3 Form of Regulation

- This paper outlines Central Coast Council's water, sewer and stormwater drainage complex regulatory environment.
- Council considers that there is a strong case to move to a 4-year regulatory period and believes this would provide a greater level of certainty regarding:

- Demand forecasts
- Enhanced meter analysis
- Operational forecasts
- Capital works program
- Required revenue to ensure asset performance
- Price stability for customers
- Consideration of customer views

- Council is triggering the Demand Volatility Adjustment for the next regulatory period due to lower water sales than that set by IPART.
- There will be no adjustments made to the operational forecasts that are associated with the Efficiency Carryover Mechanism (ECM).

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1. Form of regulation

This technical paper outlines Central Coast Council's (Council) position on IPART's mechanisms and processes for its water, sewer and stormwater drainage businesses. The aim is to enable the delivery of safe, efficient and reliable services whilst considering customer views and expectations around service levels, asset performance, climate impacts and pricing. The paper further discusses drought response and the additional marginal costs incurred. Council does not intend to introduce a cost pass through adjustment to the usage charge if drought conditions are experienced between 2022–26.

According to the Urban Water Regulation Reform report (2017):

> *Economic regulation aims to promote effective competition where this is possible or otherwise to reproduce the disciplines for competition by encouraging efficiency and innovation in service and cost performance over time. This ensures that monopoly businesses do not earn monopoly profits or provide sub-standard services while ensuring that they are able to recover the efficient cost of operating and maintain their networks.*[1]

Council's Water and Sewer Directorate and Infrastructure Services Directorate provides water, sewer and stormwater drainage services to the Central Coast community. These services are considered natural monopolies and as such, consumer protection in relation to pricing and delivery of service, is regulated by the Independent Pricing and Regulatory Tribunal (IPART). Regulation helps protect consumers by setting parameters to manage the potential risks of monopoly pricing (such as overcharging or poor service).

The current IPART regulatory framework ensures:

1. Cost reflective pricing for the community
2. Community views are embedded into Council's pricing proposal
3. Investment in capital works aligns to mandatory standards and is efficient and prudent
4. A level of operational efficiency is identified by the business

The current regulatory method used by IPART is "price capping" which sets a cap on the service and usage charges Council can apply each year of the determination period[2]. The

[1] Urban water regulation reform. A report prepared for Infrastructure Australia, Frontier Economics December 2017 section 1.2.1 Economic Regulation.

[2] https://www.ipart.nsw.gov.au/files/sharedassets/website/trimholdingbay/gosford_city_council_-_prices_of_water_supply_sewerage_and_drainage_services_-_medium-term_price_path_from_1_july_2000.pdf

price is determined by the amount of revenue IPART deems necessary for Council to operate an efficient and reliable service for the community. The revenue required is essentially an expenditure review where Council will put forward the expenditure it deems necessary to maintain and renew its assets. This is determined by IPART's Building Block Model (BBM).

Council is putting a case forward for a 4-year determination period from 1 July 2022 to 30 June 2026 (current determination period is 3-years). Council considers that the additional year will enable bill certainty for customers, reduce administrative and regulatory burden, and provide additional revenue stability.

2. Length of determination

For the 2019 determination period, Council requested a 4-year price path, however IPART rejected this for a 3-year determination due to:

- Uncertainty around Council's forecast cost estimates as a newly merged Council
- The need for Council to improve data collection for forecasts and processes before this price review

For the 2022 determination, Council is requesting a 4-year price path covering the period from 1 July 2022 to 30 June 2026. This price proposal sets out Council's capital works expenditure, operational expenditure, revenue, demand forecasts, population growth and pricing. Council believes a 4-year determination provides a greater level of certainty regarding:

- Demand forecasts
- Enhanced meter analysis
- Operational forecasts
- Capital works program
- Required revenue to ensure asset performance
- Price stability for customers
- Consideration of customer views

Table 1: Risks associated with determination period and the safeguards

IPART Decision Criteria	Possible issues	Safeguard	Safeguard Assessment
Forecasting Confidence			
	Demand Forecasts	Demand volatility adjustment	☑
	Operational programs	Expenditure review step change process and business cases	☑
		Efficiency carryover mechanism	☑
	Capital works programs	Prudency review of capital expenditure program and related business cases	☑
	Future augmentations	Central Coast Water Security Plan	☑
	Forecast metering	Enhanced data intelligence	☑
Regulatory Certainty			
	Price stability	Price stability for customers	☑

2.1 Key risks of a 4-year price path

2.1.1 Demand forecasts

Council dedicates considerable effort towards water demand forecasts, with an understanding that there can be variability due to changing weather patterns across years. The consumption forecasts are also used in Council's Integrated Water Cycle Management Strategy[3] and long and near-term water planning, with some modifications to the long-term assumptions. Details of implementation of the integrated supply-demand planning model (iSDP) can be found in Technical Paper 7.

IPART applies a Demand Volatility Adjustment Mechanism (DVAM) in its methodology that puts a cap on any over or under recovery of water sales revenue with a +-5% neutral zone during the regulatory period.

2.1.2 Under collection of revenue

There is always a risk to Council's forecast revenue based on IPART's pricing response to Council's submission. If there are unforeseen climate events or regulatory issues and Council has not received the required revenue, then the lower revenue risk is extended for an additional year. This, in turn, can impact asset performance, financial sustainability and ability to meet service levels for the community. During the 2019 determination period, Council responded to several climate events such as:

1. Dry conditions between 2017-2019 triggered a drought and the introduction of water restrictions (reducing demand and increasing operational costs in administering customer activities).
2. Bushfires in January 2020 impacted the Mangrove Creek Dam catchment area and surrounding fire trails.
3. Severe rain events caused flooding in February 2020 and March 2021.
4. COVID restrictions in March 2020 changed working conditions (i.e. additional vehicle expenditures due to restrictions about number of people per vehicle).

In recognition of recent water quality issues within Terrigal catchments and associated pollution programs in relation to Council's Environmental Protection Licences (EPLs), the State Government is driving further investigations into water quality of local waterways. It is highly probable that the EPA will enforce further investigations and actions into the impacts of the sewerage network on local water quality.

[3] Integrated Water Cycle Management – resourcing strategy for the provision of appropriate, affordable, cost effective and sustainable urban water services that meet community needs and protect public health and environment.

This is anticipated to be done through inclusion of further pollution reduction programs on Council's EPLs. This would result in regulated investigations and actions where sufficient operating expenditure may not be available.

In response to these events, Council bore the costs and risks resulting in an increase in operational expenses, which were not included in the required revenue.

3. Demand Volatility Adjustment Mechanism (DVAM)

The DVAM is a safeguard used by IPART to address actual water sales that depart from IPART's forecast water sales over the 2019 determination period. This mechanism is designed to protect the consumer if Council underestimates the demand and over-recovers revenue, or alternatively protect Council if demand is overestimated resulting in an under-recovery of revenue. IPART's final report for Council specified a plus or minus 5% neutral zone for the 2019 determination, where an adjustment can be made to address the over or under recovery of revenue i.e.:

- A material variation is defined as more than 5% (+or -) over the whole determination period
- IPART will only consider adjusting variation greater than 5% (+ or -)
- IPART will consult as part of the next price review on how the volatility mechanism could be applied, if a material variation occurs.

For the 2019 determination period (2019-20 to 2021-22) IPART adjusted Council's water sales as listed in Table 2.

Table 2: Water Demand Forecasts for the 2019 Determination Period (ML)

	2019-20	2020-21	2021-22
Council Proposal			
Houses	18,267	18,383	18,497
Apartments	2,830	2,843	2,856
Non-residential	6,075	6,127	6,176
Meter exempt properties	0	0	0
Totals	**27,172**	**27,353**	**27,529**
			IPART Decision
Houses	18,483	18,818	18,935
Apartments	2,837	2,856	2,869
Non-residential	6,557	6,692	6,746
Metered exempt properties	768	783	790
Totals	**28,645**	**29,149**	**29,340**
Difference	1,473	1,796	1,811

If revenue is set on additional water sales that are not met, then the risk of Council achieving required revenue through usage will be impacted. IPART's 2019 determination included two key differences from Council's submission which increased the total forecast sales over the 3-year pricing period from Council's estimate of 82,054 ML to 87,680 ML (increase of 6.86%).

Water sales forecast figures

In the 2019 determination, IPART added the forecast sales for exempt properties to the Council figures, resulting in an increase of 2,357 ML (2.87%) in total sales forecast. N.B. Council's modelling of water sales forecast was inclusive of the demand for exempt properties.

Non-residential forecast sales figures

IPART compared the demand forecast figures (2019-20 to 2021-22) with 2016-17 and 2017-18 figures reported in Council's Annual Information Return (AIR). The 2016-17 and 2017-18 were comparatively dry years and Council's forecast is based on long-term, average rainfall years. The demand adopted by IPART for the price modelling differed with respect to the starting point and then with addition of a 4.12% increase spread over five years.

3.1 Trend for forecast water demand

The forecast of consumption is always estimated for the final year of the current determination period. However, current trends suggest that the consumption that was set by IPART was higher than forecast, resulting in less than expected revenue. Figure 1 shows the forecast trends.

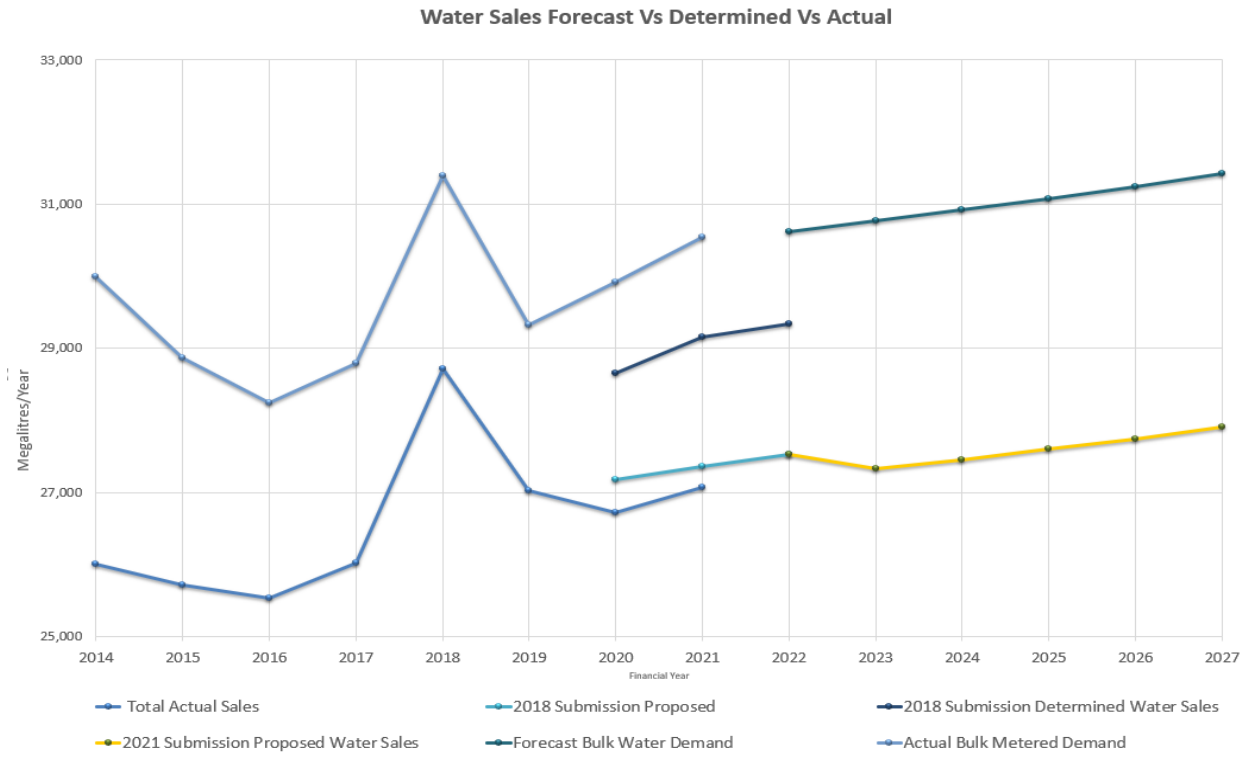

Figure 1: Water Sales Forecast- Determined versus Actual

4. Weighted Average Cost of Capital (WACC)

The IPART website WACC section states the following:

> *The weighted average cost of capital (WACC) is a key input for calculating the revenue requirements and setting prices for many of the businesses we regulate. The WACC is the weighted average of debt and equity costs required for a benchmark efficient business to invest in necessary infrastructure*[4]

The WACC methodology uses economic data to determine how a business raises capital to fund its investments (capital works), either by borrowing (debt) or investment (equity). The current WACC methodology is a weighted average assuming 60% is raised from borrowing and 40% from investment. The post-tax real WACC estimate is then applied.

IPART's final decision on the WACC for the 2019 determination was 4% which was down from 4.2% in the draft determination, which further reduced Council revenue by an additional $3.8M per year. This formula used the cost of equity of 5.5% x 40% + cost of debt at 2.9% x 60% = 4% (0.0394).

The proposed WACC to be used for the next regulatory period is the post-tax real WACC of 3.31%. This will be applied to the Regulatory Asset Base (RAB) to calculate a return on capital as provided by IPART in February 2021.

[4] IPART website WACC -https://www.ipart.nsw.gov.au/Home/Industries/Special-Reviews/Regulatory-policy/WACC

5. Drought characteristics

In a 2021 community engagement survey, Council requested community feedback on introducing a drought cost pass-through mechanism, similar to that of Sydney Water and Hunter Water in their recent price submissions to IPART[5]. A cost pass-through mechanism is a cost recovery for additional expenses incurred by Council during times of drought, that is not factored into forecast expenditure. Use of this mechanism would result in an increase in the usage charge to equal that of the marginal cost of responding to increased water scarcity. For example, this would result in higher usage charges, making drought response costs more transparent. When dam levels start to drop due to climatic conditions, Council needs to respond by activating bores, purchasing water from Hunter Water, engaging the community, increasing leakage detection programs and activating a detailed design for a temporary desalination plant.

5.1 Drought characteristics

At the time of preparing this proposal, overall stored volume in Council dams was approximately 75% of the maximum storage capacity. Figure 2 shows the total storage and breakdown of storage by dam. It is noted that Mangrove Creek Dam (MCD) was constructed between 1978 and 1982 and provides 94% of the Council's total storage capacity. The storage level of MCD is the main indicator of drought security on the Central Coast.

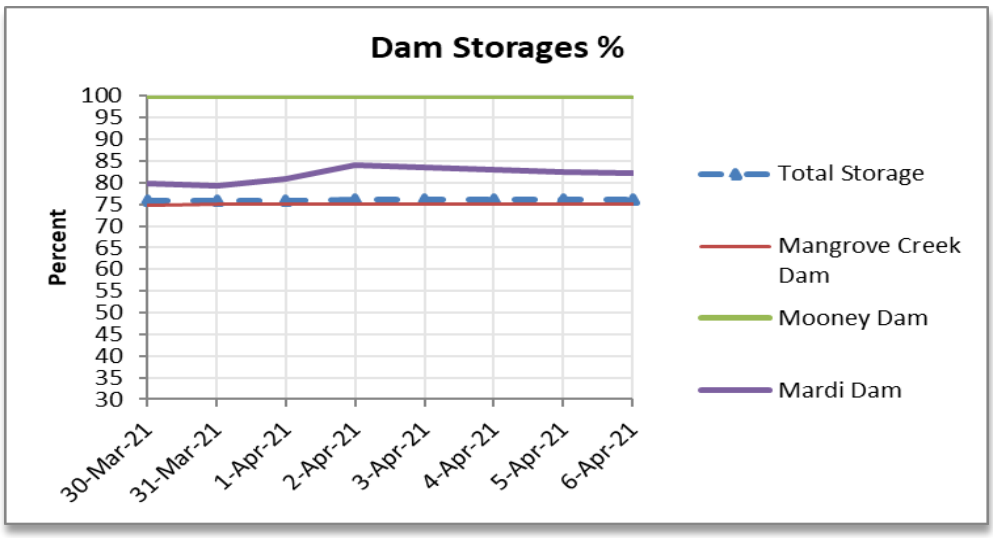

Figure 2: Dam Storage Levels April 2021

Under normal conditions, Council's current supply scheme yield is approximately 32.5GL or 89ML per day (Central Coast Water Security Plan 2021). This compares with an average system demand of approximately 83ML per day, which increases to an average of 90ML per

[5] https://www.yourvoiceourcoast.com/all-projects/securing-your-future-rate-rise.

day over summer. While the Central Coast supply scheme depletes slower than neighbouring Water Authorities, the scheme remains vulnerable to drought with limited available climate independent supplies as shown in Figure 3. Managing these recurring periods of scarcity implies higher costs and lower revenue for Council.

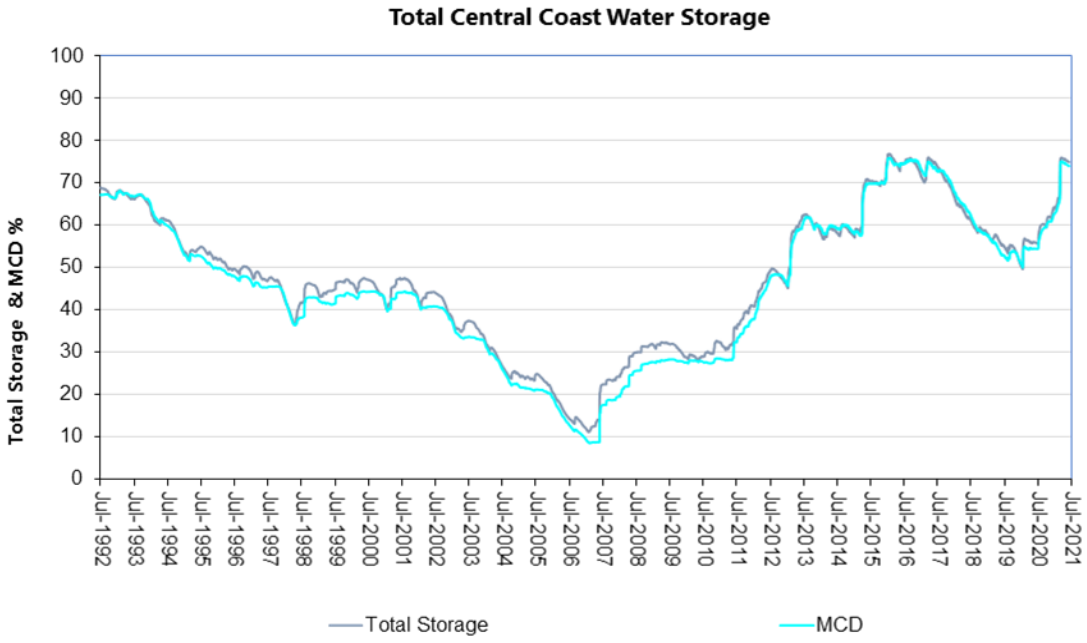

Figure 3: Changes in Mangrove Creek Dam and Total Storages since 1992

The 2019 determination coincided with a period of drought across all of New South Wales. Storages started to decline from April 2017 (75% storage in MCD) and reached a low in February 2020 (50% storage in MCD). This decline was halted by significant rainfall in February 2020 that resulted in the declaration of the Central Coast as a natural disaster zone.

Council adopted new triggers for water restrictions in February 2019, bringing forward previously identified increases to trigger levels to account for growth within the region and uncertainties with long term available streamflows. Level 1 Water Restrictions would then be implemented when Mangrove Creek Dam reaches 50% storage. These guidelines for restrictions are applied within the overall context of the relevant factors influencing the security of the supply, see Table 3.

Table 3: Water Restriction Guidelines

Restriction Level	Initiate Restriction Level when Mangrove Creek Dam falls to	Remove Restriction Level when Mangrove Creek Dam rises to
Level 1	50%	55%
Level 2	40%	42%
Level 3	35%	37%
Level 4	30%	32%
Level 5	25%	27%

Council introduced water restrictions in February 2020 as Mangrove Creek Dam dropped below 50%. This followed the previous launch of Council and Hunter Water's 'Love Water' campaigns in September 2019. Council also implemented several additional actions during the recent drought as outlined in Section 5.2.

Since the construction of MCD, there have been two main droughts to impact the Central Coast Region as shown previously in Figure 3:

- 2001-10 Millennium Drought where storage in MCD dropped below 10% in February 2007
- 2017-20 Drought where lowest recorded level reached 50% in February 2020.

The inherent variability of the climate in Eastern NSW will result in future periods of drought and water scarcity for the Central Coast Region. The most appropriate mechanisms to address changing revenue and expenditure in response to drought on the Central Coast will need to be addressed. This would be achieved by scarcity pricing such as that introduced by both Hunter and Sydney Water. This involves the usage charge increasing in line with dam levels to recover additional variable costs for producing water when supply is low.
The concept of scarcity pricing was asked in the community survey, however it did not gain a lot of support. It will not be considered for the next regulatory period, however the concept will be further explored in the 2026 future determination.

5.2 Actions triggered by drought events

Council plans for, and responds to, periods of drought in line with its Drought Management Plan (DMP). The plan underwent significant updates through 2019 and 2020 and is currently being refined to incorporate outcomes of the Central Coast Water Security Plan.

The DMP outlines demand and supply-side actions that are introduced relative to the level of Mangrove Creek Dam. Demand side actions are intended to reduce water consumption and match demand to diminishing water resources. Supply side actions aim to supplement water resources with additional water sources from groundwater systems (bores), transfers with

Hunter Water Corporation, the recommissioning of Porter's Creek Stormwater scheme and drought response desalination.

A summary of key actions outlined in the DMP and undertaken during the recent drought is provided in the following sections.

When Mangrove Creek Dam is above 50% - Water Wise Rules

- Implement long-term water conservation actions including active leak detection, community education and engagement
- Continue operation of Council's Water Resilience Committee to review scheme operation, climate outlook and consider emerging risks.

When Mangrove Creek Dam storage falls below 50% - Level 1

- Undertake a targeted communication and education program detailing water restrictions and water conservation
- Modify system operations to minimise water loss from operational activities such as mains and reservoir cleaning, without compromising public health
- Initiate Drought Management Committee with the State Government through the Department of Planning Industry and Environment and advise Department of Premier and Cabinet
- Consider temporarily amending environmental flows under severe water shortages
- Establish a program to manage and review Water Management Plans prepared under the water restriction requirements
- Consider establishing a targeted rebate program to support advanced water savings investments (e.g. replace single flush toilets with dual flush, etc.)
- Pursue water sensitive cities measures throughout the development process (planning, policies, assessments, approvals implementation)
- Commence procedure to acquire allocations from upstream water users where this will increase available water for the Council to extract
- Consider establishing a team to commence initial activities for the Toukley Desalination scheme, including the development of a procurement strategy
- Consider beginning a detailed design for desalination plant.

When storage falls below 40% - Level 2

- Second staff with previous drought management experience (from any part of the Council) to deliver drought management actions
- Commence preparation of approvals to re-establish the Porters Creek to Wyong Weir transfer system
- Investigate utilisation of the Narara Borefield for non-potable uses

- Negotiate access to water with owners of alternative water sources
- Commence procurement for the construction of the Toukley desalination scheme (20 ML/d).

When storage falls below 35% - Level 3

- Re-establish Water Banking Scheme (certificates) for filling new pools, establishing landscape for new constructions (prevent sedimentation) and establishing drought tolerant native plants. Payment of certificates funds tankering of non-potable groundwater from the Council's bores, not connected to the town water system, to Mardi Dam for treatment and distribution
- Commence next stage of re-establishing the Porters Creek to Wyong Weir transfer system.

When storage falls below 30% - Level 4

- Increase reserve water levels in Mardi Dam when MCD drops to 30%.

When storage falls below 25% - Level 5

- Initiate temporary arrangements for pumping Mangrove Creek Dam water to Boomerang tunnel for delivery through Mardi Mangrove pipeline.
- Implement enduring supply measures.

As storage reaches 15% - Enduring Emergency Supply

- Operation of drought response desalination and Porters Creek schemes.
- Intense community engagement to reduce consumption to enduring emergency supply level of service to stabilise storage levels at 15%.

6. Efficiency Carryover Mechanism (ECM)

IPART's 2019 Final Report introduced the concept of an 'efficiency carryover mechanism' (ECM) for the first time. The mechanism removes the incentive to delay efficiency savings during a regulatory period, until the beginning of the following period.

The ECM carries forward any efficiency gains in operational expenses that occurred in any year of the 2019 determination (1 July 2019 – 30 June 2022) to the next determination. Irrespective of the year operational efficiency is realised, the reduction is carried forward to the required revenue in the next determination period. An ECM operates using the following principles:

- The water business provides for anticipated impacts to operational expenditure forecasts.
- The business retains the benefit (or incurs the cost) of delivering actual operational expenditure that is lower (higher) than forecast operational expenditure in each year of a regulatory control period.
- The ECM carries forward the incremental efficiency gains for the length of the carryover period. The carryover period length will typically be the length of the regulatory control. For example, if Council underspends in year two of the 2019 determination, it keeps that gain.
- The carryover amounts accrued in year two of this period will be the sum of the incremental efficiency gains (underspend of operational expenditure) in the current period that can be carried forward. If Council's actual operational expenditure is less than the regulatory revenue base operational expenditure, then this gain is carried forward and spread over the revenue required for the next period.
- The carryover amounts are added as an additional 'building block' item when setting the revenue for the next regulatory period. This allows the water business to keep the gains achieved for a period (as determined by IPART), as the gain will be reflected in the revenue requirement. The customer benefits by eventually receiving lower prices and the business is incentivised to obtain efficiencies throughout the regulatory period, as these are carried into the next regulatory period.

Council (as per Hunter Water and Sydney Water) agreed to participate in the ECM for the 2019 determination. Council predicts there will no sustainable operational efficiency gains in the 2019 determination period that can be carried forward to the 2022 determination to reduce the revenue needs.

7. Price flexibility

Under the current form of regulation, IPART sets the maximum price structures and levels for monopoly services applied each year of the determination, for both residential and non-residential customers. More recently, IPART has also introduced a 'propose respond 'model where the business can propose its own prices as a starting point. Council has maintained the position presented in the last submission, that it does not support entering into unregulated pricing agreements with non-residential customers. As the relevant transfer infrastructure has already been constructed, there is no scope for Council to reduce service levels to justify a lower price.

Council's agreement with Hunter Water is described as a 'Negotiated Services Agreement' in the bulk transfers determination. Under that agreement, Council provides bulk water transfers at a rate less than the maximum price set by IPART. Council will continue with that approach into the 2022 determination.

IPART's 2019 Determination, *Bulk water transfers between Hunter Water Corporation and Central Coast Council Maximum prices from 1 July 2019*, sets a bulk water transfer price.

Clause 1.2 states: "This determination does not apply to bulk water transfers provided pursuant to a Negotiated Services Agreement."

The Determination defines a Negotiated Services Agreement as:

> *Negotiated Services Agreement means a written agreement between Hunter Water and Central Coast Council, a copy of which is provided to IPART jointly by those agencies, under which one or both of those agencies agrees to provide bulk water.*
>
> *Schedule 2: Definitions and Interpretation Bulk water transfers between Hunter Water Corporation and Central Coast Council transfers to the other at prices that are not the maximum prices set out in this determination.*

Hunter Water and Central Coast Council executed a negotiated services agreement on 23 March 2020 (see attached), under which both parties agreed a $0.33/kL transfer price.

8. Abbreviations

AIR	Annual Information Return
BBM	Building Block Model
CAPEX	Capital Expenditure
COVID	Coronavirus Disease
DVAM	Demand Volatility Adjustment Mechanism
ECM	Efficiency Carryover Mechanism
EPA	Environment Protection Authority
IPART	Independent Pricing and Regulatory Tribunal
ISDP	Integrated Supply-Demand Planning model
IWMC	Integrated Water Cycle Management
LGA	Local Government Area
LRMC	Long Run Marginal Cost
OPEX	Operating Expenditure
PREMO	performance, risk, engagement, management, and outcomes/service standards
SOC	State Owned Corporation
WACC	Weighted average cost of capital
WMA	Water Management Act

9. References

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- IPART Review of Central Coast Council's water, sewerage and stormwater prices to apply from 1 July 2019, May 2019
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