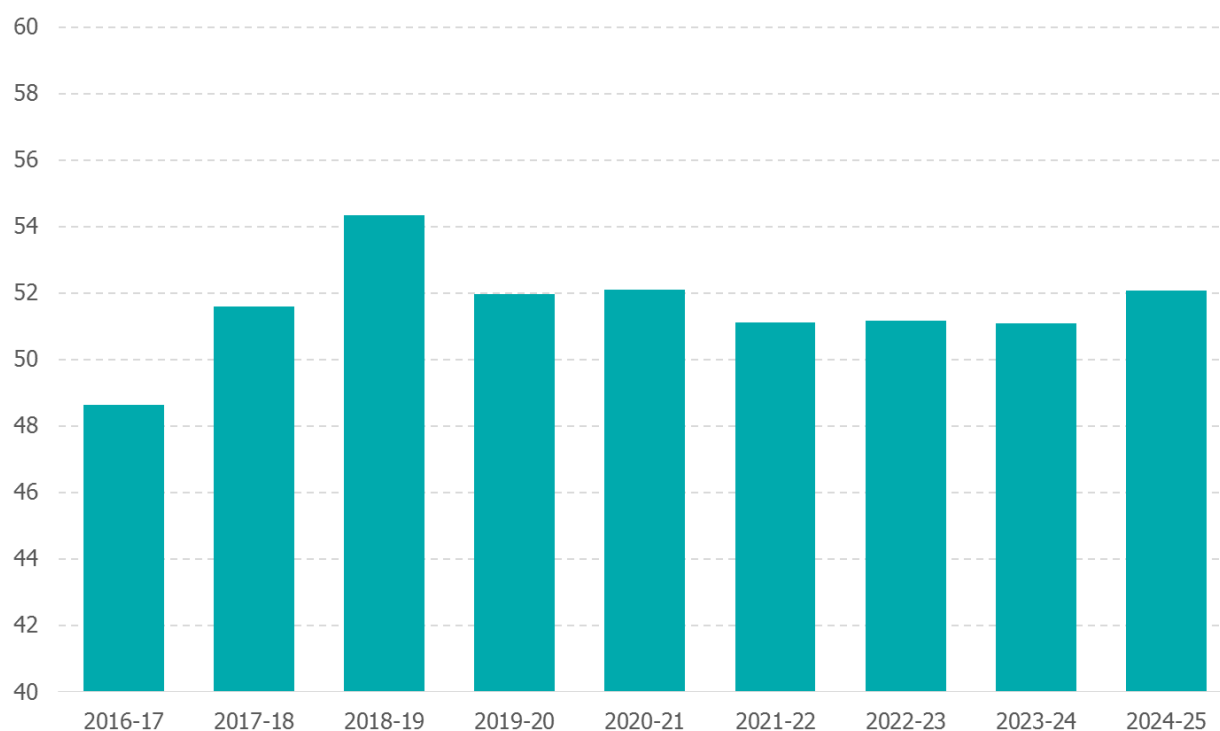


Source: Hunter Water analysis, derived from Hunter Water AIR/SIR, SIR Opex 1.

Labour

Hunter Water set its labour budget for the current price period on the basis that FTEs would remain stable over the current price period (approximately 465 employees per year).

In 2017-18, Hunter Water spent \$49.3 million (\$nominal) on labour costs compared with an IPART allowance of \$46.5 million (6 per cent higher). This variance was due to restructuring the organisation and the new resourcing model adding resources to better support the work required to achieve organisational objectives. Figure 6.5 outlines the actual and forecast labour expenditure for the current and next price period.

Figure 6.5 Labour expenditure (\$millions, \$2019-20)

Note: 2016-17 and 2017-18 are actuals. 2018-19 to 2024-25 are forecast.

Source: Hunter Water analysis.

Over the course of the restructure, budgeted FTE positions increased from 467.6 FTE (June 2016) to 485.5 FTE (October 2017) (see section 4). Our budgeting is based on maintaining FTE numbers and internal labour costs into future years. For context, we had 483 FTEs in 2012².

External contractors with specialist skills were employed to support delivering the strategy and to fill new roles created within the business, as well as support the development of projects for the growing capital portfolio.

Maintenance

In 2017-18, we spent \$20.0 million (\$nominal) on maintenance costs compared to IPART's 2016 allowance of \$18.8 million (6.4 per cent higher).

Maintenance activity increased in 2017-18 with greater focus on the timely rectification of water main breaks and leaks (see section 6.1). Water leakage had grown over recent years and as part of the efficiency program, we have looked to complete more maintenance activities in a shorter period of time to ensure water loss is kept to a minimum.

Our water resilience program includes a water loss reduction initiative which is supported by the maintenance delivery team. The benefits of reducing leaks and losses needs to be understood in the broader context of changes to population growth, per capita consumption, industry demand and deferral of the next major supply augmentation. Without these water conservation initiatives, a decision on a future supply-side solution would potentially be needed within five years.

² Hunter Water, 2012, Price submission, p. 54.

Operations

In 2017-18, Hunter Water spent \$40.3 million on operations costs compared to an IPART allowance of \$37.2 million (8.3 per cent higher).

Operations expenditure in 2017-18 was higher as a result of a greater focus on environmental regulatory compliance whilst ensuring service continuity. Hunter Water invested more in LCPM activities across treatment assets in the year. These activities were not included in Hunter Water's 2015 price submission, however risk assessments completed at a number of facilities determined that regulatory requirements may be breached if these activities were not completed.

We focused our efforts on wastewater treatment plants in line with our Enterprise Risk Management framework, including dredging of the maturation ponds, clean out of a digester, as well as repairs at treatment plants. Work was also completed on sludge lagoons across numerous treatment plants, including additional laboratory testing of materials from lagoons and the responsible disposal of waste due to the presence of hazardous chemicals.

Energy costs were also above the 2016 IPART Determination, due to price increases following a new energy contract from 1 January 2018 (see 6.1.4). The increased expenditure due to new, higher contracted energy rates is forecast to continue over the remainder of the current price period.

Regulatory

We spent \$5.6 million on regulatory costs in 2017-18, compared with an IPART allowance of \$6.9 million (18.8 per cent lower).

Regulatory expenditure was less than the 2016 IPART Determination (and similar to the prior year) due to savings associated with reduced water license extraction fees, reduced council rates, and lower land tax as detailed previously in section 6.1.

Corporate

In 2017-18, we spent \$28.7 million on corporate costs compared to IPART's 2016 Determination of \$27.0 million (6.3 per cent higher).

Total corporate costs are higher than the IPART allowance as a result of additional expenditure on external service providers engaged as part of the long-term strategy development including for studies relating to the development of capital project business cases. Some of the new areas of focus include expenditure on reducing water demand, integrated water cycle management, new investment decision making, climate change, bio-solids and renewable energy. Work was also completed in relation to customer engagement, our digital strategy and customer service strategy.

6.3.2 Roll forward to the base year (2019-20)

Total operating expenditure in 2017-18 was \$150.7 million (\$2019-20), and we now forecast operating expenditure for 2019-20 of \$156.0 million (\$2019-20). The increase of \$5.3 million is detailed in Figure 6.6. The increase in expenditure is driven by higher regulatory costs (increase of \$1.8 million) and corporate costs (increase of \$3.3 million) from 2017-18.

Figure 6.6 Cost changes in operating expenditure (\$millions, \$2019-20)



Source: Hunter Water analysis.

Labour

Total labour costs are forecast to decrease by \$0.4 million from 2017-18 to 2019-20. The forecast 2019-20 FTE is 484.6 which is slightly lower than the 2017-18 level. Also, the mix of employees is forecast to change, resulting in a marginally lower average cost per employee.

Maintenance

Maintenance costs are forecast to increase \$0.6 million in total between 2017-18 and 2019-20. The main contributor to the increase relates to spoil management and disposal, with these costs expected to increase by \$0.5 million. In 2018 and 2019, we focused on better management of emerging risks in relation to the volume of hazardous or restricted spoil relative to historical volumes. Prudent spoil management requires disposal to be based on the classification of spoil material and costs per tonne vary significantly between general solid waste costs (\$124 per tonne), restricted spoil waste (\$566 per tonne), and higher for hazardous spoil. The increased costs relates to higher proportions of hazardous material being managed over 2018 and 2019 and is reflected in the 2019-20 forecast.

The remainder of the cost increase relates to grounds maintenance and road and path restoration costs increasing as a result of the outcomes of competitively tendered contracts being awarded for works being completed from 2018-19 onwards.

Operations

Operations costs are forecast to decrease from 2017-18 to 2019-20 by \$0.8 million. Energy costs are expected to increase by \$0.7 million from 2017-18 and 2019-20 due to the new energy contract starting January 2018 (see section 6.1.4). Expenditure in 2017-18 was only affected by six months of the higher energy prices, whereas these higher prices will apply for the full year in 2019-20. Laboratory costs are also expected to be slightly higher in 2019-20 due to increased environmental monitoring requirements for ground water within our catchment areas.

The higher energy and laboratory costs are more than off-set by a reduction of treatment operations costs in relation to undertaking LCPM activities. In 2017-18, a renewed program of LCPM started and a large backlog of maintenance activities were completed. We expect to undertake a lower volume of work in 2019-20 than was required in 2017-18. We plan to continue investing in LCPM in future years, including over the next price period.

Regulatory

Regulatory costs are forecast to increase \$1.8 million in total between 2017-18 and 2019-20. Expenditure on the Dungog drinking water project for non-standard water customers has increased expenditure by \$0.9 million (expected completion in 2019-20).

The other item of significant increased expenditure is in relation to the LHWP. The last plan was released by the NSW Government in 2014 and work on the new plan in 2019-20 is likely to be greater (relative to 2017-18) with additional expenditure of \$0.5 million. These costs are in relation to the work the Department of Industry performs in relation to the LHWP, passed through to Hunter Water.

The remaining cost increases relate to increases for additional environmental protection activities plus increases for council rates, land tax and insurance premiums. Council rates are forecast to increase above CPI across our area of operations (e.g. rate increases of between 7.25 per cent and 8 percent per year for Newcastle, Maitland, Cessnock and Singleton approved in 2019).

Corporate

Corporate costs increase \$3.3 million in total between 2017-18 and 2019-20. This is the largest area of increase between the two years.

Non-ICT corporate expenditure

The remaining increases in corporate costs are driven by:

- Property expenditure (increase of \$0.7 million) due to real increases in lease expenses for head office and higher motor vehicle lease costs for additional vehicles. Insurance costs increase in line with value of insurance premiums for infrastructure assets (based on MEERA valuations and claims history).
- People and development expenditure (increase of \$0.4 million). The higher costs are associated with professional development and compliance training, as well as higher director fees due to vacancies in 2017-18 that were subsequently filled.

Expenditure on external service providers is expected to decrease by \$0.6 million as engagements in 2017-18 were higher as a result of focusing on long-term strategy development and capital planning. The work completed in 2017-18 was during a peak period and there is a corresponding reduction of these engagements in 2019-20.

ICT

The largest increase in corporate costs relate primarily to ICT expenditure which increases by \$2.9 million from 2017-18 compared to 2019-20. The increase in costs is a direct result of the dynamics in the technology sector and Hunter Water's efforts to catch up to good industry practice that were described in section 6.1.14.

The \$2.9 million increase in ICT corporate costs is distributed across five categories (see Table 6.5).

1. Implementation – one-off costs associated with the implementation of new technology and projects include:
 - Information Security & Cyber Security – undertaking activities to improve information and cyber security as well as moving to ISO27001 Information Security Standard.
 - Project Training & Change – undertaking change management and training of staff for new systems.
2. Hardware – legacy infrastructure charged at a premium to maintain serviceability (e.g. Dell Server and storage hardware).
3. Software – ongoing annual costs associated with:
 - Extended and replacement support – legacy applications and new systems providing similar services and function, but at a higher cost: billing system, total contact centre, incident management system and meter reading system.
 - Expired vendor concessions – negotiated concession for legacy application expired and costs resumed within the period.
 - Growth – support & maintenance growth due periodical contract increases, user licenses and changes in support cost methods.
 - Information security – support & maintenance of applications to manage cyber security.
 - Enabling applications support – new applications that provide greater focus on customers, environment and leak detection. A number are delivered as cloud-only solutions (e.g. TaKaDu active leak detection, Smart Integrated Pump Scheduling).
4. Telecommunications – costs associated with voice, data, data centre and the contact centre.
5. Additional services – costs associated with photocopier leases and radio communications.

Table 6.5 Increase in ICT costs (\$millions, \$2019-20)

| Item | Cost (\$m) | Description |
|--------------------------------|--------------|--|
| Implementation | | |
| Information and cyber security | \$0.2 | ISO 27001 certification, cyber security training |
| Project training and change | \$0.3 | Billing system project, meter reading |
| Total | \$0.5 | |
| Software | | |
| Replacement support | \$0.3 | Billing system, total contact centre, incident management system and meter reading system |
| Expired vendor concessions | \$0.4 | Negotiated concession for legacy application expired |
| Growth | \$0.3 | Support and maintenance growth due to periodical contract increases, user licenses and changes in support cost methods |
| Information security | \$0.1 | Applications to manage cyber security |
| Enabling applications support | \$0.7 | To provide greater focus customers, environment and leak detection |
| Total | \$1.8 | |
| Hardware | | |
| Extended support | \$0.3 | Largely consisting of extended support for Dell Server and storage. |
| Telecommunications | | |
| Telecommunications | \$0.1 | Includes voice, data, data centre and contact centre solutions. |
| Additional services | | |
| Additional services | \$0.1 | Includes printer and photocopier leases, radio communications. |
| Grand total | \$2.9 | |

Source: Hunter Water analysis.

7. Next price period (2020 to 2025)

After establishing the base year (2019-20), we have undertaken a comprehensive review of all operating cost requirements to make our proposal for the five-year price period starting 1 July 2020. This section:

- Details our total operating forecast expenditure from 1 July 2020 to 30 June 2025.
- Explains our forecasting methodology, key assumptions and internal governance framework.
- Details our core operating expenditure forecast by key categories.

7.1 Overview

Operating expenditure by product

Hunter Water forecasts total operating expenditure of \$782.5 million (\$2019-20) to deliver our services in the period July 2020 to June 2025. Proposed expenditure is shown for each product in Table 7.1.

Table 7.1 Projected regulated operating expenditure, by product (\$millions, \$2019-20)

| Operating expenditure forecast | 2019-20 Base year | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 | Total in next price period |
|--------------------------------|----------------------|--------------|--------------|--------------|--------------|--------------|----------------------------|
| Water | 49.3 | 48.4 | 47.2 | 46.6 | 45.9 | 46.3 | 234.5 |
| Wastewater | 54.2 | 53.7 | 55.0 | 55.8 | 55.1 | 54.8 | 274.5 |
| Drainage | 1.1 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 5.9 |
| Corporate | 51.3 | 54.0 | 52.8 | 53.8 | 53.6 | 53.4 | 267.7 |
| Total opex | 156.0 | 157.3 | 156.2 | 157.5 | 155.9 | 155.7 | 782.5 |

Source: Hunter Water AIR/SIR, SIR Opex 2.

One-off and temporary expenditures

We removed expenditure for one-off projects and other activities undertaken in the current price period that are not ongoing or will not be repeated during the next price period. For example, costs associated with the Dungog drinking water solution project (\$1.3 million in 2019-20) have been removed from the base year.

Base-year expenditure compared to proposed expenditure next price period

We have analysed cost drivers to determine whether costs in each of the categories will increase or decrease (in real terms) across next price period. Two cost categories will increase, and three will decrease.

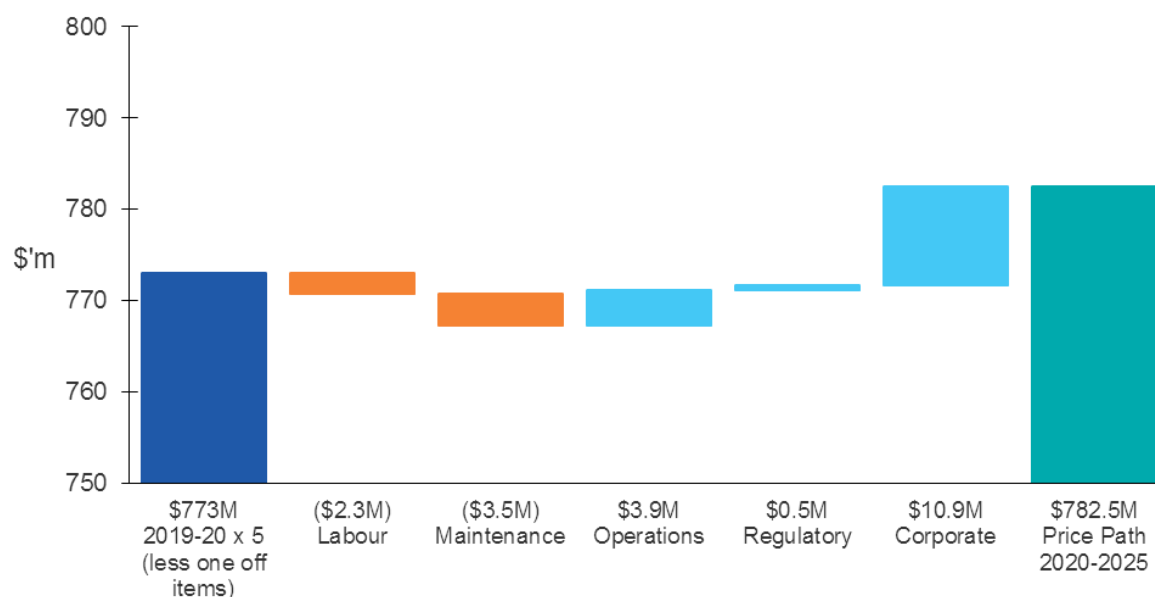
For comparative purposes, the base year expenditure (2019-20) has been multiplied by five to provide a like-for-like comparison of the five years of the next price period (see Figure 7.1). This comparison shows that proposed expenditure in the next price period is \$9.5 million (1.2 per cent) higher than the equivalent 2019-20 expenditure extrapolated over five years – an approximately 0.3 per cent real increase per year.

Impact of proposed forward capital works program

This real increase is driven, in part, by the need to operate and maintain more complex capital infrastructure being delivered as part of the capital works program. As the complexity and performance of capital infrastructure and equipment increases to provide better water and wastewater treatment and distribution, operating costs can increase in line with the need for more electricity, chemicals and specialist operators. Conversely, capital expenditure to replace older infrastructure that has reached the end of its life can reduce operating costs due to newer items requiring less maintenance.

The capital projects in Table 7.2 are included in the forward capital works program and are required to meet mandatory regulatory standards, maintain asset and service reliability and service growth. Operating cost assumptions were detailed in business cases supporting these projects.

Figure 7.1 Operating expenditure by cost category, base year relative to next price period (\$millions, \$2019-20)



Source: Hunter Water analysis.

Table 7.2 Outcomes from capital program for treatment and energy costs (\$millions, \$2019-20)

| Capital project | Treatment costs | Energy costs | Total cost |
|--|-----------------|--------------|-------------|
| Farley WWTP upgrade - stage 3b | 3.7 | 0.4 | 4.1 |
| Dungog WWTP upgrade - stage 1 | 2.1 | - | 2.1 |
| Gillieston Heights and Chisholm recycled water treatment plant | 1.4 | 0.3 | 1.7 |
| Cessnock WWTP upgrade | 0.9 | 0.9 | 1.8 |
| Tanilba Bay WWTP upgrade - stage 2 | 1.0 | 0.1 | 1.1 |
| Grahamstown UV upgrade project | 0.8 | 0.3 | 1.1 |
| Hazardous chemical equipment upgrade | 0.6 | - | 0.6 |
| Raymond Terrace WWTP inlet works upgrade (stage 3) | 0.3 | 0.2 | 0.5 |
| Shortland optimisation project | 0.5 | - | 0.5 |
| Kurri WWTP upgrade - Stage 3 | 0.4 | - | 0.4 |
| Edgeworth WWTP sludge management upgrade | 0.1 | 0.2 | 0.3 |
| Dora Creek WWTP upgrade - stage 2b | - | 0.3 | 0.3 |
| Dungog WTP upgrades | 0.2 | - | 0.2 |
| Morpeth WWTP upgrade - stage 3 (dosing interim upgrade) | 0.2 | - | 0.2 |
| Potable water substitution – construction | 0.2 | - | 0.2 |
| Dungog WTP switchboard replacement | 0.1 | - | 0.1 |
| WWTP switch room fire risk reduction | - | - | - |
| Total increase in operating expenditure | 12.5 | 2.8 | 15.3 |

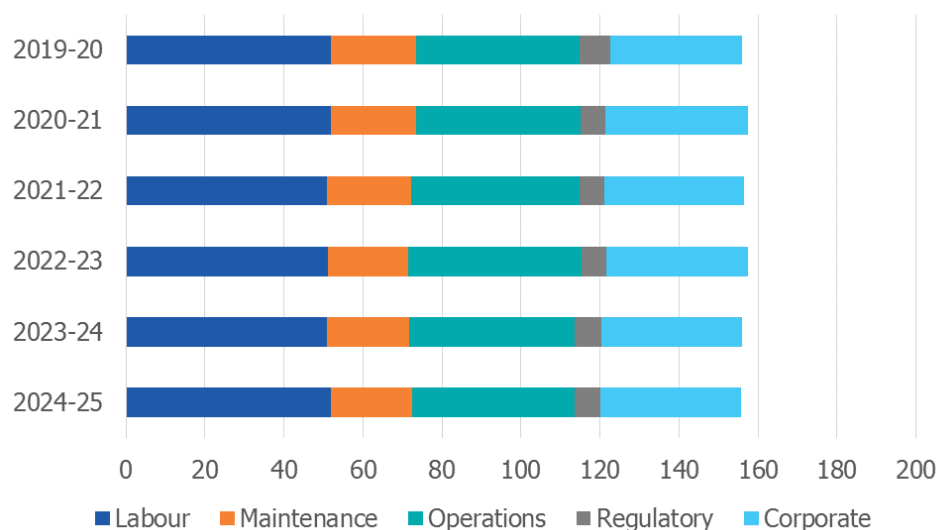
Source: Hunter Water analysis.

7.2 Operating expenditure by cost category

Total expenditure

Operating expenditure by cost category remains broadly consistent from 2019-20 across the next price period (Figure 7.2). The forecast regulated operating expenditure for 2019-20 is \$156.0 million compared to an average of \$156.6 million over the next price period. Changes within each of the categories and in relation to the base year (2019-20) are detailed below.

Figure 7.2 Operating expenditure forecast by category for price period 2020-25 (\$millions, \$2019-20)



Source: Hunter Water analysis.

Reductions in labour and maintenance have been forecast from the base year of 2019-20. Regulatory costs (after the removal of one-off costs) remain relatively consistent from 2019-20 throughout the next price period. The variances from base year expenditure requirements are detailed below.

Labour

Labour expenditure throughout the next price period is similar to the 2019-20 base year requirements (Table 7.3). We forecast the total number of internal FTEs to be the same in 2019-20 as in 2024-25.

Internal labour costs increase slightly across the next price period, as a result of a transfer of expenditure from external contractor labour (which reduces over the same period). In 2021-22, we plan to bring our customer contact centre in-house and convert existing external labour to internal labour. This change is forecast to generate overall cost savings of \$0.2 million each year (see section 7.3), while improving outcomes for customers.

The labour budget is built up on an individual employee basis including assumptions in relation to work dedicated to capital projects (for estimating capitalised labour). All internal labour includes on-costs for the total cost of employment including superannuation, leave, payroll tax and other expenses.

We expect a reduction of \$2.3 million in total labour costs in the next price period, relative to 2019-20 (see Table 7.3 and Figure 7.3).

Table 7.3 Labour expenditure (\$millions, \$2019-20) and FTEs (number)

| Category | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 | 2019-20 x5 years | 2020-21 to 2024-25 | Variance |
|----------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------------|--------------------------|-------------|
| Internal labour (\$millions) | 47.7 | 47.5 | 48.3 | 48.3 | 48.1 | 49.1 | 238.4 | 241.2 | 2.8 |
| External labour (\$millions) | 4.3 | 4.6 | 2.9 | 2.9 | 3.0 | 3.0 | 21.5 | 16.3 | -5.1 |
| Total labour (\$millions) | 52.0 | 52.1 | 51.1 | 51.2 | 51.1 | 52.1 | 259.8 | 257.5 | -2.3 |
| Internal labour FTEs (number) | 484.6 | 482.5 | 490.9 | 488.4 | 485.4 | 484.7 | | | |

Note: Internal labour is shown net of capitalised labour which are costs associated with development and delivery of capital projects.
Source: Hunter Water analysis.

Figure 7.3 Labour expenditure in 2019-20 and next price period (\$millions, \$2019-20)

Source: Hunter Water analysis.

Maintenance

In 2019-20, total maintenance expenditure is forecast to be \$21.6 million, reducing to \$20.4 million in 2024-25. The reduction is a result of forecast savings from the workforce management project (savings of \$3.0 million next price period) and the spoil management program (\$1.8 million next price period), described in section 7.3.

This is in addition to the maintenance productivity improvements discussed in section 6.2 and savings expected to be realised for treatment operations maintenance activities as cost increase contained within the Veolia contract are based on escalation rates lower than the CPI.

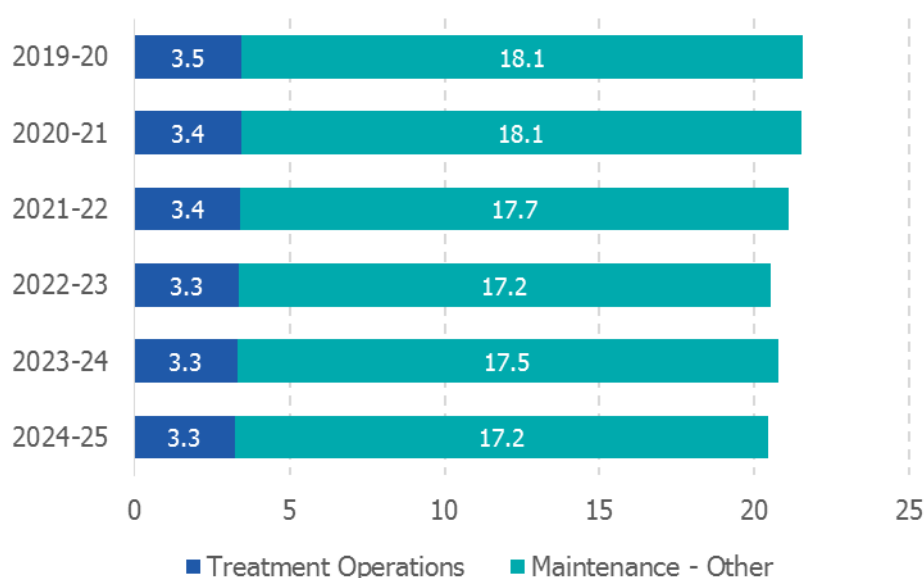
Additional maintenance costs relating to repairs and maintenance across a number of our facilities have been included in projections for the next price period. This allowance has not been included in previous operating budgets but is now required to make sure facilities are safe and reliable. The additional costs total \$0.9 million across the next price period and include expenditure at depots, office facilities and operational assets. Table 7.4 and Source: Hunter Water analysis.

Figure 7.4 outlines the expenditure profile for maintenance costs next price period, showing reductions from 2019-20 onwards.

Table 7.4 Maintenance expenditure in 2019-20 and next price period (\$millions, \$2019-20)

| Category | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 | 2019-20 x5 years | 2020-21 to 2024-25 | Variance |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------------|--------------------------|-------------|
| Treatment operations | 3.5 | 3.4 | 3.4 | 3.3 | 3.3 | 3.3 | 17.3 | 16.8 | -0.6 |
| Maintenance – other | 18.1 | 18.1 | 17.7 | 17.2 | 17.5 | 17.2 | 90.5 | 87.6 | -2.9 |
| Total maintenance | 21.6 | 21.5 | 21.1 | 20.5 | 20.8 | 20.4 | 107.8 | 104.4 | -3.5 |

Source: Hunter Water analysis.

Figure 7.4 Maintenance expenditure in 2019-20 and next price period (\$millions, \$2019-20)

Source: Hunter Water analysis.

Operations

Treatment operations costs and laboratory costs are expected to increase relative to 2019-20. Energy costs are forecast to be lower next price period. Table 7.5 and Figure 7.5 detail the sub-categories of operations costs.

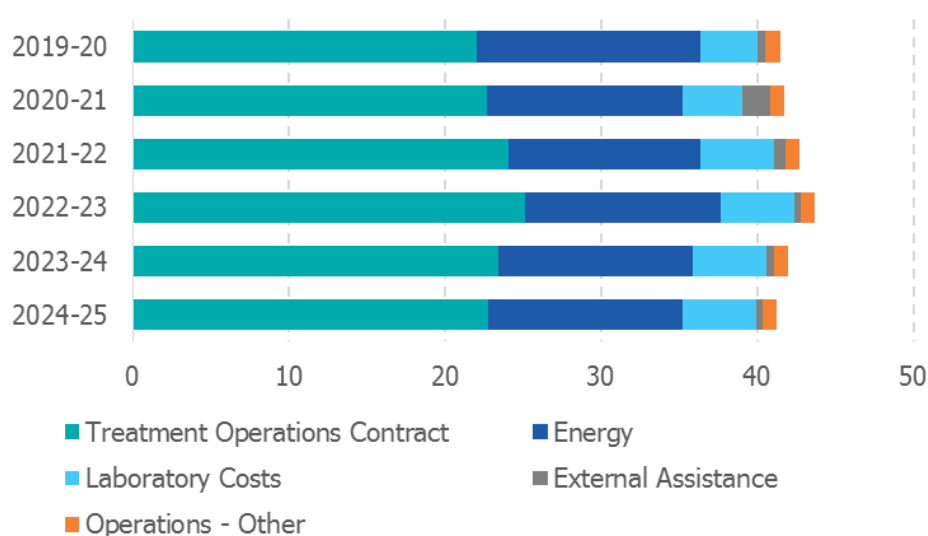
The expenditure forecast for treatment operations costs relies on various assumptions:

- Forecast water and wastewater volumes in future years
- Contract rates in the Veolia treatment contract, including indexation applied to rates (CPI or other indices)
- Long cycle preventative maintenance plans
- Existing variations to the contract, and
- Impact of planned capital works on treatment facility operating costs (estimated to increase by \$12.5 million as shown in Table 7.2).

Table 7.5 Operations expenditure in 2019-20 and next price period (\$millions, \$2019-20)

| Category | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 | 2019-20 x5 years | 2020-21 to 2024-25 | Variance |
|-------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------------|--------------------------|------------|
| Treatment operations contract | 22.1 | 22.7 | 24.1 | 25.1 | 23.5 | 22.8 | 110.3 | 118.1 | 7.8 |
| Energy | 14.3 | 12.5 | 12.3 | 12.5 | 12.4 | 12.5 | 71.4 | 62.2 | -9.2 |
| Laboratory costs | 3.7 | 3.8 | 4.8 | 4.7 | 4.7 | 4.7 | 18.4 | 22.8 | 4.4 |
| External assistance | 0.5 | 1.8 | 0.7 | 0.4 | 0.4 | 0.4 | 2.5 | 3.7 | 1.2 |
| Operations - other | 1.0 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 4.8 | 4.5 | -0.3 |
| Total operations | 41.5 | 41.7 | 42.7 | 43.7 | 41.9 | 41.3 | 207.4 | 211.3 | 3.9 |

Source: Hunter Water analysis.

Figure 7.5 Operations expenditure in 2019-20 and next price period (\$millions, \$2019-20)

Source: Hunter Water analysis.

Our energy forecasts are based on cost drivers and variables including historical energy consumption across all assets, water and wastewater flow volumes and forecast energy prices. Our energy costs are expected to increase by \$2.8 million due to changes in energy consumption due to planned capital investments (shown in Table 7.2). Despite this, we expect overall energy costs to be lower next price period due to other cost reductions. This includes efficiencies due to the Smart Integrated Pump Scheduling (SIPS) project (\$2.4 million) and investment in renewable energy (\$6.0 million). These initiatives are described in section 7.3.

Laboratory costs are forecast to increase from 2021-22 onwards, relative to 2019-20, as the current laboratory contract expires. Market-testing suggests that estimated rates will increase from current contract rates. We expect that additional drinking water monitoring costs will be partly offset by reduced costs of testing groundwater at treatment plants.

Forecast external assistance costs remain consistent with 2019-20, with the exception of 2020-21 when we plan to undertake a project to assess and manage erosion in the Williams River weir pool. Water from the Seaham weir pool is pumped into Grahamstown Dam prior to treatment at Grahamstown water treatment plant and distributed to customers. This project is expected to cost \$1.2 million.

Forecast expenditure includes costs to tender the expiring treatment operations and maintenance contract. This involves a call for expressions of interest followed by a competitive tendering process. An allowance has been included for contractual obligations on completion of the existing contract associated with spare parts and chemicals, and for possible transition costs.

The competitive tender of the treatment contract will be managed by a dedicated project manager given the scale and complexity of work involved in preparing contract documentation and completing the tender process. Specialist consultants would be utilised for specific tasks, including benchmarking, financial auditing, operation/maintenance contract advice, legal advice and probity auditing.

Transition costs associated with the laboratory services contract are also included in the expenditure forecast for the next price period. An allowance is made in 2021-22 for end of contract transitionary costs including benchmarking, legal team review of contract documentation and transition costs if the contract is awarded to a new provider.

Regulatory

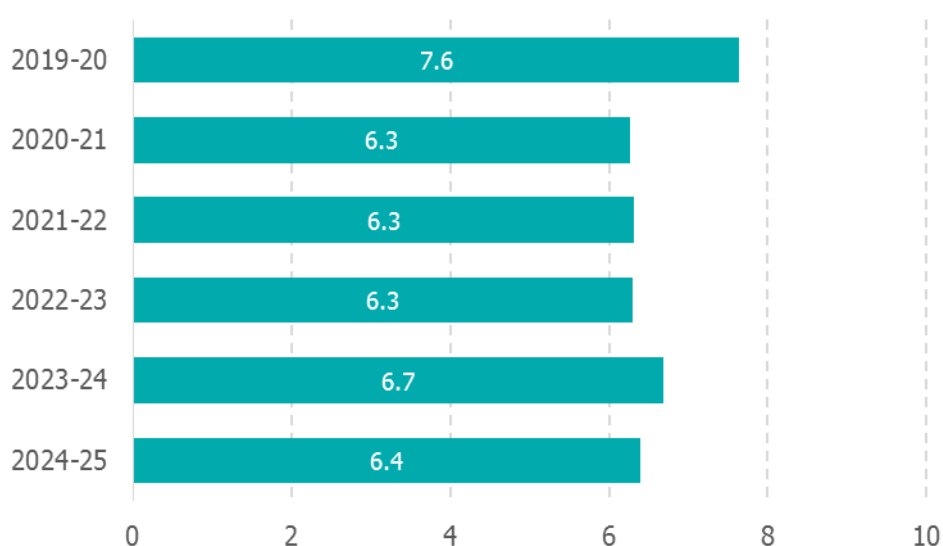
Regulatory expenditure over the next price period is forecast to be lower than in 2019-20 (see Table 7.6 and Figure 7.6). The main difference between the base year (2019-20) and next price period is the exclusion of the Dungog drinking water solution project (\$1.3 million) from projected expenditure. Council rates and land tax costs are forecast to increase above CPI. There is also a reduction in costs associated with the Lower Hunter Water Plan next price period, relative to 2019-20. Water extraction and environmental licence fees are expected to remain relatively constant.

Table 7.6 Regulatory expenditure in 2019-20 and next price period (\$millions, \$2019-20)

| Category | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 | 2019-20 x5 years | 2020-21 to 2024-25 | Variance |
|-------------------------|---------|---------|---------|---------|---------|---------|---------------------|--------------------------|----------|
| Total regulatory | 7.6 | 6.3 | 6.3 | 6.3 | 6.7 | 6.4 | 38.2 | 32.0 | -6.2 |

Source: Hunter Water analysis.

Figure 7.6 Regulatory expenditure in 2019-20 and next price period (\$millions, \$2019-20)



Source: Hunter Water analysis.

Corporate

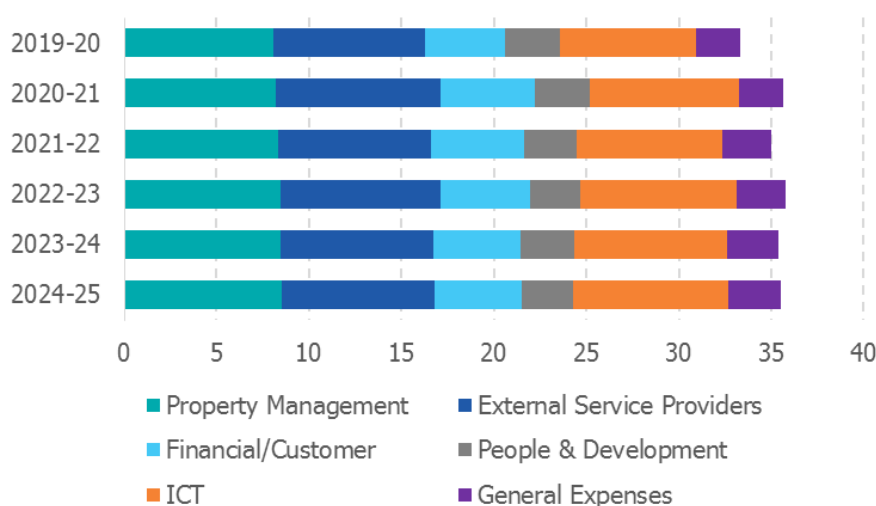
Corporate expenditure next price period is forecast to increase relative to the 2019-20 base year (see Table 7.7). The sub-categories with significant increase are ICT costs and financial and customer expenditure.

Table 7.7 Corporate expenditure in 2019-20 and next price period (\$millions, \$2019-20)

| Category | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 | 2019-20 x5 years | 2020-21 to 2024-25 | Variance |
|----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|---------------------|--------------------------|-------------|
| Property management | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 8.5 | 40.4 | 41.9 | 1.5 |
| External service providers | 8.2 | 8.9 | 8.3 | 8.7 | 8.2 | 8.3 | 40.9 | 42.4 | 1.5 |
| Financial and customer | 4.3 | 5.2 | 5.0 | 4.8 | 4.7 | 4.7 | 21.6 | 24.4 | 2.8 |
| People and development | 3.0 | 2.9 | 2.8 | 2.8 | 2.9 | 2.8 | 15.1 | 14.2 | -0.9 |
| ICT | 7.3 | 8.1 | 7.9 | 8.4 | 8.3 | 8.4 | 36.5 | 41.1 | 4.6 |
| General expenses | 2.4 | 2.4 | 2.6 | 2.7 | 2.8 | 2.8 | 12.0 | 13.3 | 1.3 |
| Total corporate | 33.3 | 35.7 | 35.0 | 35.8 | 35.4 | 35.5 | 166.5 | 177.4 | 10.9 |

Source: Hunter Water analysis.

Figure 7.7 Corporate expenditure 2019-20 to price period 2020-25 (\$ millions, \$2019-20)



Source: Hunter Water analysis.

Property management

Property management costs increase next price period relative to the 2019-20 base year due, in part, to higher lease costs for the head office. Property insurance costs increase above CPI as the value of Hunter Water's infrastructure assets also increases, and due to the history of claims which directly affects the premium. We forecast higher costs for repairs, cleaning and maintenance of office and depot facilities (other than head office) to provide a safe and modern workplace.

External service providers

Expenditure next price period is higher than in 2019-20, due to increased investment in the critical asset program which includes water and wastewater pipelines, network structures and treatment plants. We plan to spend more on strategic asset planning programs, including investment in our asset management system and strategic critical assets, and undertaking other studies relating to stormwater assets. These increases are offset by reductions in expenditure on the LHWP.

Financial and customer

Expenditure increases for 2020-21 to 2024-25 compared to 2019-20, with new initiatives included to improve customer experience and improve the ease of doing business. An additional \$4.2 million across the price period relates to the additional costs of bill preparation, meter reading and postage as a result of the planned change to quarterly billing from the current four-monthly billing cycle.

Many of our customers pay their bills in instalments. This can be costly, as we incur a transaction cost for each payment. A majority of our customers have told us they would prefer more frequent billing. The move to electronic billing will occur first, reducing the costs of the additional billing cycle.

The move to quarterly billing will also provide customers with more frequent consumption data, and brings Hunter Water into line with all major water utilities.

We are planning to introduce electronic billing in 2019-20. We expect this initiative will reduce expenditure by \$2.6 million over five years as a result of lower printing and postage costs. Our assumptions on customer take-up are based on observed results for other utilities.

We expect postage costs to rise above CPI, based on recent experience. This increase is another reason to move to electronic billing.

Box 5 - Customer service and experience program

Customers expect to stay informed, regardless of the channel, interaction or service representative. Social media platforms and websites are increasingly used by service organisations for both operational and strategic communications.

Our customer service and experience program is the vehicle to drive essential change to better align with market expectations and industry standards. The program focuses on activities aimed at listening and learning with customers, consumers and the community to better design and deliver the services they want. It includes the use of digital tools and platforms that offer a broader service choice and easier engagement options.

Key initiatives include:

- **Electronic billing:** Hunter Water prints and posts over 250,000 customer bills and a further 65,000 credit notices and letters for water and wastewater services three times per year. With postage costs increasing, and a reduction in the delivery frequency of mail from daily to every second day, electronic delivery becomes a far more cost-effective option for those who want to receive bills this way.
- **Quarterly billing:** This initiative matches our billing frequency with that of all other major utilities. Research has shown that more frequent bills increase a customer's knowledge of their water use, providing a more regular reminder to conserve water. Hunter Water's recent survey of customers suggests a preference for receiving bills more than three times a year.
- **Contact centre:** Hunter Water is committed to providing great services, encouraging feedback and improving response times. We are planning on moving to an in-house contact centre offering a customer experience hub across faults, fixes and enquiries.

People and development

Forecast expenditure decreases slightly next price period compared to 2019-20 due to a minor reduction in employee training expenditure. This follows completion of extensive leadership and management training undertaken during the current price period.

ICT

ICT corporate expenditure increases to \$8.2 million per year across the next regulatory period, compared to \$7.3 million in 2019-20.

ICT support and maintenance costs increase as new technologies are implemented to address existing applications reaching end of life. These replacement applications have higher ongoing annual support and maintenance costs compared to the cost of maintaining the legacy equivalent. For example, our new Velocity billing system (November 2019) includes an extra \$0.5 million of annual costs. Other new applications, like the customer self-service portal and our intelligent network program, all have higher annual costs than the current systems. ICT support and maintenance costs increase from \$3.6 million increase to \$5.5 million in 2024-25.

We anticipate reduced expenditure in some areas as major projects are completed, in the order of \$0.4 million compared with the base year. Telecommunications fees decrease by \$0.1 million each year as we introduce technologies that use different communication links across the infrastructure network.

7.3 Forecast operating efficiencies in next price period

Hunter Water expects to achieve cost savings from efficiency initiatives of \$16.4 million, as reflected in our expenditure proposal (see Table 7.8).

Table 7.8 Efficiency programs and expected savings (\$millions, \$2019-20)

| Category | 2020-21 | 2021-22 | 2022-23 | 2023-24 | 2024-25 | Total savings |
|-------------------------------|------------|------------|------------|------------|------------|---------------|
| Energy – renewables | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 6.0 |
| Workforce management project | 0.1 | 0.2 | 0.8 | 0.9 | 1.0 | 3.0 |
| Electronic billing | 0.2 | 0.4 | 0.6 | 0.7 | 0.7 | 2.6 |
| Energy - SIPS | 0.4 | 0.5 | 0.5 | 0.5 | 0.5 | 2.4 |
| Spoil management | 0.2 | 0.4 | 0.4 | 0.4 | 0.4 | 1.8 |
| Contact centre (in-house) | - | - | 0.2 | 0.2 | 0.2 | 0.6 |
| Total expected savings | 2.1 | 2.7 | 3.7 | 3.9 | 4.0 | 16.4 |

Source: Hunter Water analysis.

Energy – renewable energy

We are planning to reduce our energy costs and associated carbon emissions through on-site generation of solar energy. We have included forecast savings of \$1.2 million in each year of the price period.

Maintenance – workforce management project

This project is an end-of-life replacement of our existing civil workforce management system. Our new maintenance planning and scheduling software will improve information capture and knowledge of required maintenance activities. It will automate job scheduling, allow real-time data entry, and automate data management and analysis. We have estimated operating costs savings of \$3 million over five years.

Electronic billing

Implementation of electronic billing will result in operating savings in our print and postage service contracts. We have assumed a 50 per cent take-up or switch rate by June 2025. We expect total operating expenditure savings of \$2.6 million.

Energy - Smart Integrated Pump Scheduling

The Smart Integrated Pump Schedule project will optimise pump usage and energy consumption across the water network. We will be able to better predict the need to operate infrastructure assets at the most efficient time by selecting and sequencing activity across the water network with consideration of water flows and storage levels, customer demand and also peak periods of energy demand. We estimate savings of \$2.4 million across the next price period.

Spoil management and disposal

Additional safety requirements from activities such as hydro excavation have increased costs for spoil disposal and re-use. Regulatory environmental requirements are more stringent and Hunter Water faces the challenge of increasing expenditure as more capital works and maintenance activity is experienced on Hunter Water's asset infrastructure. A dedicated Spoil Officer will continue to maximise reuse and minimise spoil going to waste, reducing overall expenditure in the next price determination period by \$1.8 million.

Contact centre (in-house)

In 2017-18, our contact centre answered 144,000 calls and responded to 21,000 emails. Our current contact centre model is outsourced across 9.6 seats (currently provided by an external service provider). This workforce consists of five fixed term contract (3 year) roles and casual employees. This hybrid model has improved previous attrition rates (over 100 per cent in 2017). An in-house contact centre is expected to improve customer experience (monitored via customer satisfaction and ease of doing business) by building knowledge and empowerment across a stable workforce, increase efficiencies across the business as more first contact activity is funnelled to this team (e.g. plumbing applications support, hardship conversations), drive digital enhancements and customer adoption, and in the end reduce operational expenditure.

In 2020-21, our contact centre contract will cost \$0.95 million. From 2021-22, an in-house model will save \$0.2 million per year with a like for like 9.6 FTE transferred from external contract labour to internal labour.

7.4 Recycled water operating expenditure

IPART requires Hunter Water to ring-fence the costs associated higher-cost recycled water schemes from other regulated services. This approach provides transparency of total scheme costs, and transparency in the allocation of cost offsets and residual scheme costs. Our recycled water ring-fencing method is described in Technical Paper 9, section 2.2.

Unregulated recycled water costs are approximately \$1.1 million per year over the period 2020-25.

8. Hunter Water's budgeting process

Hunter Water has traditionally maintained a rolling five-year operating expenditure budget that is refined each year in the Strategic Business Plan and the Statement of Corporate Intent (SCI), as agreed with our shareholders. With Hunter Water proposing a five-year price period, this budget process has been extended to provide six years of operating budgets to align with the proposed extended price period.

8.1.1 Forecast methodology

Management commenced the budgeting process for this price submission in July 2018 with the engagement of budget owners in the preparation of developing forward year budgets. At the same time, Executive Management and the Board were provided a timeline of key milestones and deliverables including planned reviews and required approvals.

Annual operating expenditure budgets have been prepared using both a bottom-up and top-down approach.

The bottom-up approach builds operating budgets by product, process (network or treatment), location and expense type (cost category). The bottom-up process begins with each individual business unit and budget owner identifying drivers of expenditure in their area of responsibility including tactical, operational and strategic requirements. This process involved consideration of unforeseen items in the current price period and the identification of further efficiencies or setting stretch targets for the next price period.

The bottom-up approach was an iterative and collaborative process, with due consideration of investment against operating obligations and legislative requirements, customer expectations, and internal business strategic objectives guided by the Board. Alignment to the proposed forward capital expenditure program was also part of the development and review process to ensure operating expenditure outcomes align with the delivery of the capital program.

To complete the bottom-up process, models were developed for all major cost items including labour, electricity contract, treatment operations contract, maintenance contracts and maintenance expenditure. All major contracts were reviewed to identify future budget requirements. As part of the financial modelling, sensitivity analysis was undertaken to understand the financial impact of any changes in key assumptions and to inform and agree the final forecast position.

Operating budgets have been set on a 'P50 basis' (or central estimates basis), which is one where there is an equal chance of performance above or below budget – the 'most likely' outcome - based on known events / factors at the time the budget was developed and approved. This approach to budgeting removes the need to include contingency in budgeted amounts, for example, for extreme wet or extreme dry weather events. This approach has been adhered to with the development of the operating budget for 2019-20 and for all future years of the price period.

From a top-down perspective, operating expenditure was viewed and prioritised through various perspectives – a risk management lens; a customer lens; and a longer-term, strategic lens; to ensure all perspectives and drivers were considered and agreed in the final forecast position.

8.1.2 Allocation of operating costs to activities

Hunter Water has historically used an activity based costing (ABC) approach to identify operating expenditure that is directly allocated to regulated and unregulated products, and allocate indirect common costs to each regulated and unregulated product. Hunter Water has a general ledger structure that provides the ability to allocate costs across product type, location, process, division, business unit, and expense element. This improves the cost information available to more accurately price Hunter Water's products, as well as ensuring that expenditure on non-regulated activities (e.g. recycled water) is appropriately valued and ring-fenced.

The ABC methodology enables approximately 66 per cent of total operating expenditure to be captured directly by product (water, wastewater, stormwater or recycled water). The ABC methodology also facilitates reallocation of around half of the remaining shared or common costs directly to water, wastewater, stormwater or recycled water. As a result of this methodology, approximately one third of total annual operating expenditure remains as shared or common costs requiring apportionment. These remaining costs are allocated to products and activities in the same proportion as the overall values of

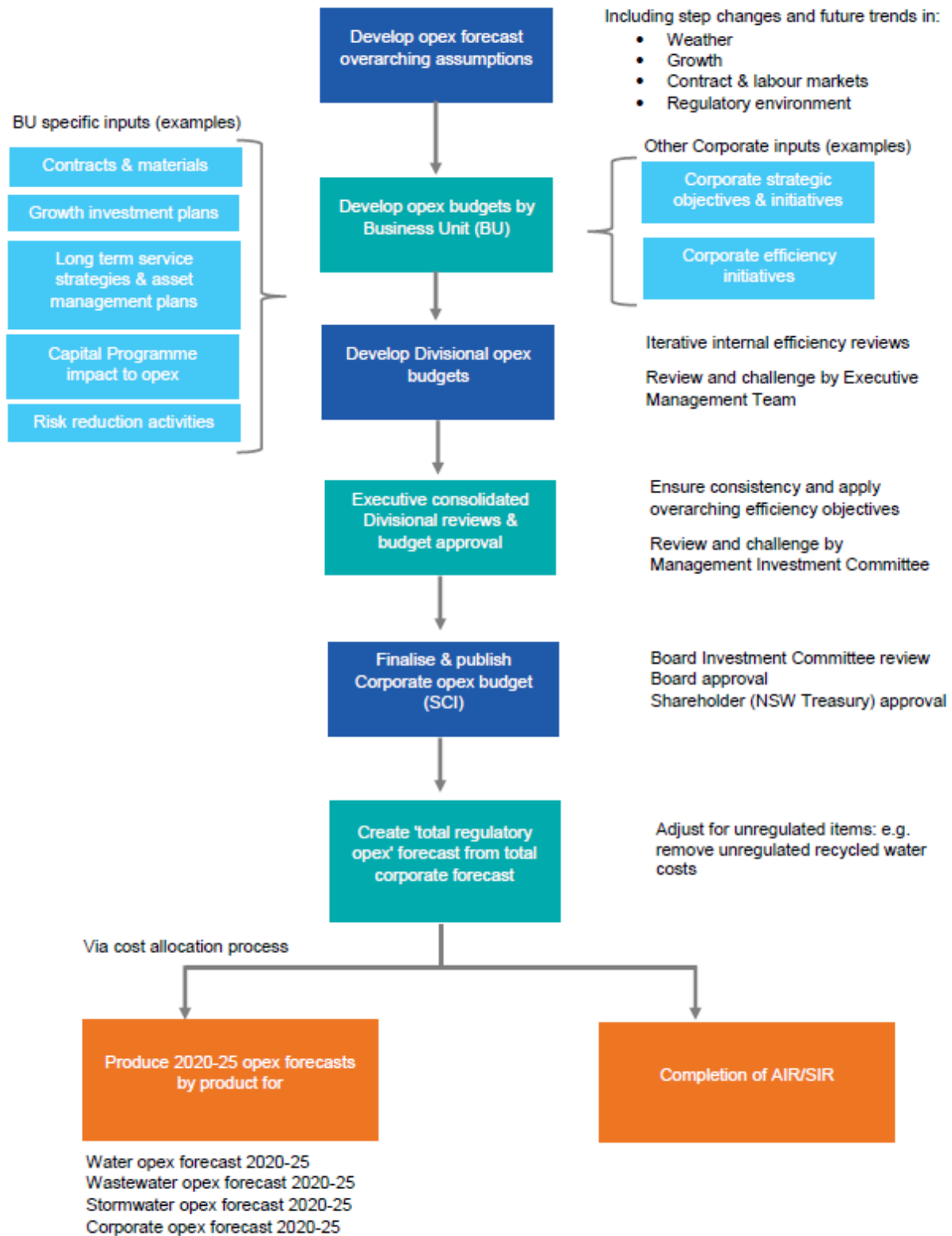
expenditure already assigned to the respective water, wastewater, stormwater and recycled water products, and separated between source, treatment and transport functions.

8.1.3 Budget process and internal governance

The top-down approach involved an iterative review of budgets for prudence and efficiency throughout the budgeting process. Internal governance arrangements included:

- Executive Manager reviews of (functional) proposed expenditure forecasts during September and October 2018 of individual business unit and consolidated divisional budgets. These planned reviews included: analysis of all major contracts, confirmation of all key assumptions that underpinned future forecast expenditure, what-if scenarios and sensitivity analysis, and business case presentation of any new expenditure items. Individual budget owners (Managers) were required to present proposed future budgets to their relevant Executive Manager for review and consideration for recommendation to the Management Investment Committee.
- Management Investment Committee (comprising the full executive team) reviewed the proposed consolidated expenditure forecast in October 2018. This review saw Executive Managers present their respective budgets to the Committee for peer review and challenge of key assumptions and variations. In considering the operating expenditure forecast, the Committee:
 - Evaluated the main drivers underpinning expenditure (e.g. labour, operations and treatment, maintenance, electricity, information technology, consultants).
 - Reviewed significant variances (to 2017-18 actual operating expenditure) and whether the variances are on-going or one-off, or an expenditure shift within the business.
 - Sought further information (narrative) for the significant variances.
- Management Investment Committee made recommendations to the Board Investment Committee. This followed the prioritisation of the capital expenditure portfolio by the Committee through October-November 2018, and considered the operating expenditure items that were previously identified for further management review. Similar to the capital expenditure prioritisation, this operating expenditure review considered investment against an assessment of benefits and organisational capacity; and assessment of the aggregate operating expenditure on customer affordability (customer pricing impact). Investment was broadly categorised using the framework of regulatory and risk reduction expenditure, focus area investment (areas for operational improvement / efficiency) and strategic initiative investment (driven by the voice of the customer, community, employees). This review and prioritisation process further refined (reduced) the proposed operating expenditure, for recommendation to the Board Investment Committee.
- In November 2018, the Board Investment Committee (a sub-committee of the Board) reviewed the draft budgets for challenge, alignment with the capital program and Board risk appetite statements. This review involved testing of key assumptions and investment prioritisation, applying a corporate risk lens across capital and operating expenditure. This resulted in further refinement (reduction) of the proposed operating expenditure forecast, for recommendation to the full Board for approval.
- Board of Directors reviewed the final (draft) operating expenditure forecast in December 2018, and again in February 2019, for inclusion in the final revenue modelling for the price submission as well as the 2019-20 Business Plan and Statement of Corporate Intent (SCI) for presentation to Shareholders (and their representatives). The Board challenged the business for further operating expenditure efficiencies (reductions) with consideration of various expenditure envelope scenarios, specifically targeting (reducing) focus area investment (operational improvement / efficiency) and (reducing) strategic initiative investment (customer, community, employees). The Board review again saw further testing of key assumptions and investment prioritisation, particularly by applying a customer lens in its decision making. This resulted in further refinement (reduction) of the operating expenditure forecast, for recommendation for inclusion in the final 2019 price submission.

Figure 8.1 Hunter Water budget process



8.1.4 Key expenditure assumptions

The key assumptions underpinning the operating expenditure forecast for the next price period include:

- The assumptions for number of connections, water demand (sales) and volume of wastewater processed impact variable operating costs. Total water sales are forecast to remain relatively stable for 2020-21 to 2024-25 and are in line with long term growth assumptions (aligned to demand forecast modelling). Connections and billable property growth is forecast to continue at historical growth rates. Detailed projections are provided in Technical Paper 7.
- The current retail contract for purchase of energy expires in December 2019. Hunter Water has engaged an energy market expert to undertake an analysis of likely future energy market prices for inclusion in future year forecasts. There are real price decreases forecast in future years and these market rates have been applied to future energy consumption expectations (based on historical usage, weather patterns affecting energy consumption, impacts from capital asset upgrades, future growth assumptions). In addition, energy efficiency program outcomes were included in the operating expenditure forecast.
- Hunter Water has developed operating expenditure forecasts with reference to existing operational plans, including asset condition assessments, service delivery requirements (operating licence), capital investment plans and risk. Preventative maintenance to optimise asset life and asset performance (including LCPM) and to ensure customer and community service levels are maintained, are aligned with the risk appetite and/or are in line with Board-agreed risk tolerance.
- For a number of items in recent years, there have been regular cost increases at and above inflation. Hunter Water retains the risk associated with future real price increases for inputs.
- Costs have been forecast assuming there will be no change to regulatory requirements or increases in mandatory performance standards or requirements. For a number of years, changing regulatory requirements (licence conditions and pollution reduction programs) has increasingly driven the need for more technically advanced processes at wastewater treatment plants. Advanced processes and higher effluent quality standards are often more energy intensive, require higher quantities of chemicals or supervisory oversight. Our assumption of no change to regulatory requirements means that we are carrying a largely one-sided risk of higher costs across the next regulatory period.
- While weather conditions can significantly impact Hunter Water's operating costs, average weather conditions are assumed (in line with a 'P50' budgeting approach). No expenditure allowance has been made for items that have historically arisen from time to time, such as increased failures from extreme weather events (e.g. major storm event such as the East Coast Low experienced in 2015 or drought conditions affecting the Hunter region), or cost variations due to weather fluctuations. For example, a dry year can lead to additional pumping requirements from river systems into off-river storage; additional ground water extraction; continued pumping to ensure adequate water supply and pressure; increased main breaks due to ground contraction; and the potential for algal blooms (water quality risk). A wet year can lead to additional pressures on the wastewater system; higher costs for increased electricity consumption for pumping of wastewater to treatment plants; and increased chemicals and electricity for treatment of increased flows.
- Full-time equivalent employees will remain stable over the coming price period, at 480-490 FTEs each year across 2020-25. This is an increase from the assumption of approximately 460-465 FTEs each year in the current price period (2016-20). As stated previously, the increase is driven by the organisational restructure that occurred in 2017, which resulted in an increase to 485 FTE employees. This level has been maintained in future years.
- Any wage increases above 2.5 per cent per year provided through the enterprise agreement negotiations will be offset by productivity improvements, as required by the NSW Public Sector Wages Policy. The current enterprise agreements (two) are due to expire in June 2021. Negotiations between Hunter Water and employee representatives will begin in early 2021.

9. Abbreviations

| Acronym | Term |
|---------|--|
| ABC | Actively based costing (financial accounting model) |
| AIR | Annual information return |
| Capex | Capital expenditure |
| CBD | Central business district |
| CCTV | Closed-circuit television |
| CPI | Consumer price index |
| CTGM | Chichester trunk gravity main (pipeline) |
| EPA | Environment Protection Authority (NSW) |
| EPL | Environment protection licence |
| ERM | Enterprise risk management |
| FTE | Full time equivalent (employees) |
| ICT | Information and communications technology |
| IPART | Independent Pricing and Regulatory Tribunal (NSW) |
| LCPM | Long cycle preventative maintenance |
| LHWP | Lower Hunter Water Plan |
| NPR | National Performance Report |
| Opex | Operating expenditure |
| P50 | A mid-range estimate - where there is a 50:50 chance of the actual outcome being higher or lower |
| PFAS | Per- and poly-fluoroalkyl substances |
| RW | Recycled water |
| SIPS | Smart integrated pump scheduling |
| SIR | Special information return |
| UV | Ultra-violet (light) |
| WTP | Water treatment plant |
| WWTP | Wastewater treatment plant |

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