# Submission to the Independent Pricing and Regulatory Tribunal

## Response to the IPART Draft Determination on the Review of Broken Hill Pipeline Prices from 1 January 2023

9 September 2022

This page is intentionally blank.

# Contents



**Attachments:**

1. Broken Hill Pipeline energy costs revised proposal workbook
2. ASXEnergy contract prices as at 22-08-31
3. Energy costs end of period true-up example (wholesale and network component)

# Introduction

WaterNSW is pleased to submit this response to the Independent Pricing and Regulatory Tribunal's ("**IPART**") *2021 Review of Water NSW's Murray River to Broken Hill Pipeline Prices Draft Decision* ("**Draft Decision**"). The Draft Decision outlines IPART's draft findings on key issues in its review of WaterNSW's prices for water transportation services via the Wentworth to Broken Hill Pipeline ("**the pipeline**") which will apply to Essential Water and a small number of offtake customers for the regulatory period from 1 January 2023.

IPART first determined the maximum prices that WaterNSW could charge for the water transportation services provided by the pipeline in 2019 for the three-year period from 1 July 2019 to 30 June 2022 in its May 2019 *Prices for water transportation services provided by the Murray River to Broken Hill Pipeline from 1 July 2019 Final Determination* (the "**2019 Determination**").

The pipeline was fully operational in April 2019 and has been critical in ensuring a safe and secure water supply to the Broken Hill community, which is one of the hottest and driest regions in the country.

We are delivering approximately 30% more water than IPART's forecast in the 2019 Determination, largely due to the pipeline becoming the primary source of water for Broken Hill, with less water being sourced from Essential Water's own infrastructure.

We are meeting all of our water security targets and aim to operate the pipeline in a way that keeps water prices low for customers. Our proposal built on our 2018 pricing proposal, prepared when the pipeline was being constructed and expected use and costs of the pipeline were uncertain.

WaterNSW recognises that our pricing proposal is a cost input for the Essential Water determination, which in turn sets water prices for the Broken Hill community. As such, and in order to ensure that we do all we can to keep water prices as low as possible, we focus on cost control and efficiency.

We also note advice from the NSW Government that all relevant approvals are in place to continue paying the subsidy to cover the regulated costs of the Broken Hill pipeline from the Restart NSW fund over the next price determination period.[1] This means that the NSW Government, and not the local community, will fund the costs of the pipeline over the upcoming determination period.

In June 2021 WaterNSW submitted its *WaterNSW Pricing Proposal for the Wentworth to Broken Hill Pipeline* ("**Pricing Proposal**") to IPART for transportation services along the Pipeline from 1 July 2022 ("**2022 Determination period**"). We proposed a package that would result in average customer bills decreasing by 4% in real terms by the end of the 2022 Determination period. We proposed reductions in the access price for Essential Water and offtake customers of 5.3% and 2.7% (before inflation) and increases in the usage price for Essential Water and offtake customers of 3.5% and 4.8%, respectively.

WaterNSW proposed a five-year determination period with risk mitigation measures to support an efficient allocation of risk and provide WaterNSW with accountability for those

[1] https://www.ipart.nsw.gov.au/sites/default/files/cm9_documents/Letter-from-DPE-on-the-subsidy-for-the-WaterNSW-Pipeline.PDF

factors within our reasonable control. If appropriate risk mitigation measures are not implemented, we proposed a shorter determination period (three years) to reasonably manage risk in the outer years and to align to our other determination timelines.

## IPART Draft Determination

The IPART Draft Determination reduces the usage price for Essential Water and offtake customers by 3.0% (before inflation) in the first year of the 2022 determination period and reduces the access price for Essential Water by 21.3% (before inflation) and offtake customers by 16.7% (before inflation).

The revenue requirement in the Draft Determination is $15.8 million (16.1%) lower than proposed by WaterNSW over IPART's four-year regulatory period, with almost 90% (- $11.5 million) of the reduction due to a lower Weighted Average Cost of Capital ("**WACC**") to reflect more recent market data and the corresponding impact on the tax allowance (- $2.7 million).

Almost all of the remaining reduction (-$1.5 million or -9.3%) of the total adjustment to WaterNSW's proposed revenue requirement over the four-year regulatory period arises from IPART's reductions to the forecast energy costs of the pipeline. We set out our concerns over IPART's reasoning for the reductions and provide updated estimates of the cost of energy to ensure that prices reflect the best estimate of the forward costs and reflect the movements in electricity prices since our proposal was lodged. Setting prices that reflect up-to-date cost estimates is in customers' interests as it sends appropriate usage signals for water consumption. Energy costs therefore are a major focus of this response.

IPART's Draft Decision is to set WaterNSW's prices for a four-year period (as opposed to the five-year period proposed by WaterNSW) – a 3.5 year period due to a six-month timeline delay - as IPART considered that four years better balances providing price certainty for customers, while also allowing for an earlier opportunity to manage uncertainty in water demand or WaterNSW's operating environment and ensures alignment of the WaterNSW and Essential Water reviews.

IPART's announcement that it is delaying the commencement of new prices until 1 January 2023, requires an assessment of the revenue impacts over the deferral period to ensure that there are no windfall gains or losses created. WaterNSW provides comments in this response on IPART's approach to calculating the financial impact of the delay.

While we consider the Draft Determination generally represents a well-balanced approach to the regulation of our Pipeline charges, we provide specific comments on a small number of concerns that we have identified. These concerns are expanded on in the body of this submission, with detailed calculations provided in appendices as relevant.

We are pleased that IPART has accepted the majority of our proposed costs and framework recommendations and acknowledge that the majority of the proposed revenue reductions are derived from IPART's lower WACC as noted above.

## Summary of recommendations

WaterNSW's recommendations to the IPART Draft Determination contained in this response are summarised below:

- WaterNSW supports a **five-year determination period** rather than IPART's four-year determination period (or 3.5 years due to the deferral) as this provides a more appropriate balance between reducing regulatory burden on customers and WaterNSW and managing the risks of unforeseen events or circumstances.
- We recommend **several changes to IPART's proposed energy cost allowance** covering the volume, profile and price of energy. The wholesale cost of electricity should reflect up-to-date cost estimates to provide appropriate usage signals for water consumption during the determination period. This is in customers' interests.
- We acknowledge IPART's in-principal acceptance of our **proposed energy true-up mechanism** to manage uncertain and uncontrollable cost items that may arise during the determination period that are outside the reasonable control of WaterNSW or our customers. An important feature of our proposed energy true-up mechanism is its symmetric application to ensure any excess revenue over and above the benchmark energy allowance is returned to customers over the subsequent regulatory periods.

  We propose additional elements to address potential cost changes that have become evident through the recent energy market crisis. We also suggest that the presence of the true-up should not stop IPART updating the energy cost allowance.
- WaterNSW supports IPART's intent to ensure there are no windfall gains or losses for customers or WaterNSW in the Final Determination arising from any **revenue adjustment** for IPART's six-month timeline delay. We suggest the material increase in the cost of energy should be included in the adjustment in addition to IPART's nominated adjustments for this pipeline review.
- WaterNSW considers that IPART should **apply its approach to risk management** from the Framework Review (and in particular access to the partial reopener that largely reflects our proposal) in the Final Determination. Adopting this element of the new framework should address IPART's concerns around revenue risk should a new mine open and represents a fair sharing of risk between WaterNSW and customers.
- IPART's **WACC should be updated using market parameters at 31 March 2022** (including the RBA's one-year forecast of inflation as at February 2022[2]) instead of data as at 31 December 2021. This approach will ensure that the final prices reflect the best estimate of efficient costs, are cost reflective and have the best chance to minimise the magnitude of any cost of debt true-up at the subsequent determination – this is important to reduce any future pricing and revenue shocks, given recent interest rate and cost increases.
- IPART's **allowance for regulatory submission preparation costs** is insufficient as it does not reflect the 'fixed cost' effort required to prepare a proposal (e.g. the energy cost forecast), regardless of the size of the business.
- We recommend that no **top-down continuing efficiency adjustment** should apply to pipeline expenditure. The pipeline's costs are largely market tested and the ongoing economic effects of the pandemic suggest that this productivity adjustment should not be applied. We are incentivised through the regulatory framework and our contractual arrangements to increase productivity and consider that the additional 'continuing efficiency' at the nominated level is not warranted for this review.
- We recommend that adjustments are made to the allowed revenues for the Final Determination to ensure the Draft Report findings can 'pass' the **IPART financeability test**.

[2] As an input to the geometric average. Sourced from the RBA's February 2022 Statement of Monetary Policy.

# 1. Length of determination period

IPART has proposed a four-year determination period commencing on 1 January 2022, which includes a net present value (NPV) neutral adjustment for the six-month deferral of the 2022 Determination period intended to replicate a four-year determination period commencing on 1 July 2022. This effectively results in a 3.5-year regulatory period for the pipeline.

WaterNSW originally proposed a five-year determination period to balance the uncertainty of forecasts and the regulatory burden of determinations. The period of stable operation since the pipeline's commissioning ensures that WaterNSW has a good understanding of the pipeline's operating profile and the associated costs. This reduces the uncertainty associated with making forecasts over the 2022 Determination period, meaning a longer determination period is appropriate.

WaterNSW considered that a five-year determination period, when supported by a holistic approach to efficient risk mitigation, appropriately balances the uncertainty of forecasts over the 2022 Determination period and the regulatory burden of determinations.

With the acceptance of our proposed energy true-up mechanism and our proposed inclusion of the cost pass through framework from the Framework Review, WaterNSW considers there is sufficient risk management in the framework for the pipeline to justify a five-year determination period.

IPART's support for a four-year determination period is outlined below:

> *While we agree there is less uncertainty in forecasts from the Pipeline, we consider some uncertainty still remains around the effect of a possible new mine, which is estimated to require 1GL per annum from 2023 or 20242 (an increase of around 20% in WaterNSW's total water sales). We consider a 4-year period will provide an opportunity for WaterNSW to assess the impact of the mine if it eventuates.*[3]

As highlighted above, the main justification for the shorter regulatory period by IPART is the suggestion that a new mine may open in the region. We also acknowledge IPART's preference for the timing of the WaterNSW review and Essential Water's review to remain aligned. This is to ensure that related issues between the two reviews can be considered at the same time.

WaterNSW's preference, consistent with our original proposal, is for a five-year determination period that would lead to lower regulatory administration costs while adequately balancing risk, which is in the long term interests of customers. We think this can be accommodated while also still addressing IPART's concerns around risk management and aligning the WaterNSW and Essential Water reviews.

As the future funding arrangements for Essential Water have been clarified, this also supports the introduction of a longer (i.e. five-year) determination period.

A five-year determination period is also consistent with IPART's review of *how we regulate the NSW water utilities*, where:

[3] IPART *Draft Water Regulatory Framework: Technical Paper May 2022*. Page 16.

*IPART will set 5-year regulatory periods, and conduct price reviews over nine months, unless another timeframe is agreed in advance*[4]

In addition, IPART has set out a process in its framework review for assessing what tools are available to manage changing revenue needs. This is discussed further in Section 7. WaterNSW considers that IPART's framework for risk management (and in particular access to the partial reopener in addition to the currently-available full reopener) is appropriate and could seamlessly be applied to the pipeline in the upcoming review. The adoption of this risk management framework should address IPART's concerns around revenue risk should a new mine open.

This would support a **five-year determination period** that provides an appropriate balance between reducing regulatory burden on WaterNSW and customers and managing the risks of unforeseen events or circumstances.

# 2. Operating expenditure forecasts

In our pricing proposal, WaterNSW proposed $17.8 million in operating and maintenance expenditure over the four-year period for the pipeline's operations, reflecting our Special Purpose Vehicle (SPV) audit costs, overhead, contract management, insurance land tax, operating and maintenance costs and energy costs. WaterNSW's proposed energy costs were calculated using IPART's fixed and variable load assumptions in the 2019 Determination, Essential Water's updated demand profile and forecast electricity prices produced by our consultants (Frontier Economics).

In the Draft Determination, IPART proposes $16.3 million in Pipeline operating expenditure over the 4-year period, which is $1.5 million (8%) lower than WaterNSW's proposal.

IPART's proposed reductions are attributable to lower forecast energy costs and the application of a top-down continuing efficiency to the pipeline allowances (0.7% p.a. compounding). The reductions are offset by a slight increase in regulatory submission preparation operating expenditure to reflect the specific energy forecasting requirements of the pipeline and pipeline overhead.

We are pleased that IPART has accepted the majority of WaterNSW's proposed costs, with the exception of the pipeline's forecast energy costs (-$1.5 million lower over 4 years) and the application of IPART's top-down continuing efficiency on pipeline expenditure over 4 years (-$0.2 million, 0.7% p.a. compounding).

We are concerned at the extent of the adjustments made to the forecast energy requirements of the pipeline given that energy prices are highly uncertain and outside of our control. As evidenced by recent events in the energy market, energy costs have increased significantly since our pricing proposal was lodged.

In forming its draft decision on the appropriate forecast of fixed energy costs, IPART decided to undertake its own internal analysis rather than accept the findings of its own independent expert (energy) consultants, The CIE, on some key matters.

[4] IPART *Draft Water Regulatory Framework: Technical Paper May 2022*. Page 42.

The CIE generally agrees with WaterNSW's energy cost forecast for the pipeline (with minor adjustments) and we note that their recommendations closely align to WaterNSW's recommendations that were based on the advice of our independent expert consultants (Frontier Economics).

The CIE agrees that any changes to the fixed load operating assumptions of the pipeline (as adopted in the IPART Draft Decision and a key driver of the energy allowance reduction) should be backed up by further independent validation and testing in the next determination period to assess the precise fixed load requirements of the pipeline. We support this conclusion. We do not agree with IPART's internal analysis on this matter that effectively supersedes the recommendations of two external energy forecasting experts.

We recommend that IPART accept the findings from two expert firms (including IPART's own advisor) – updated as set out in the following sections – and not reject these findings in preference to the internal IPART analysis given the high operating complexity of the pipeline and the specialised skills needed to accurately forecast energy costs.

WaterNSW's response on operating costs is focused on the proposed energy requirements of the pipeline with minor concerns raised in relation to the application of IPART's top-down efficiencies, and the proposed regulatory submission preparation costs as outlined below.

## 2.1 Energy costs background

The cost of electricity represents a significant portion of the variable cost of providing WaterNSW's transportation services. The cost of electricity is highly uncertain given that key components are determined by dynamic market forces, independent regulators and/or market authorities.

WaterNSW's pricing proposal, provided to IPART in June 2021, included a placeholder forecast of the benchmark electricity price and resulting electricity cost of approximately $1.55 million per year ($2021-22). This was calculated as a build-up of several input assumptions covering:

- **Energy volumes and use**, including fixed and variable volumes and the associated maximum energy demand required to operate the pipeline and transport water, and the pumping profile (when to pump water); and
- **Forecast energy prices**, utilising Frontier Economics' cost-based build-up of the benchmark price over the 2022 Determination period which utilised the best available information at the time.

IPART's Draft Decision was to reduce the proposed benchmark energy costs by:

- Utilising actual data on energy volumes, while retaining a modelled 'hypothetical efficient pumping profile' derived from IPART's internal modelling for the energy use profile; and
- Making minor updates to the proposed benchmark energy price to reflect more recent market data.

The recent crisis in the energy market following the submission of our pricing proposal and the analysis undertaken for IPART's Draft Decision, illustrates the considerable uncertainty regarding the cost of electricity. The impact of the energy crisis on our proposed energy costs is highlighted in the figure below:

**Figure 1: Chart of futures contract prices**


Source: Frontier Economics

The figure above highlights the futures contract prices for electricity since the start of 2021. It shows that, at the time of finalising our Pricing Proposal, Frontier Economics calculated a benchmark wholesale price of electricity of between $52-54 MWh over the 2022 Determination period.

Wholesale prices gradually increased in the second half of 2021, before starting to increase at a greater rate in early 2022.

As illustrated above, wholesale electricity prices started to increase rapidly in May 2022 and stayed at levels around $270/MWh, or almost 5X higher than the price when our submission was lodged. The Q2 2022 quarterly average National Electricity Market ("**NEM**") spot price of $264/MWh was more than double the previous high of $130/MWh recorded in Q1 2019, and more than triple the Q2 2021 average of $85/MWh.

The focus on energy costs become national news when on 15 June 2022, the Australian Energy Market Operator ("**AEMO**") suspended the electricity wholesale spot market in all five of the participating **NEM** states, saying it has become "impossible" to operate. It is the first time the wholesale spot market has been suspended across the NEM – which includes Queensland, Victoria, South Australia, NSW, and the ACT – since the NEM's creation in 1998.[5]

Unprecedented wholesale prices resulted in rapid repricing of retail price contracts offered to customers and in some cases retailer insolvency leading to invoking of Retailer of Last Resort (ROLR) provisions. That is, benchmark retail prices over the forecast period have

[5] According to AEMO, key factors underlying the extraordinary rise in wholesale prices in Q2 included: The impacts in local fuel markets of extremely high international prices for traded gas and thermal coal; reduced availability of coal-fired generation, due to scheduled maintenance as well as long- and short duration forced outages, driving high levels of gas-fired generation, which both raised electricity prices and put pressure on local gas markets; and physical fuel supply and hydrological constraints at a number of thermal and hydro generators which further limited their operational flexibility.

shifted significantly. To ensure pipeline prices reflect the efficient costs of providing services its critical the final report factor in these price movements into the cost of energy.

Therefore, to ensure that the Final Decision sets the most realistic estimate of the forward cost of electricity, it should be updated as close as possible to the start of the regulatory period (prior to the six month delay – June 2022).

The following section sets out WaterNSW's response to IPART's Draft Decision including the basis of its revised energy cost.

## 2.2 Fixed and variable demand (energy)

Electricity costs are incurred due to the energy needs of the four pumping stations that operate to transport water along the pipeline. For this reason, the fixed load assumptions (MWh per day regardless of water volumes) and variable energy assumptions (MWh per ML of water pumped) as well as the energy use profile of the pumping are key components in calculating the cost of electricity.

WaterNSW proposed to use the same benchmark energy volume parameters used to set prices in 2019, given they were based on an in-depth engineering assessment. This includes an assumption of:

- Fixed energy use of 6.39 MWh per day; and
- Variable energy use of 1.64 MWh/ML.

IPART's consultants, The CIE, agreed with WaterNSW's proposal noting WaterNSW's assumptions are:

> ***the most detailed energy use estimates currently available for the Pipeline, as they consider the Pipeline's specific engineering inputs and configuration*** [emphasis added]. [6]

The IPART Draft Decision proposes to reduce the forecast energy costs of the pipeline based on applying a fixed load assumption of 0.6 MWh per day (rather than our proposed 6.39 MWh per day) based on IPART's desktop analysis (a simple linear regression).

We consider that IPART's estimate of fixed load is not based on a comprehensive analysis of the fixed load requirements of the pipeline and therefore we question its validity. For instance, we note that the fixed load of the pipeline is not itemised in our Retail Energy invoices. That is, energy load is not measured by equipment or by fixed load equipment.

WaterNSW considers that the benchmark parameters set in the 2019 Determination were robust and remain reasonable to use given this is the only detailed engineering assessment that has been undertaken of the fixed energy volumes. IPART's own consultant appears to agree with our assessment.

We are concerned that IPART's decision to select some actual information (fixed volume assumption) but not other (2019-20 and 2020-21 load profile) may lead to an outcome that is not the most accurate or internally consistent.

[6] The CIE, WaterNSW's Broken Hill Pipeline bulk water transport volume demand and energy review, June 2022, pp 6.

We maintain that the pumping profile used to calculate the cost of electricity should be based on the following assumptions:

- Fixed energy use of 6.39 MWh per day, not the 0.6 MWh per day proposed by IPART; and
- Variable energy use of 1.64 MWh/ML.

We support The CIE's recommendation to undertake an engineering assessment of these benchmark parameters at the next price review and this could be considered alongside a longer time series of information available.[7]

WaterNSW's detailed response on this matter is addressed in Appendix 1.

## 2.3 IPART's stylised pumping profile

IPART uses a stylised pumping profile to calculate the energy load requirements of the pipeline, including the variable energy cost and the maximum demand costs.

WaterNSW does not support IPART's conclusion – that IPART derived based on its stylised pumping forecast – regarding the efficient ratio of off-peak pumping relative to total pumping across each of the pricing periods of off-peak, shoulder and peak.

This ratio, and the associated maximum demand in each period, is a key determinant of WaterNSW's energy costs as it determines how much of the total energy is purchased during the lowest priced off-peak period or during the higher priced shoulder or peak periods.

WaterNSW is concerned that IPART set various technical assumptions in its stylised pumping profile, in the absence of technical advice on the parameters of the IPART model from an independent expert on water pipeline operations.

WaterNSW considers that IPART's pumping profile significantly overestimates the level of off-peak pumping that can be achieved by the system considering the operating context of the pipeline. If used, this will result in a shortfall in the energy cost allowance as it will underestimate the cost for energy purchased during the higher priced shoulder and peak periods.

WaterNSW considers that IPART's use of a 'stylised' model fails to recognise many salient features of the operation of the pipeline, including:

- There are many contractual, operational, demand and environmental factors considered when setting the pumping schedule for the system that do not appear to have been included or addressed sufficiently in IPART's model;
- Failing to consider the above factors results in an IPART profile that leads to an energy cost allowance that is below the efficient level;
- The Pipeline is operated where possible during the off-peak periods. We note that any system needs to be shut down periodically for precautionary reasons and maintenance (hence the assumed design operations of 98% availability), which is

[7] The CIE, WaterNSW's Broken Hill Pipeline bulk water transport volume demand and energy review, June 2022, pp 5- 7.

typically planned for off-peak, low demand periods. Off-peak pumping will only deliver a maximum of 10 ML per day on weekdays whereas the IPART model assumes off-peak pumping will deliver 15 ML per day on weekdays. IPART's assumption of a 50% uplift in off-peak consumption fails to recognise that demand tips over to the higher priced shoulder period due to the 10ML per day constraint on pipeline capacity during off-peak pumping weekdays.

- WaterNSW does not agree with the IPART consultant's implied comment that WaterNSW keeps the bulk water storage at suboptimal levels. As a pipeline operator, WaterNSW manages water demand / water orders received from Essential Water each week to serve the Broken Hill community in line with our operating requirements and the Ministerial Direction by operating the system as efficiently as possible within our technical constraints and by ensuring the pipeline operator pumps most of Essential Water's demand during the cheaper periods of off-peak pricing.
- IPART's weekly profile understates maximum demand, resulting in lower than intended maximum demand charges which are a key driver of forecast energy costs. The CIE did not publish information on the maximum demand assumption used to calculate network charges. To ensure alignment with other key assumptions, WaterNSW proposes IPART's Final Decision utilises the following maximum demand assumptions:
    - For off-peak periods is 2.09 MW, not the 3.57 MW utilised by IPART;
    - For shoulder periods is 1.73 MW, not the 0.58 MW utilised by IPART; and
    - For peak periods is 0.30 MW, not the 0.03 MW utilised by IPART.

  It is not possible for the pipeline to reach the maximum demand values utilised by IPART above, given the operating parameters which IPART accept.[8] Half-hourly demand is also peakier than any proposed profile can replicate, which suggests values based on historical data may have been applied.

WaterNSW's detailed comments on the issues above associated with IPART's use of a stylised pumping profile are discussed in Appendix 2.

In summary, IPART's internal analysis has resulted in an energy cost allowance that differs materially from the findings of two independent firms as illustrated below in Table 3.4 of the Draft Decision:[9]

[8] Given a variable energy usage of 1.64MWh per ML, a fixed energy use of 6.4MWh per day and a maximum pipeline flow rate of 27ML per day, the absolute maximum demand in any half-hour would be 2.11MW. This is higher than IPART's proposed 3.57MW. If the lower fixed energy use of 0.6MWh per day were used, the maximum demand achievable would be even lower.

[9] IPART Draft Water Regulatory Framework: Technical Paper May 2022. Page 31, Table 3.4.

Table 3.4 Draft decision on benchmark energy costs ($'000, $2021-22)

| Energy cost | 2022-23 | 2023-24 | 2024-25 | 2025-26 | Total |
|---|---|---|---|---|---|
| WaterNSW proposed | 1,563 | 1,551 | 1,544 | 1,537 | 6,194 |
| The CIE recommendation | 1,547 | 1,540 | 1,534 | 1,525 | 6,145 |
| IPART draft decision | 1,188 | 1,183 | 1,177 | 1,170 | 4,718 |
| Difference from proposal (total) | -375 | -368 | -366 | -367 | -1,476 |
| Difference from proposal (total, %) | -24% | -24% | -24% | -24% | -24% |

Source: IPART analysis

As can be seen in the table above, IPART's consultants, The CIE, accepted 99% of our proposed energy costs (that were developed by WaterNSW's independent expert, Frontier Economics), with IPART's internal analysis reducing our proposed expenditures by almost $1.5 million, or 24%. We suggest it is not regulatory best practice to discount the findings of independent experts without compelling evidence, which we consider does not exist in this instance.

## 2.4 Updated energy cost forecast

To generate the indicative revenue requirement in our pricing proposal, WaterNSW proposed a placeholder forecast of the benchmark electricity price and the resulting electricity cost.

We engaged Frontier Economics to provide forecast prices and costs for a five-year determination period that were included in our pricing proposal, and have since engaged Frontier Economics to update these forecast prices for the new determination.

Our forecasts have been updated to reflect the best available information prior to 30 June 2022. We note that the energy cost data used by IPART for the Draft Determination were from December 2021 and are out of date and do not reflect current expectations of future electricity costs over the next four years.

In preparing updated energy cost forecasts, Frontier Economics used a cost build-up to estimate the likely cost of electricity for the upcoming determination period following the same approach used to prepare the energy cost forecasts in our original proposal. The components of electricity prices estimated by Frontier Economics are:

- Wholesale electricity costs for the assumed demand profile;
- Costs of complying with state and federal government policies, including the Renewable Energy Target (RET);
- The costs associated with the New South Wales Energy Savings Scheme (ESS);
- National Electricity Market fees and ancillary services charges;
- Energy losses incurred during the transmission and distribution of electricity to customers;
- Network costs (including the Climate Change Fund Levy);

- Retail margin; and
- Retail operating cost.

To update the forecast, Frontier Economics used the best available information on market prices by using the 40-day average price to 30 June 2022 for ASX contracts for each of 2022-23 to 2025-26.

Details of the approach used by Frontier Economics to forecast electricity costs are provided in Appendix 3.

**Table 1: Originally proposed electricity costs ($2021-22, $'000)**

| $'000 | 2022-23 | 2023-24 | 2024-25 | 2025-26 | Total |
|---|---|---|---|---|---|
| Wholesale | 612 | 624 | 622 | 621 | **2,479** |
| Renewable | 203 | 181 | 178 | 175 | **737** |
| Market fees and ancillary services | 12 | 12 | 12 | 12 | **50** |
| Network Charges | 644 | 643 | 641 | 639 | **2,567** |
| Retail operating costs and margin | 91 | 91 | 90 | 90 | **362** |
| **Total electricity costs** | **1,563** | **1,551** | **1,544** | **1,537** | **6,194** |

WaterNSW originally estimated electricity costs of $1.5 million per year and $6.2 million over the four-year period, which was included in our 30 June 2021 pricing proposal. IPART's consultants The CIE largely accepted our proposed costs in their review, accepting 99% of our proposed energy costs.

The updated forecast of energy costs for the 2022 Determination period is summarised in Error! Reference source not found. below for the four years from 1 July 2022.

**Table 2:** Updated electricity costs ($2021-22, $'000)

| | 2022-23 | 2023-24 | 2024-25 | 2025-26 | Total | Chg ($) | Chg (%) |
|---|---|---|---|---|---|---|---|
| Wholesale | 2,415 | 1,456 | 1,143 | 1,124 | **6,138** | **3,659** | **148%** |
| Renewable | 272 | 238 | 220 | 204 | **934** | 197 | 27% |
| Market fees and ancillary services | 17 | 17 | 17 | 17 | **68** | 18 | 37% |
| Network Charges | 630 | 628 | 627 | 624 | **2,509** | -58 | -2% |
| Retail operating costs and margin | 184 | 124 | 104 | 102 | **514** | 152 | 42% |
| **Total updated electricity costs** | **3,518** | **2,463** | **2,111** | **2,071** | **10,163** | **3,969** | **64%** |

Table may not add due to rounding.

As illustrated above, our proposed cost of energy has increased by 64% from our originally proposal pr primarily driven by unprecedented movements in wholesale energy costs (+$3.7 million, or +148%) in the NEM over recent months as discussed earlier.

This approach of determining energy costs in advance of the start of the regulatory period is consistent with the approach adopted by regulators of electricity retail prices (including the ESC's Victorian Default Order and the AER's Default Market Order electricity pricing decisions) and reflects the practice of electricity retailers locking in their wholesale energy costs before the start of a period.

While WaterNSW has proposed an end-of-period true-up for the cost of energy, we consider it is standard regulatory practice to update the electricity costs as close to the start of the new regulatory period as is reasonably practicable (in this instance as close to 30 June 2022 as possible).

Failure to update IPART's Draft Decision to account for current market expectations would result in prices not being set at cost reflective levels and would mean that variable usage charges are not providing efficient signals regarding the efficient costs of water usage.

## 2.5 Energy Costs – End-of-period true-up

In our Initial Pricing Proposal, we proposed introducing an **end-of-year true-up** to manage movements in the wholesale and network components of the benchmark price of energy. We noted that a true-up was justified on the basis that these prices are highly uncertain and outside our ability to control.

In its Draft Determination, IPART provided in-principle approval of the mechanism, but stated that it would consider at the next determination of the Pipeline's prices:

- Whether an adjustment to the revenue requirement and prices is required to address any over or under-recovery of revenue over the 2022 Determination period due to changes in energy costs as a result of changes in wholesale and network components of energy prices; and
- Whether and how best to make a revenue adjustment based on the circumstances at the time.

WaterNSW welcomes IPART's recognition of the merit of introducing an end-of-period true-up to manage movements in the cost of energy.

IPART has noted that is draft decision cannot bind a future Tribunal, and that it will *consider* whether to make an adjustment to the revenue requirement at the next determination to any movements in wholesale and network elements of the benchmark price.

We note there are many instances where IPART provides guidance to stakeholders to "clarify how these mechanisms operate and how we intend to apply them at the next price review."[10] This includes IPART's instructions on the of period true-up due to annual updating of the cost of debt.[11]

[10] IPART, Methodology Paper - Sydney Desalination Plant Pty Ltd - Energy Adjustment and Efficiency Carryover Mechanisms - June 2017, p1. https://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Metro-Pricing/Sydney-Desalination-Plant-prices-from-1-July-2017/27-Jun-2017-Final-Methodology-Paper-on-Energy-Adjustment-and-Efficiency-Carryover-Mechanisms/Methodology-Paper-Sydney-Desalination-Plant-Pty-Ltd-Energ-1?timeline_id=5440

[11] https://www.ipart.nsw.gov.au/sites/default/files/cm9_documents/Guide-True-up-model-slide-pack-September-2021.PDF

WaterNSW considers that greater clarity relating to whether IPART intends to apply this mechanism as a means of managing this risk, and if so, how it will be applied, is in the long-term interests of customers. It will provide efficient signals both to WaterNSW and its customers.

For this reason, we have proposed a process to allow WaterNSW and IPART to transparently monitor movements in wholesale and network prices and to implement the true-up in subsequent regulatory periods. This is provided in Appendix 4.

### 2.5.1 Proposed costs to include in the end-of-period true-up

In our pricing proposal, we proposed to manage movements in the wholesale and network components of the benchmark price of energy.

The events over the past few months in the energy market highlight the need for additional elements to be included in the true-up assessment that are levied on market participants and outside of our control. The impact of these elements can be substantial.

WaterNSW recommends the following elements are included in the end-of-period true-up:

- Wholesale electricity costs;
- Network Charges;
- Renewable energy schemes (including large scale generation certificates ("**LGCs**"), small scale technology certificates ("**STCs**") and the costs for the NSW Energy Savings Scheme ("**ESS**");
- Reliability and Emergency Reserve Trader ("**RERT**") charges;
- Compensation claims for directed generators under clause 3.15.7B of the NER (generator compensation charges); and
- Other costs / charges that may be introduced (e.g. capacity payments)

The above items charges are determined by independent regulators or AEMO and levied on market participants on the occurrence of uncertain and uncontrollable events in the NEM. In turn, these charges are passed on to energy customers. WaterNSW, like other energy customers, cannot influence the size or occurrence of these events and the cost. For this reason, these costs should be reflected in the benchmark energy price and energy cost.

These items were selected based on whether they met IPART's cost pass through thresholds, and whether the costs have potentially high volatility (for instance, changes in retailer costs and margin were not seen to be volatile to be included in the true-up).

### 2.5.2 Guidance for the end-of-period true-up

IPART has noted that its Draft Decision cannot bind a future Tribunal, and that it will consider whether to make an adjustment to the revenue requirement at the next determination to any movements in wholesale and network elements of the benchmark price.

We note there are many instances where IPART provides guidance to stakeholders to "clarify how these mechanisms operate and how we intend to apply them at the next price review." This includes IPART's instructions on the end of period true-up due to annual updating of the cost of debt.

## 2.6 Pipeline overhead

We agree with IPART's proposal to allocate corporate overhead cost to the Pipeline using the direct operating expenditure cost driver as per the methodology in the 2021 IPART Rural Valley Determination. [12]

## 2.7 Regulatory submission preparation costs

In its Draft Determination, IPART has allowed a small increase in WaterNSW's regulatory submission preparation operating expenditure of $50,000 from the 2019 Determination allowances to allow WaterNSW to forecast the future energy requirements of the pipeline in any future regulatory proposal.

However, even with the proposed increase, WaterNSW considers that the regulatory submission costs proposed by IPART are inadequate to cover our costs of preparing a regulatory submission. WaterNSW submits that the 2019 determination allowances, were too low and do not form an appropriate benchmark for setting future allowances.

The WaterNSW regulatory team leads the regulatory modelling and submission development, drawing on data inputs and expert advice. Whether those inputs come from within the business or from Pipeline Joint Venture does not change the effort and cost to translate that information into a submission that meets IPART requirements.

We note that the 1% cost benchmark cited by IPART's consultants, AECOM and used as the basis for benchmarking our regulatory submission costs against our peers may be appropriate for larger regulated businesses but does not reflect the significant 'fixed cost' effort required to prepare a submission, regardless of the size of the business / annual revenues. For example, energy cost forecasting and meeting the requirements of the new IPART economic regulatory framework. The cost of preparing an accurate forecast of future energy costs would not be expected to vary materially based on the size of the utility.

Most importantly, unlike our peers, WaterNSW is subject to four separate IPART Determinations. This has not been factored into the 1% threshold benchmark cited by AECOM as it would be applied to a disproportionately smaller base.

In addition, we note that the IPART 2021 Rural Valleys Determination found that additional regulatory staff were required to prepare WaterNSW's regulatory submissions. As a general proposition, IPART seems to support a 'threshold' level of expenditure for preparing a regulatory proposal.

During 2021 to 2022, WaterNSW is expected to incur approximately $240,000 in external regulatory submission preparation costs over and above the current 2019 determination allowances, including to develop (and respond to IPART's detailed questions concerning) the efficient energy costs for the pipeline.

We also note that IPART has proposed to write off the full value of our external regulatory submission preparation capital expenditure in both the current and future period in response to AECOM's recommendation to strip the external submission preparation costs from the RAB.

[12] Described in Section 5; https://www.ipart.nsw.gov.au/sites/default/files/cm9_documents/Consultant-supplementary-report-by-Atkins-Expenditure-review-of-WaterNSW-Rural-Bulk-water-services-June-2021.PDF

IPART's Draft Decision to exclude the external preparation expenditure from the RAB does not appear to rely on independent accounting advice. WaterNSW provided specialist accounting advice from a top tier accountancy firm stating that professional fees incurred in relation to submission preparation costs are directly attributable to the creation of an intangible asset in accordance with AASB 138 (i.e., the legal right to recover regulated revenue over the IPART determination period).

Based on the specialist advice provided, we submit that the conclusion that should be drawn is to permit WaterNSW to recover its external regulatory submission preparation costs as capital expenditure for the current regulatory period in accordance with the accounting standards.

Table 10 of the 'Reports Table' of the IPART Draft model presents $180,000 of regulatory preparation costs allowance attributable to operating expenditure in 2025-26. However, the current determination period contained $100,000 per annum in regulatory preparation operating expenditure allowance in the final two years of the 3-year determination as per table 4.3 of the May 2019 Final Report in 2018-19 dollars.

We note that the IPART Draft model appears to attribute an additional $93,000 regulatory preparation operating expenditure allowance in 2026-27 of the determination period however this allowance is not incorporated into the final determination under a 4 year determination period which appears to have been an oversight by IPART.

We request that IPART ensure that the final two years of the determination period include the existing determination allowances of $100,000 per annum (inflated from 2018-19 dollars) in the final two years of the determination period plus the additional allowance recommended by AECOM to allow WaterNSW to forecast the future energy requirements of the pipeline in any future regulatory proposal.

## 2.8 Continuing efficiencies

In its Draft Determination, IPART has applied a top-down 'continuing efficiency' on the pipeline operating expenditure allowance of $0.2 million over 4 years (0.7% p.a. compounding).

WaterNSW considers that targeting efficiency is an important element of the regulatory framework in order to deliver long term benefits to customers. With respect to the continuing efficiency, we do not consider it unreasonable to introduce some productivity 'offset' that reflects the expected productivity improvement of the economy as a whole (or alternatively the water sector). This is consistent with the fundamental structure of "CPI-X" regulation. However, we question both the potential double counting of efficiencies when other efficiency adjustments are introduced).

We have concerns about the use of continuing efficiencies of 0.7% per annum.

The cumulative effect of IPART's continuing efficiencies is to reduce our operating expenditure (after the removal of any expenditures deemed inefficient by IPART) by $0.2 million over the four-year period.

The proposed 0.7% per annum compounding efficiency will be difficult to achieve over the 2022 Determination Period in light of recent market conditions putting undue cost pressure on WaterNSW, including the risk of increasing inflation, input costs, global supply chain issues, and higher wage growth triggered by recent labor shortages expected to continue well into the 2022

Determination Period. These factors were noted in the Reserve Bank of Australia's ("**RBA**") May 2022 Statement on Monetary Policy.

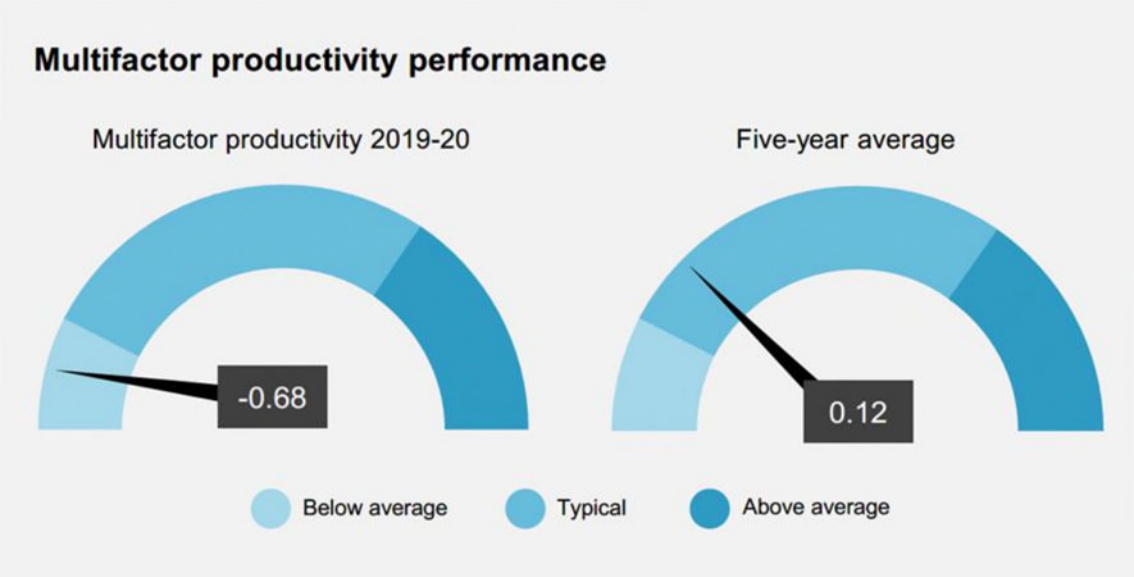
WaterNSW has also agreed to an annual compounding efficiency with the pipeline operator for the operating and maintenance costs of the pipeline (excluding energy costs), which would be double counted in IPART's efficiency target (excluding energy costs).

WaterNSW submits that for the purposes of setting expenditure allowances over the *forthcoming* regulatory period, what is required is the best estimate of expected productivity over the future regulatory period - not an estimate of long-term productivity. Long-term productivity reflects the emergence and adoption of new technologies, substitution between inputs (e.g., between labour and capital) and long-term changes in outputs over a period of decades.

Hence, when setting continuing efficiency targets, IPART should consider what is feasible for the water industry over the forthcoming regulatory period, rather than over the long-run.

WaterNSW also notes that even at the market-sector level, estimates of productivity can be sensitive to the measurement period. This can be seen in Figure 3 below, which indicates that productivity in 2018-19 was below average, and considerably lower than productivity measured over a five-year horizon.

**Figure 3 – Multifactor productivity over different periods**




*Source: Productivity Commission, PC Productivity Insights, June 2021.* Page 2.

Recent analysis by the ABS indicates that, in 2019-20, due largely to the COVID 19 pandemic Multifactor Productivity ("**MFP**") ***fell*** for the first time in nearly a decade (0.68 per cent), with a five-year average productivity almost at zero (0.12%).[13]

In addition, it is observed that the MFP for Electricity, Gas, Water and Wastewater services was negative over the past 10-20 years.[14]

[13] See: *https://www.pc.gov.au/ongoing/productivity-insights/recent-developments-2021/productivity-insights-2021-recent-developments.pdf*

[14] Table 26 Productivity Growth Cycles – Market sector industries (a) (b) ABS 2560.0.55.002 Estimates of Industry Multifactor Productivity, Australia Released at 10:30 am (Canberra time) 13 December 2021.

Given that the economic effects of the pandemic remain and the recent market conditions including the risk of increasing inflation, input costs, global supply chain issues, and higher wage growth triggered by recent labor shortages, it suggests that WaterNSW should not be expected to achieve a *0.7% per annum increase in productivity* over the next regulatory period.

WaterNSW proposes that when determining a continuing efficiency target, IPART should:

- Give most weight to the measured productivity of the utility industry (rather than the market sector) since the utility industry most closely reflects the input and output characteristics of water businesses; and
- Give most weight to MFP estimates over the most recent historical years (rather than 40 years) in order to produce more realistic estimates of the scope for productivity gains over the forthcoming regulatory period.

Based on the evidence provided above, WaterNSW proposes that **no** continuing efficiency target should be adopted in the Draft Determination for this pipeline review.

# 3 Adjustment for the 6-month delay

We agree with IPART's position on Page 16 of the Draft Decision to consider the following adjustments in setting the Final Prices for the Pipeline to commence from 1 January 2023:

- The final WACC;
- An adjustment for foregone inflation in the period from 1 July 2022 to 31 December 2022; and
- An adjustment to reflect that WaterNSW would be over-recovering its revenue requirement for the period from 1 July 2022 to 31 December 2022 (as current prices are higher than the draft prices).

We note IPART's previous guidance on the WACC (discussed in Section 3.1) and agree that an adjustment for foregone inflation should be applied.

We suggest, however, that if IPART adjusts for an 'over-recovery of its revenue requirement over the deferral period', then it must also adjust for material cost variations over the period to ensure that the adjustment mechanism is symmetric and that there are no windfall gains or losses arising.

We note that the 2022-23 Draft Prices and Regulatory Pricing Model do not appear to include the above adjustments for the 6-month deferral and have been presented on the basis that they apply from 1 July 2022.[15]

The items for inclusion in the adjustment for the six-month deferral (and for WACC generally) are discussed below.

## 3.1 WACC

In its Draft Decision, IPART has proposed to sample the market observations for the WACC parameters, including the cost of debt, to the end of December instead of the end of March 2022 as initially proposed in its SIP letter and in line with IPART regulatory precedent observed in the

[15] Confirmed through email from Principle Analyst at IPART on 15 August 2022 to Regulatory Economist at WaterNSW.

other Water Agency Regulatory Determinations, including the WaterNSW Rural Valley and WAMC Determinations.

IPART's rationale is as follows:

> *We sampled all market observations to the end of December 2021. We decided not to sample at a later date because:*
>
> - *sampling at a different time of year creates unnecessary complexity and may introduce seasonal effects*
> - *failing to use the most up-to-date market data is not a particular problem given we use the trailing average cost of debt, which minimises the impact of any one interest rate sample*
> - *any movements in the cost of debt within the determination period will be picked up in our true-up calculation.*
>
> *For earlier years in the trailing average calculation of the historic cost of debt we sampled to the end of March in each year*

It is unclear to WaterNSW whether IPART's intention was to not update the WACC using 31 March 2022 data (and instead use December 2021 data) as a matter of principle or a matter of practicality due to the timing of the Draft Determination in June 2021. We suspect the latter.

WaterNSW supports IPART updating the WACC using the end-March data as is consistent with IPART's earlier guidance.

We submit that updating the WACC to use 31 March 2022 is consistent with IPART's early guidance on the cost of debt sampling period, as provided to WaterNSW on 18 March 2022 stating that the Tribunal's *Draft Decision* is that *The Tribunal has not changed its decision (as set out in the SIP letters for these reviews) to calculate the final WACC using an end-March 2022 sampling period.*

Early guidance on the sampling period provides both the regulatory entity and TCorp with a reasonable opportunity to hedge its debt portfolios in accordance with the cost of debt allowances. We submit that updating the IPART Draft Decision WACC is consistent with both the Tribunal's early guidance to WaterNSW and the IPART SIP letter and therefore provides WaterNSW with a reasonable opportunity to hedge to the cost of debt regulatory allowances, mitigating a potential financeability issue for WaterNSW.

In addition, a consequence (and principle) of using the sampling period as close as possible to the start of the 2022 Determination Period, as suggested in the SIP Letter and the IPART early guidance, is to ensure that the debt allowances appropriately reflect the prevailing market conditions and expectations on the efficient cost of debt over the next determination period. This approach ensures that the final prices reflect the best estimate of efficient costs, is cost reflective, and has the best chance to minimise the magnitude of any true-up amount in any subsequent determination period which is important to reduce any future pricing / revenue shocks, given recent interest rate and cost increases.

The use of a sampling date to the end of December 2021 would fail to take into account the current / prevailing marking conditions in 2022. For example, increasing inflation, global supply chain issues, rising interest rates set by the RBA (which occurred after the RBA decided to set interest rates at 'record low levels' as COVID stimulus).

WaterNSW submits that the use of a sampling date to the end of December 2021 is unlikely to be reflective of the market going forward and is therefore inappropriate to its purpose of calculating the efficient debt allowances over the 2022 Determination Period.

In addition, WaterNSW has interpreted IPART's guidance that the WACC would be set using market parameters as of 31 March 2022 as being based on the RBA one-year forecast of inflation[16] at that time – applied as part of IPART's standard approach to forecasting inflation[17] – so that the real WACC is internally consistent in its calculation.

That is, IPART must use an inflation forecast sourced at the same time as the underlying data sampling period. To do otherwise is likely to, under a real WACC framework, result in a WACC that is either too high or too low. The mismatch would ignore the effects of inflation forecasts from a different time on the observed nominal cost of debt and would lock in windfall gains or losses over the upcoming determination period arising from IPART's deferral.

## 3.2 Inflation

An update for foregone inflation for the period from 1 July 2022 to 31 December 2022 (the deferral period) is to be calculated by IPART. This is to reflect that IPART's standard approach to setting water utility prices would *a priori* have seen prices from 1 July 2022 indexed by (lagged March to March change in) the Consumer Price index ("**CPI**"). The six-month delay to the determination has meant that there is a revenue shortfall during the intervening period until new prices are set. The revenue shortfall arising from a foregone uplift in inflation should be explicitly calculated and shown by IPART in the Final Report as an increase to the revenue requirement calculation to be recovered over the remaining years of the 2022 Determination period.

For the avoidance of doubt, uplifting prices for CPI from 1 January 2023 would not on its own recover the revenue shortfall relating to CPI not being applied from 1 July 2022 and therefore an uplift in the revenue requirement is required to make WaterNSW 'whole'.

Care will need to be taken by IPART to ensure that its adjustment to the revenue requirement "to reflect that WaterNSW would be over-recovering its revenue requirement for the period from 1 July 2022 to 31 December 2022 (as current prices are higher than the draft prices)" accurately accounts for the foregone inflation during the six-month delay.

## 3.3 Cost of electricity

The following table is based on our proposed electricity costs as presented in Table 1 in Section 2.4 and compares the updated cost of energy based on an update to the benchmark cost of electricity with the cost of energy included in the Draft Determination.

[16] RBA Statement of Monetary Policy, February 2022, Economic Outlook, Table 5.1 Column "June 2023": 2.75%. https://www.rba.gov.au/publications/smp/2022/feb/economic-outlook.html

[17] IPART's standard approach for forecasting inflation for setting a real WACC was outlined in the 2018 WACC Review (Page 80) and is based on an geometric average of the RBA's 1-year ahead inflation forecast in its most recently issued Statement of Monetary Policy for the first year of the regulatory period, and the midpoint of the RBA's target inflation band (2.5%), for the remaining years in the regulatory period. https://www.ipart.nsw.gov.au/sites/default/files/documents/final-report-review-of-our-wacc-method-february-2018_0.pdf

**Table 3: Additional Electricity costs ($2021-22, $'000)**

| $'000 | 2022-23 | 2023-24 | 2024-25 | 2025-26 | Total -•-• |
|---|---|---|---|---|---|
| **WaterNSW Updated Estimate** | | | | | |
| Wholesale | 2,415 | 1,456 | 1,143 | 1,124 | **6,139** |
| Renewable | 272 | 238 | 220 | 204 | **934** |
| Market fees and ancillary services | 17 | 17 | 17 | 17 | **67** |
| Network charges | 630 | 628 | 627 | 624 | **2,509** |
| Retail operating costs and margin | 184 | 124 | 104 | 102 | **535** |
| **Total electricity costs updated estimate** | **3,538** | **2,483** | **2,131** | **2,091** | **10,242** |
| **IPART Draft Decision** | **1,188** | **1,183** | **1,177** | **1,170** | **4,718** |
| **Additional Electricity Costs required** | **2,350** | **1,300** | **953** | **921** | **5,524** |

*figures might not add due to rounding

The table above highlights that there is revenue requirement shortfall that WaterNSW has been facing since 1 July 2022 on the basis that the higher energy costs – which we propose are efficient - would have (and should have) been included in 2022-23 prices had the determination not been delayed.

As illustrated above, the efficient cost of electricity is $2.35 million higher in 2022-23 than was contained in the revenue requirement in the Draft Report. Had the Draft Report been issued on time and implemented on 1 July 2022, and everything else remaining unchanged, WaterNSW would have expected its revenue requirement to have been $2.35 million higher in 2022-2023. As the Final Determination will be implemented from 1 January 2023, there are six months where the revenue requirement was too low

Put another way, if IPART accepts the updated cost of electricity contained in this submission as efficient, then new prices from 1 January 2023 forward would be efficient, but the new prices would not be sufficient to recover 12 months' worth of the revenue requirement as they would be applied to only six months of sales volumes.

For WaterNSW to not be financially disadvantaged and to remain 'whole' over the four-year determination period, the shortfall in revenues arising from the first six months of 2022-23 – when prices were unchanged – would need to be recovered over the remaining 3.5 years of the 2022 Determination period.

Adjusting for the foregone revenues from the six-month delay period (through a specific increase to the future revenue requirement) to reflect the higher cost of electricity is consistent with IPART's approach to ensure there are not windfall gains or losses associated with the delay to the timeline. To not make the adjustment would result in WaterNSW being financially disadvantaged by the six month delay.

Given the high proportion of our proposed expenditures relating to energy costs for the pipeline, WaterNSW considers that this represents the only material operating cost adjustment required and that there are no material corresponding cost reductions that would offset the increase.

# 4 Financeability

The financeability issues are highlighted in Table 8.8 of the Draft Technical Report where IPART concludes that WaterNSW will underperform against the Real FFO over Debt financeability metric.

In assessing financeability, IPART states that:

> *We did not identify any material financeability concern for WaterNSW. This is illustrated by the results of our financeability test.*

In examining the results of the financeability test, it is clear that one limb – FFO ("funds from operations") divided by net debt – was clearly not satisfied. This would suggest there are financeability concerns and that the test has not been 'passed' as suggested by IPART. This is illustrated below in Table 8.8 of the IPART Draft Decision:[18]

Table 8.8 Draft Report financeability test results

| | Target ratios | 2022-23 | 2023-24 | 2024-25 | 2025-26 |
|---|---|---|---|---|---|
| **Real Interest Coverage Ratio (RICR)** | | | | | |
| Benchmark test | >2.2x | 3.6x | 3.6x | 3.7x | 3.7x |
| Does it meet the target? | | ✓ | ✓ | ✓ | ✓ |
| **Real FFO / Net Debt** | | | | | |
| Benchmark test | >7.0% | 4.7% | 4.7% | 4.9% | 4.9% |
| Does it meet the target? | | ✗ | ✗ | ✗ | ✗ |
| **Net Debt / RAB** | | | | | |
| Benchmark test | <70% | 60% | 60% | 60% | 60% |
| Does it meet the target? | | ✓ | ✓ | ✓ | ✓ |

Source: IPART analysis

WaterNSW wishes to highlight that IPART's assessment does not fully capture our financeability concerns. For instance, Net Debt / RAB (i.e. gearing) in IPART's assessment will, by construction, always remain at 60% under the benchmark test. Therefore including gearing remaining at 60% as a 'pass' using IPART's approach to assessing financeability overstates the financial sustainability of the decision.

As illustrated in Table 8.8 above, the business failed in each year of the regulatory period on the FFO/ net debt ratio, but passed in each year on the Real Interest Coverage Ratio ("**RICR**"). What this indicates is that **the business has sufficient cash flow to make interest payments, but insufficient cash flow to service its full debt obligation**.

IPART's definition of 'FFO over Debt' as shown below is not controversial and states that a 'pass' (or more specifically a score of greater than 7.0%) on this measure would demonstrate that the business has the ability to repay the principal of the debt:

> *FFO over Debt measures how much free cash a business generates (i.e. after covering its operating costs, interest expense and tax) relative to the size of its total borrowings.*

[18] IPART *Review of WaterNSW's prices for the Murray River to Broken Hill Pipeline Draft Technical Report - June 2022.* Page 83.

*Therefore, it is a measurement of a business's ability to generate cash flows to repay the principal of the debt.* [19]

As is clear from Table 8.8, there is a considerable gap in the FFO over Debt score for the pipeline, which implies that the pipeline would not generate cash flows to repay the principal of the debt. WaterNSW considers that this outcome can only be treated as a 'fail' of the financeability test.

IPART's interpretation of '2 out of 3' constitutes a 'pass' of the financeability test is inconsistent with the view IPART expressed in the 2018 financeability review, whereby IPART applied a number of ratios since each ratio contributes some different information about financeability. The RICR describes one aspect of financeability, while the FFO / Debt ratio tells us about a different dimension.

If the pipeline fails on one metric but passes on another, IPART should use this result to diagnose the source of the problem. A failure on the FFO/Debt ratio could only be because the business:

- Has an insufficient depreciation allowance, and/or
- Receives too low a real return on equity. The real return on equity might be too low because:
  - The nominal return on equity is too low; and/or
  - The inflation forecast used in its setting is too high.

IPART would seem to agree with our assessment as it attempts to explain why the 'fail' of the FFO over Debt measure should not be of concern:

> *WaterNSW is forecast to be below our target by 2.2 percentage points on average over the 2022 determination period. WaterNSW's FFO ratio will trend upwards over the determination period to 4.9% in years 2024-25 to 2025-26. We note that the benchmark results in this determination period are approximately a percentage point lower than the 2019 benchmark test results for WaterNSW. The underperformance is driven by:*
>
> - *The FFO primarily being affected by the current WACC of 2.9%, which is causing lower returns on assets.* ***An increase in the WACC between the Draft and Final Report may improve the results*** *[emphasis added].*
> - *The Pipeline being an asset with a very long economic life which results in a lower depreciation allowance compared to businesses owning assets with shorter lives.*
>
> *These factors have put downward pressure on the FFO over Debt ratio so that it is below the target ratio throughout the 2022 determination period. The results of the FFO over Debt ratio in the benchmark test do not mean that there is a medium or long term financeability concern for WaterNSW.* ***The underperformance in the short-term can be explained by lower returns on assets as a result of the WACC of 2.9%, and the Pipeline asset having a very long life with a lower depreciation allowance*** *[emphasis added].*

WaterNSW agrees with the cause of the failure of the financeability test being one of a WACC that is too low or an insufficient depreciation allowance (or a combination of these factors). We note IPART's suggestion that a higher WACC between the Draft and Final Report may improve the results, but conversely a lower WACC would make the financeability outcomes even worse.

[19] IPART *Review of WaterNSW's prices for the Murray River to Broken Hill Pipeline Draft Technical Report - June 2022.* Page 82.

Depending on how IPART forecasts inflation for the Final Report, it is conceivable that the WACC will be lower (not higher) than the Draft Report thereby making the financeability scores even worse.

We suggest it is not sufficient to merely identify that there is an issue with the financeability test scores without addressing the underlying factors in the allowed revenues and prices. WaterNSW suggests that IPART must increase the WACC or increase the depreciation allowance (or some combination) in its Final Determination revenue allowances until all elements of the financeability assessment are satisfied.

WaterNSW would be pleased to work with IPART in addressing these financeability concerns in the lead-up to the Final Determination.

# 5 Modelling considerations

The following comments are provided on specific modelling concerns contained in the Draft Determination and associated underlying models.

## 5.1 Cost of Debt true up calculation

We note that the current nominal risk free rate ("**RFR**") and debt margin in G55 and G57 of the inputs tab of the IPART cost of debt calculator are unrounded. Based on long term RFR debt margin and current Market Risk Premium ("**MRP**"), we note that the sample month is presumably March 2019 but would appreciate IPART's confirmation and clarification as to whether this is intended. This would give 2.00% for the current RFR and 2.40% for the current debt margin.

Rows 50-51 of the inputs tab of the IPART cost of debt calculator are used to find the value of the true up for the next regulatory period. We note that the actual June to June CPI is 6.1%, which is much higher than the 2.9% inflation rate used in row 50.

## 5.2 RAB indexation

As the determination will commence on 1 January 2023, we recommend that IPART use the actual June to June CPI to inflate the RAB (6.1%), not the Bloomberg estimate currently used in the Draft Regulatory Pricing Model (2.9%).

As indicated above, RAB indexation is based on a lagged CPI assessment and should not be conflated with the inflation forecast used to convert a nominal WACC to a real WACC. The latter should be based on IPART's standard approach to forecasting inflation as discussed in Section 3.1 using the RBA one-year forecast from February 2022.

## 5.3 Working Capital

We note that 2019-2022 actual expenditure appears to have been used to calculate the working capital allowance for the Draft Pipeline Charges instead of the 2019 Determination Allowances. We recommend that IPART factor in both the 2019 Determination allowances and expected revenue when calculating the future working capital requirements for the Pipeline over the 2022 Determination Period.

# 6 Shutdown standby and restart charges

WaterNSW agrees with IPART's Draft Determination not to regulate shutdown, standby and restart charges for the pipeline.

WaterNSW can request from the pipeline operator a cessation of the operation of the pipeline, at Essential Water's request, under certain conditions to be negotiated under the raw water supply agreement. Additional costs for placing the pipeline in shutdown mode are incurred under the Operations and Maintenance contract.

WaterNSW proposes that these charges remain unregulated and formed based on commercial negotiation between WaterNSW and Essential Water. This position is consistent with the 2019 Determination. At that time IPART noted that:

> *These costs are driven by Essential Water, and should be internalised by Essential Water. Essential Water should make water source decisions to achieve its water supply requirements at an efficient total cost.*

In 2019 IPART's expenditure review consultant Synergies[20] indicated that the shutdown and restart fees were reasonable:

> *We assess the proposed standby payments as being reasonable, as they are of a similar order of magnitude to the fixed operating and maintenance charge proposed under the O&M contract.*

The Design and Construct and the Operations and Maintenance contracts were competitively tendered and the successful party determined on the basis of lowest whole of life costs. This procurement process was endorsed by IPART's expenditure consultants in the 2019 Determination. Further, the infrequent nature of these activities means the costs outweighs the benefits of regulating these charges.

On this basis WaterNSW considers that any costs incurred in shutdown, standby and restart modes are equivalent to efficient charges and therefore it is not necessary to regulate the charges to Essential Water.

# 7 Cost pass through

As highlighted in our Pricing Proposal, applying WaterNSW's risk management framework has identified a number of events, outside of WaterNSW's control, that are appropriately assigned as cost pass through events. These events can be clearly defined and WaterNSW's proposed cost pass through mechanism provides sufficient rigour and transparency by requiring WaterNSW to substantiate the change in costs and outlining timeframes that facilitate a full review, by IPART and stakeholders, of the proposed changes in prices.

On this basis, WaterNSW proposed a targeted cost pass through framework to address the risk of defined exogenous events occurring during a determination period that may change the efficient costs of providing water services (i.e. such that efficient costs differ from those assumed by IPART in setting prices in a determination). IPART did not accept this proposal in the Draft Decision.

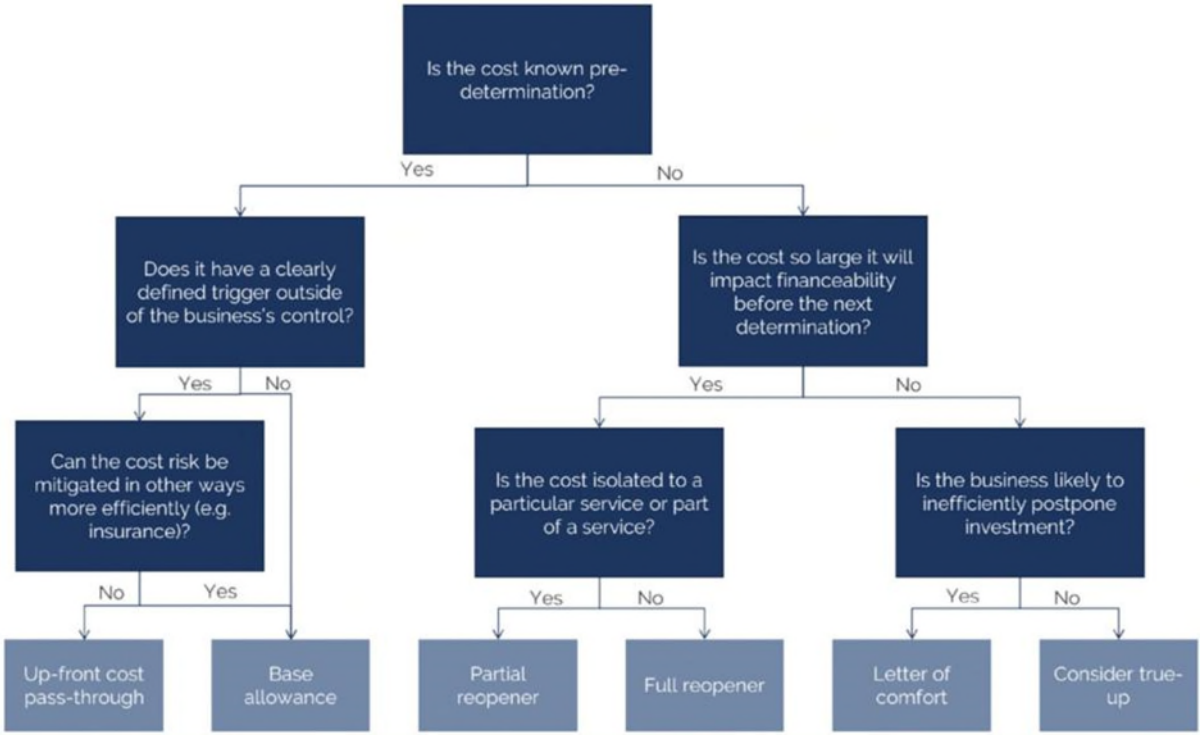
[20] https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/pricing-reviews-water-services-rural-water-prices-for-waternsw-murray-river-to-broken-hill-pipeline-services-from-1-july-2019/legislative-requirements-prices-for-waternsw-murray-river-to-broken-hill-pipeline-services-from-1-july-2019/consultant-report-by-synergies-expenditure-review-of-waternsw-broken-hill-pipeline.pdf, page 110

Cost pass through mechanisms are a common part of incentive based regulatory frameworks.[21] They are used to manage the risk associated with external events that occur within a determination period - that are outside the control of the business but have a material impact on costs and hence the financial position of the firm – and represent a fair sharing of risk between the utility and its customers.

Cost pass throughs provide a mechanism to allow regulators to review the efficient costs associated with events (after they have occurred) that could not be forecast as part of the revenue proposal and allow regulated businesses to recover the determined efficient costs to ensure that prices continue to reflect efficient costs.

In the current Framework Review, IPART has recommended longer determination periods to be accompanied by an enhanced process for risk management. This process is reproduced below.[22]

**Figure 2: IPART cost pass through framework**




Source: IPART

WaterNSW considers that IPART's framework for risk management (and in particular access to the partial reopener in addition to the currently-available full reopener) is appropriate and could seamlessly be applied to the pipeline in the upcoming review. The adoption of this risk management framework should address IPART's concerns around revenue risk should a new mine open.

In its Draft Decision, IPART does not accept WaterNSW proposed cost pass through mechanism. However, the IPART Draft Decision is inconsistent with the Draft Findings of the IPART Economic

[21] For instance, the regulatory framework for energy networks explicitly provides for the AER to approve cost pass throughs, contingent projects and reopeners. The ESCV also has a well-established "uncertain and unforeseen events" mechanism to account for events that were significant and uncertain or unforeseen at the time of the original determination.

[22] IPART *Draft Water Regulatory Framework: Technical Paper May 2022*. Page 51, Figure 2.

Framework Review in which IPART endorsed the need for a cost pass-through framework for water agency pricing, which we support. We request that IPART adopt the key findings from IPART's 'How we regulate the water businesses' review relating to the treatment of unforeseen cost changes within a regulatory period – as discussed in Section 6.1 - for the 2022 Broken Hill Pipeline Determination, in particular the 'partial reopener'.

# Appendix 1 – Fixed and variable demand energy

The IPART Draft Decision proposes to reduce the forecast energy costs of the pipeline based on applying a fixed load assumption of **0.6 MWh per day** (rather than our proposed 6.39 MWh per day) based on IPART's desktop analysis (a linear regression).

IPART's estimate of fixed load is not based on a comprehensive analysis of the fixed load requirements of the pipeline. Currently, the fixed load of the pipeline is not itemised in our electricity invoices. That is, energy load is not measured by fixed load equipment.

The fixed load estimate in our pricing proposal of **6.39 MWh per day** was derived using a bottom-up analysis of the energy use requirements of the equipment at the pipeline facilities and pumping stations. We contend that this analysis represents the best available estimate of the fixed load requirements of the Broken Hill Pipeline at this time. It is on this basis that IPART's Consultants, The CIE have adopted the 6.39 MWh per day fixed load in calculating the pipeline's demand profile and costs estimates in accordance with WaterNSW's pricing proposal. We note that IPART has not accepted The CIE's finding and conclusions on this matter.

WaterNSW's agrees with The CIE's suggestion that further testing and analysis is required to determine the actual fixed load requirements of the pipeline under testing conditions approved by both the pipeline operator and WaterNSW and fit for regulatory pricing purposes.

Fixed energy consumption for the pipeline reflects auxiliary load including fans, air conditioners and lights. Although this consumption does not vary with pumping volumes, it is not constant – it varies with other factors including ambient temperature. This load is not separately metered, and it is therefore necessary to develop an assumption to enable an accurate estimation of fixed energy — in term of both daily volumes (in MWh) and maximum demand (in MW). We estimated fixed energy through a bottom-up assessment of the duration and volume of individual loads for the 2019 price review.

For fixed load, IPART assumed in its 2019 Determination that:

- Ventilation fans operate 24 hours per day;
- Cranes operate 1 hour per day;
- Uninterrupted Power Supply ("**UPS**") apparatus/Systems operate 2 hours per day;
- Distribution Boards ("**DB**") operate 24 hours per day;
- Most Active Harmonic Filters ("**AHF**") operate 24 hours per day; and
- Fixed load at the bulk water storage would operate 6.7 hours per day for most items based on the pipeline operator's advice, except DB (24 hours per day) and UPS (2 hours)

Items excluded from fixed load (deemed to be variable load) include water pumps, starters, air compressors, some DBs and AHFs.

WaterNSW submits that IPART's analysis for the 2022 Draft Determination does not invalidate the prior determination's detailed bottom-up approach to determining fixed load.

As Frontier Economics noted in its 2019 report for IPART (see Table 6 below from the 2019 efficiency report), it is the modelled fixed load that sets the max demand (0.27MW) in the peak and shoulder periods.

## Results

**Table 6** through **Table 8** summarise estimated electricity demand for the median demand scenario, low demand scenario and high demand scenario respectively. In the median demand scenario and the low demand scenario the only load during peak periods and shoulder periods is the minimum load. In high demand scenario the only load during peak periods is also the minimum load.

**Table 6**: Estimated electricity demand – median demand scenario

| | 2019-20 | 2020-21 | 2021-22 |
|---|---|---|---|
| **Demand** | | | |
| Peak (MWh) | 343 | 343 | 343 |
| Shoulder (MWh) | 695 | 695 | 695 |
| Off-peak (MWh) | 9,175 | 9,153 | 9,125 |
| **Peak demand** | | | |
| Peak (MW) | 0.27 | 0.27 | 0.27 |
| Shoulder (MW) | 0.27 | 0.27 | 0.27 |
| Off-peak (MW) | 2.02 | 1.96 | 1.95 |

*Source: Frontier Economics*

We note IPART's concerns that it appears there is inconsistency between our modelled estimate and the experience of the pipeline's operations to date. However, we concur with IPART's consultants, The CIE that our approach provides the most robust estimates for the pipeline at the current time, since they are based on the pipeline's engineering inputs and configuration.

The fixed energy consumption estimates have an important influence on our energy costs – particularly network costs where there is a substantial maximum demand charge ($/MW) that reflects the monthly maximum demand for each of the peak, shoulder and off-peak periods.

For this reason, it is important that the estimates of maximum demand recognise the variable nature of consumption and the potential for the individual loads that comprise fixed load to coincide during shoulder and peak times, even if only for short periods. Setting the fixed load assumption at 0.6 MWh day would involve a significantly lower maximum demand and could significantly understate the maximum demand charge we would face. Under IPART's approach to calculated the energy allowance, this assumption would result in a significant shortfall in meeting our costs of energy.

We are committed to working with the pipeline operator in the leadup to the next determination to confirm these estimates of fixed energy volume as the increasing pipeline operating history enables a more robust examination of these issues. However, we do not consider there to be better information available at this time than the information in and underpinning Table 6 of the 2019 efficiency report above.

As suggested by The CIE, further testing and analysis is required to determine the actual fixed load of the pipeline under testing conditions approved by both the pipeline operator and WaterNSW. Ideally, we would use longer-term operational history (e.g. including logbook information) to determine the optimal testing conditions for estimating fixed load).

Similarly, the variable energy consumption parameter reflects the design specifications for the pipeline, a design which was based on a competitive procurement process deemed prudent and efficient by IPART and Synergies in the 2019 Determination.

WaterNSW notes that in IPART's analysis, and that of The CIE, that the variable energy requirements (MWh/ML) based on the two years of actual energy consumption data have been lower than the design specifications. As for the fixed load, the estimated variable energy requirements are a function of a range of parameters – including for example ambient temperature, flow rates, conditions in the Murray River including algal blooms, outages, and other operational constraints.

Further analysis using a longer time series of actual data is required to confirm that the energy efficiency of the pipeline is materially different to the design specifications / modelled estimate utilised in the 2019 Determination. Otherwise, there is a risk that two years of actual energy consumption data reflects shorter term factors, including climatic conditions, rather than sustainable longer-term factors. We note the pipeline has been operating for a relatively short period to date, and a more informed analysis would be possible for the subsequent Determination period.

To conclude, WaterNSW considers that the benchmark parameters set in the 2019 Determination were robust and remain the best available information to use given this is the only detailed engineering assessment that has been undertaken of the fixed energy volumes. WaterNSW does not support IPART's decision to select some actual information (fixed volume assumption) but not others (2019-20 and 2020-21 load profile).

WaterNSW remains of the view that the pumping profile should be based on the following assumptions:

- Fixed energy use of **6.39 MWh per day**, not the 0.6 MWh per day proposed by IPART; and
- Variable energy use of **1.64 MWh/ML**.

We support The CIE's recommendation to undertake an engineering assessment of these benchmark parameters at the next price review and this could be considered alongside a longer time series of information available.[23]

[23] The CIE, WaterNSW's Broken Hill Pipeline bulk water transport volume demand and energy review, June 2022, pp 5- 7.

# Appendix 2 – IPART's use of a stylised pumping profile

IPART's stylised pumping profile has been used to calculate the energy load requirements of the pipeline, including the variable energy cost and the maximum demand costs. We do not support using a stylised pumping profile and therefore we do not support IPART's conclusion on the efficient ratio of off-peaking pumping relative to total pumping across each of the pricing periods of peak, shoulder and off-peak.

This ratio, and the associated maximum demand in each period, is a key determinant of WaterNSW's energy costs as it determines how much of the total energy is purchased during the lowest priced off-peak period and or during the higher priced shoulder or peak periods.

WaterNSW has not seen evidence of the appropriateness of the technical assumptions used by IPART in its stylised pumping profile, including technical advice on the parameters of the IPART model from an independent expert on water pipeline operations. In the absence of such evidence, WaterNSW is not able to support IPART's conclusions.

We consider that IPART's pumping profile significantly overestimates the level of off-peak pumping that can be achieved by the system considering the operating context of the pipeline. This will result in a shortfall in the energy cost allowance as it will underestimate the cost for energy purchased during the higher priced shoulder and peak periods.

**There are many factors considered when setting the pumping schedule for the system**

The factors considered when setting the pumping schedule for the system include:

- Contractual considerations and required minimum volumes/availability (i.e. peak day, peak week, peak months, peak season, peak year conditions);
- Operational considerations such as planned maintenance and or planned/unplanned outages;
- Demand factors including Essential Water's forecast, current usage, historical usage, current water order and trends;
- Operational factors such as flow rates, current Bulk Water Storage ("**BWS**") volumes, forecast and current power usage and periods; and
- Algal conditions in the River Murray and water quality conditions in the BWS.

It is not obvious that IPART's pumping model addresses the above factors.

**The IPART model does not take into account these important factors**

It is not clear that IPART has considered the following factors in its internal IPART model:

- Under the IPART assumption of 100% off peak operation (which we consider unachievable), the Pipeline can only pump a maximum of 10ML during the off peak period per day during the weekdays and not 15ML per day as assumed in the IPART stylised model;
- The IPART stylised model assumes a smoothed pumping profile which is impractical and does not take into account the operating context. This approach underestimates maximum demand which has an important influence on our network charges.
- IPART has not considered the historical data in setting the maximum demand between the pricing periods of peak, off-peak and shoulder.

**Failing to take into account these important factors results in an unrealistic IPART profile**

The following important factors do not appear to be appropriately dealt with in the IPART model used to determine the proportion of off-peak pumping:

- WaterNSW was required under the Ministerial Direction to meet **37.4 ML per day** maximum capacity.
- WaterNSW has met this requirement as well as other hydraulic requirements by constructing a BWS such that Essential Water that can draw those values at the BWS extraction point. WaterNSW holds sufficient volumes in the storage to ensure compliance parameters are met.
- The pipeline from the River Murray to the BWS can operate at a maximum **27 ML/day**. This design was considered cost effective (based on capital costs / smaller pipes) under the WaterNSW procurement process, which was reviewed by IPART's efficiency consultant's Synergies and deemed prudent and efficient by IPART in 2019.

**The Pipeline is operated where possible during the off peak periods.**

We note that the system is generally only required to operate 100% of the time when the demand exceeds the maximum capacity of the pipeline, i.e. above 27ML/d. This is an infrequent event.

We also note that any system needs to be shut down periodically for precautionary reasons and maintenance (hence the assumed design operations of 98% availability), which is typically planned for off-peak, low demand periods. As noted by the Pipeline operator:

> *Firstly, the analysis presented assumes that there is very close to 100% availability of the pipeline. By their nature, off-peak hours are outside of normal business hours which are when the pipeline is unmanned. The current approach to operating the pipeline is to use off-peak hours as much as possible. However, issues do occur which need rectifying. Because an operator has to attend from a remote location this takes time and the pipeline is not available. Under the current operations this is acceptable as the water pumping can be extended into other times to make up for it when staff are on-site.*
>
> *If off-peak pumping can only be used as outlined in the draft report, this significantly changes the operating regime and risk profile for us as the operator. Our approach would be to shift the operations to a night shift which would substantially increase the labour cost for operations to cover these shifts. The draft report does not consider the impact of such a shift in operations.*

IPART has failed to provide an additional labour cost allowance to account for increased night shift work assumed in the IPART stylised pumping model.

Off-peak pumping will only deliver a maximum of 10ML per day on the weekdays whereas the IPART model assumes off-peak pumping will deliver 15ML per day on the weekdays. Demand tips over into the shoulder period due to the 10ML per day constraint on pipeline capacity during off-peak pumping weekdays. The 10ML per day off-peak constraint on weekdays is calculated as follows:

- Off-peak hours equate to 9 hours of the weekday;
- 27 ML per day maximum capacity from the River Murray to the bulk water storage. This assumes design availability of 98% of the time;
- The maximum off peak capacity = (27/24)*0.98 * 9 hours off-peak = 10ML per day constraint for off-peak pumping on the weekdays;

- We note that even under a scenario of low daily demand of 12-15ML per day, WaterNSW can only pump a maximum of 10ML of expected demand during the off-peak periods on the weekdays;
- Based on recent data, the weekly demand splits (including weekends) are as follows;
    - Off-peak availability is 55.4%;
    - Peak availability is 17.9%; and
    - Shoulder availability is 26.8%

  of the time of any given week.

The half hourly profile is a key determinant of our energy costs. The IPART stylised model assumes a smoothed pumping profile which is practically unachievable and does not take into account the operating context as discussed above. In particular, it is important to recognise the different operating profiles occurring on weekdays and weekends.

**We do not agree with the IPART consultant's implied comment that WaterNSW keeps the bulk water storage at suboptimal levels.**

WaterNSW notes that the bulk water storage is maintained at around 60 to 80 per cent capacity. WaterNSW aims to hold as little amount of water in the summer months as possible to avoid evaporation and heating of water to avoid algal blooms. In winter, WaterNSW aims to keep the storage levels down to efficient levels to save on energy pumping costs as demand is low. We also note that algal problems may arise at the River Murray at any time. WaterNSW is required to manage these problems by shanding/recycling the water at the bulk water storage to provide the best possible water quality to the residents of Broken Hill.

In addition, implied in the smoothed profile is an assumption that Essential Water will extract the water that they order. This is not always the case.

WaterNSW requires that Essential Water provide weekly, monthly and yearly forecasts which we need to prepare for under our SOC Act Direction mandate to secure drinking water to the residents of Broken Hill.

We plan the pumping schedule based on weekly forecast, whilst the monthly and yearly forecast aid in scheduling asset maintenance and operator leave. However, actual take from the bulk water storage by Essential Water can and does regularly vary from forecast demand. This still requires WaterNSW to have water available for Essential Water to draw at the forecast levels and to pump at times that ensure sufficient supply.

Furthermore, we observe that water orders / extractions typically decline during the weekends (off-peak). Essential Water provides weekly water orders on forecast expected demand from the community based on a combination of industry / residential demand.

To conclude, it is not possible to manage pipeline operations using annual energy profiles under the IPART theoretic stylised model.

As a pipeline operator, WaterNSW manages water demand / water orders received from Essential Water each week to serve the Broken Hill community in line with our operating requirements and the Ministerial Direction by operating the system as efficiently as possible within our technical constraints and by ensuring the pipeline operator pumps most of Essential Water's demand during the cheaper periods of off-peak pricing as demonstrated above.

**Maximum Demand**

The current operating practice optimises off-peak and shoulder pumping times to minimise on-peak operation and overall energy costs, subject to operational constraints. WaterNSW proposed to use the 2019-20 pumping profile. This involved utilising the annual water consumption forecasts and then converting into a half-hourly profile using the historical pumping profile. This highlighted that the majority of pumping occurs in off-peak periods; however, there is a significant amount of pumping that also occurs in in the higher priced shoulder periods.

IPART's Draft Decision states that it agreed with The CIE's recommendation to utilise a benchmark pumping profile given its view that:

- The modelling factors in "some of the operating constraints, in particular how WaterNSW uses the bulk water storage when operating the Pipeline to meet customer demand" [24]
- It would incentivise WaterNSW to operate the Pipeline efficiently.

For the purposes of responding to IPART's Draft Decision, WaterNSW accepts IPART's use of the benchmark pumping profile; however, WaterNSW still retains incentives to 'beat the benchmark' over the 2022 Determination even if it is derived from the actual pumping profile for 2019-20 and 2020-21 (akin to IPART's use of actual fixed energy volumes). WaterNSW would also welcome the opportunity to engage with IPART further ahead of the next determination to ensure WaterNSW's complex operating environment is adequately incorporated into IPART's modelling of the pumping profile.

In any case, WaterNSW is concerned that IPART's weekly profile understates maximum demand, resulting in lower than intended maximum demand charges which are a key driver of forecast energy costs. The CIE did not publish information on the maximum demand assumption used to calculate network charges.

To ensure alignment with other key assumptions, WaterNSW proposes IPART's Final Decision utilises the following maximum demand assumptions:

- For off-peak periods is **2.09 MW**, not the 3.57 MW utilised by IPART
- For shoulder periods is **1.73 MW**, not the 0.58 MW utilised by IPART
- For peak periods is **0.30 MW**, not the 0.03 MW utilised by IPART.

It is not possible for the pipeline to reach the maximum demand values utilised by IPART above, given the operating parameters which IPART have indicated they accept.[25] Half-hourly demand is also peakier than any proposed profile can replicate, which suggests values based on historical data are applied.

---

5 IPART, Review of WaterNSW's prices for the Murray River to Broken Hill Pipeline: Draft Technical Report, June 2022, p30.

25 Given a variable energy usage of 1.64MWh per ML, a fixed energy use of 6.4MWh per day and a maximum pipeline flow rate of 27ML per day, the absolute maximum demand in any half-hour would be 2.11MW. This is higher than IPART's proposed 3.57MW. If the lower fixed energy use of 0.6 MWh per day were used, the maximum demand achievable would be even lower.

# Appendix 3 – Components of the energy cost calculation

This appendix sets out the approach to calculating the cost of electricity used by Frontier Economics that has formed the basis of WaterNSW's forecast energy costs for the pipeline. A separate Attachment X to this response provides the detailed workings of the updated benchmark cost of electricity.

**Wholesale electricity costs**

Frontier Economics has used wholesale futures contracts to estimate the expected wholesale component of energy prices the pipeline may face. Futures contracts are publicly traded on the ASX and are available for 2022-23 through to 2025-26 (as of the time of writing this response). Frontier Economics has based wholesale electricity costs on the 40-day average price to 30 June 2022 for ASX contracts for each of 2022-23 to 2025-26.

As discussed in Appendix 4, WaterNSW proposes that an end of period true-up mechanism is introduced for movements in the wholesale component of the electricity benchmark price over the 2022 Determination period (similar to IPART's cost of debt true-up mechanism).

**Renewable energy policy cost**

The Large-scale Renewable Energy Target ("**LRET**") and the Small-scale Renewable Energy Scheme ("**SRES**") place obligations on electricity retailers to obtain and surrender renewable certificates.

Costs associated with the LRET and the SRES have been estimated using the latest price information from Mercari, and renewable energy percentages published by the Clean Energy Regulator ("**CER**").

To estimate the costs to retailers of complying with both the LRET and SRES, Frontier Economics used the following elements:

- Historical Large-scale Generation Certificate ("**LGC**") forward market prices from Mercari[26] for 2022 to 2026;
- The assumption that prices will remain constant in real terms from 2026;
- The Renewable Power Percentage ("**RPP**") as published by the CER for 2022;
- The assumption that the RPP will remain constant from 2022;
- The binding Small-scale Technology Percentage ("**STP**") for 2021 and non-binding STPs for 2022 and 2023 under the SRES as published by the CER;
- The assumption that the STP will remain constant from 2023;
- CER's fixed clearing house price for 2023 to 2026 for Small-scale Technology Certificates ("**STC**") of $40/MWh, in nominal dollars.

**NSW Energy Savings Scheme**

The NSW ESS places an obligation on electricity retailers to obtain and surrender Energy Savings Certificates ("**ESC**"), which represent energy savings. Liability under the scheme is set as a legislated fixed percentage of electricity sales for which ESCs need to be surrendered in each calendar year.

[26] See http://lgc.mercari.com.au/

Frontier Economics estimated the cost of complying with the ESS based on estimates for 2021/22 from the AEMC's residential price trends report. Going forward it is assumed that the cost of purchasing certificates under the scheme will remain constant in real terms.

**Other electricity costs**

Market fees and ancillary service costs are estimated based on data and policy documents published by the Australian Energy Market Operator ("**AEMO**").

**Energy losses**

The estimated electricity costs resulting from the methodology described above are referenced to the New South Wales Regional Reference Node (RRN). These estimates are then adjusted for transmission and distribution losses. Distribution Loss Factors ("**DLF**") for the Essential Energy zone and electricity consumption weighted average Marginal Loss Factors ("**MLF**") for transmission losses for the Red Cliffs connection point, were applied to the wholesale electricity cost estimates to incorporate losses.

The MLFs and DLFs used in the calculations were based on the final 2022-23 MLFs and DLFs published by AEMO.

**Network costs**

Australian electricity networks, whether transmission or distribution, are considered to be natural monopolies and, as such, are subject to economic regulation by the Australian Energy Regulatory ("**AER**").Given its location in regional New South Wales, the pipeline is located within TransGrid's transmission network and Essential Energy's distribution network.

From bills provided by WaterNSW, it was determined that the pumping stations are on the high voltage time of use monthly demand tariff (tariff code: BHND3AO). Network costs were based on the current BHND3AO network tariff. Frontier Economics made the placeholder assumption that future network tariffs will grow in line with inflation or, in other words, that they remain constant in real terms over the projection period to 2025-26.

As discussed in Appendix 4, WaterNSW proposes that an end of period true-up mechanism is introduced for movements in the network component of the electricity benchmark price over the 2022 Determination period.

**Retail operating costs and retail margin**

Retail operating costs compensate electricity retailers for their internal costs of operating their business. We have included a benchmark amount for retail operating costs for supply to business customers.

The retail margin compensates electricity retailers for the risks that retailers take in supplying customers with electricity. Frontier Economics' analysis of regulatory allowances for the retail margin, including decisions by the Queensland Competition Authority ("**QCA**), the Independent Competition and Regulatory Commission ("**ICRC**"), Office of the Tasmanian Economic Regulator ("**OTTER**") and IPART, suggests a retail margin of 5.7 per cent between 2021-22 and 2025-26 in New South Wales.

# Appendix 4 – Calculating the annual energy true-up

This appendix sets out the approach to calculating the cost of electricity used by Frontier Economics that has formed the basis of WaterNSW's forecast energy costs for the pipeline.

## Calculating the annual true-up value for the wholesale component

As indicated by IPART in its Draft Determination, the end-of-period true-up should only cover differences between the forecast benchmark energy prices used to set charges in the 2022 Determination, and an updated benchmark or actual price based on new information that becomes available over the period. That is, the true-up is not designed to address movements in costs driven by other factors – say movements in energy costs related to changes in energy efficiency – that should be considered within WaterNSW's control.

WaterNSW has developed a mechanism to calculate the true-up value for the wholesale component of the benchmark energy price. This is a four step process:

- Determining the updated annual wholesale element of the benchmark energy price, reflecting movements in wholesale prices (represented by movements in ASX energy futures), and RERT charges and generator compensation charges
- Calculating the annual difference between the updated annual wholesale element of the benchmark energy price and the benchmark energy cost used by IPART to set prices for 4 years in the 2022 Determination
- Calculating the true-up value for the wholesale component by multiplying the price difference from the step above by the benchmark energy volumes approved by IPART
- Calculating the present value of the annual true-up amounts.

We discuss each step in turn below.

### (1) Calculate the updated wholesale component of the benchmark energy price

For each year of the 2022 Determination Period, we propose to calculate an updated wholesale component by escalating the wholesale energy cost component on an annual basis for changes in the price of a baseload financial year strip for NSW and adding RERT charges and generator compensation charges that WaterNSW was required to pay in that year.

In considering the true-up process, we note that the timing of when updated benchmarks or actual cost data is available differs. While energy futures prices are known before the start of a regulatory year, both RERT charges and generator compensation charges are imposed by AEMO on the occurrence of a relevant event, and hence only be known on an ex-post basis. This means that the full value of RERT charges and generator compensation charges will not be known for the final year of the 2022 Determination period (when we expect IPART will be making its determination for the subsequent regulatory period).

WaterNSW has designed a process that allows the end-of-period true-up to capture RERT charges and generator compensation charges for which we expect that actual data would be available prior to IPART's next Determination (i.e., for the first 9 months of FY2025-26). The true-up for that part of RERT charges and generator compensation charges that are not known prior to IPART's next Determination (i.e., for the final 3 months of FY2025-26) should occur in the period following the next regulatory period.

**Formula 4A.1 – Calculate updated wholesale benchmark price**

| | |
|---|---|
| For Year 1 (FY2022-23) | $_1 = {}_1 + {}_1 + {}_1$ |
| For Year 2 (FY2023-24) | $_2 = \frac{2}{1} \times {}_1 + {}_2 + {}_2$ |
| For Year 3 (FY2024-25) | $_3 = \frac{3}{2} \times {}_2 + {}_3 + {}_3$ |
| For Year 4 (FY2025-26) | $_4 = \frac{4}{3} \times {}_3 + {}_4 + {}_4$ |

Where:

**WEC$_{SN}$** is the wholesale energy cost component of the benchmark price for the n$^{th}$ year of the 2022 Determination period, as approved by IPART.

**WEC$_{RN}$** is the updated wholesale energy cost component of the benchmark price for the n$^{th}$ year of the 2022 Determination period, revised to account for movements in wholesale prices, RERT charges and generator compensation charges.

**ASX$_N$** is the price of a baseload financial year strip for NSW for the n$^{th}$ year of the regulatory period, averaged over 40 days prior to the start of that regulatory year.

**RERT$_N$** is the charges levied from the application of the Reliability and Emergency Reserve Trader scheme (**RERT charges)** for the n$^{th}$ year of the 2022 Determination period, or in the case of Year 4, the RERT charges in the first 9 months of that year (in $/MWh).

**GCOMP$_N$** is the generator compensation charges for the n$^{th}$ year of the 2022 Determination period under clause 3.15.7B of the NER, for Year 4, is the generator compensation charges that WaterNSW was required to pay in the first 9 months of that year (in $/MWh).

### (2) Calculate the difference between updated and forecast wholesale prices

For each year of the 2022 Determination Period, we propose to calculate the change in the wholesale component of the benchmark energy price by:

- starting with the updated wholesale component of the benchmark energy price calculated in accordance with Formula 1 (**WEC$_{RN}$**); and
- deducting the forecast wholesale component of the benchmark energy price approved by IPART and included in the 2022 Determination (**WEC$_{SN}$**).

**Formula 4A.2 – Calculate different between updated and forecast wholesale price**

| | |
|---|---|
| For Year 1 (FY2022-23) | $\Delta_1 = {}_1 - {}_1$ |
| For Year 2 (FY2023-24) | $\Delta_2 = {}_2 - {}_2$ |
| For Year 3 (FY2024-25) | $\Delta_3 = {}_3 - {}_3$ |
| For Year 4 (FY2025-26) | $\Delta_4 = {}_4 - {}_4$ |

Where:

**ΔWEC$_N$** is the difference between the forecast wholesale component of the benchmark price approved by IPART, and an updated wholesale price that reflects movements in wholesale energy costs, RERT charges and generator compensation charges, for the n$^{th}$ year of the 2022 Determination period

**(3) Calculate the annual true-up values for each year of the determination period**

For each year of the 2022 Determination Period, we propose to calculate the true-up value for the wholesale element of the benchmark energy price by:

- starting with the change in the wholesale component of the benchmark energy price calculated in accordance with Formula 2 (**$\Delta WEC_N$**); and
- multiplying by the benchmark energy volumes to set prices for 4 years in the 2022 Determination.

**Formula 4A.3 – Calculate annual true-up value for the wholesale component**

| | |
|---|---|
| For Year 1 (FY2022-23) | $WT_i = AWEC_i \times BEV_i$ |
| For Year 2 (FY2023-24) | $WT_2 = AWEC_2 \times BEV_2$ |
| For Year 3 (FY2024-25) | $WT_3 = AWEC_3 \times BEV_3$ |
| For Year 4 (FY2025-26) | $WT_4 = AWEC_4 \times BEV_4$ |

Where:

**$WT_N$** is the true-up value for the wholesale component of the benchmark energy price for the $n_{th}$ year of the 2022 Determination period;

**$BEV_N$** is the benchmark energy volumes approved by IPART approved by IPART and included in the 2022 Determination used by IPART, including assumptions for fixed and variable volumes required to operate the pipeline and transport water, and the pumping profile (when to pump water).

### Calculating the annual true-up value for renewable component

WaterNSW has also developed a mechanism to calculate the true-up value for the renewable component of the benchmark energy price. This is a four step process:

1. Determining the updated annual renewable element of the benchmark energy price, reflecting movements in the costs of complying with the LRET, SRES and ESS
2. Calculating the annual difference between the updated annual renewable element of the benchmark energy price and the benchmark energy cost used by IPART to set prices for 4 years in the 2022 Determination
3. Calculating the true-up value for the renewable component by multiplying the price difference from the step above by the benchmark energy volumes approved by IPART
4. Calculating the present value of the annual true-up amounts.

We discuss each step in turn below.

**(1) Calculate the updated renewable component of the benchmark energy price**

For each year of the 2022 Determination Period, we propose to calculate an updated renewable component by:

- adjusting LRET, SRES and ESS prices on an annual basis to reflect actual changes in certificate prices; and
- updating the obligation on WaterNSW to surrender certificates under the LRET, SRES and ESS to align with our actual obligations in each year.

**Formula 4A.3 – Calculate updated wholesale benchmark price**

| | |
|---|---|
| For Year 1 (FY2022-23) | $_1 = \quad _1 + _1 + _1$ |
| For Year 2 (FY2023-24) | $_2 = \frac{(_2}{_2} \times \frac{^2}{_2} \; _2) \quad \frac{+ (_2}{_2} \times \frac{^2}{_2} \; _2) \quad + _2$ |
| For Year 3 (FY2024-25) | $_3 = \frac{(_3}{_3} \times \frac{^3}{_3} \; _3) \quad \frac{+ (_3}{_3} \times \frac{^3}{_3} \; _3) \quad + _3$ |
| For Year 4 (FY2025-26) | $_4 = \frac{(_4}{_4} \times \frac{^4}{_4} \; _4) \quad \frac{+ (_4}{_4} \times \frac{^4}{_4} \; _4) \quad + _4$ |

Where:

**REC$_{RN}$** is the updated renewable energy cost component of the benchmark price for the n$^{th}$ year of the 2022 Determination period, revised to account for movements in the LRET, SRES and ESS.

**LRET$_N$** is the LRET component of the benchmark price for the n$^{th}$ year of the 2022 Determination period, as approved by IPART (in $/MWh).

**MER$_{RN}$** is the forward market price for LGCs from Mercari for the n$^{th}$ year of the regulatory period, averaged over 40 days prior to the start of that regulatory year (in $/MWh).

**MER$_{SN}$** is the forward market price for LGCs from Mercari for the n$^{th}$ year of the regulatory period, averaged over 40 days prior to 30 June 2022 (in $/MWh).

**RPP$_{RN}$** is the Renewable Power Percentage for n$^{th}$ year of the regulatory period, as published by the CER prior to the start of that regulatory year (in %).

**RPP$_{SN}$** is the Renewable Power Percentage for n$^{th}$ year of the regulatory period, as published by the CER prior to the start of the 2022 Determination period (in %).

**SRES$_N$** is the SRES component of the benchmark price for the n$^{th}$ year of the 2022 Determination period, as approved by IPART (in $/MWh).

**CER$_{RN}$** is the fixed clearing house price for STCs for the n$^{th}$ year of the regulatory period, as published by the CER prior to the start of that regulatory year (in $/MWh).

**CER$_{SN}$** is the fixed clearing house price for STCs for the n$^{th}$ year of the regulatory period, as published by the CER prior to the start of the 2022 Determination period (in $/MWh).

**STP$_{RN}$** is the Small-scale Technology Percentage for n$^{th}$ year of the regulatory period, as published by the CER prior to the start of that regulatory year (in %).

**STP$_{SN}$** is the Small-scale Technology Percentage for n$^{th}$ year of the regulatory period, as published by the CER prior to the start of the 2022 Determination period (in %).

**ESS$_N$** is, for n=1, the ESS component of the benchmark price for the 1$^{st}$ year of the 2022 Determination period, as approved by IPART, and otherwise, the cost of complying with the ESS for the n$^{th}$ year of the regulatory period based on any recent public information (in $/MWh).

### (2) Calculate the difference between updated and forecast renewable prices

For each year of the 2022 Determination Period, we propose to calculate the change in the wholesale component of the benchmark energy price by:

1. starting with the updated renewable component of the benchmark energy price calculated in accordance with Formula 1 (**REC$_{RN}$**); and
2. deducting the forecast renewable component of the benchmark energy price approved by IPART and included in the 2022 Determination (**REC$_{SN}$**).

**Formula 4A.4 – Calculate different between updated and forecast renewable price**

| | |
|---|---|
| For Year 1 (FY2022-23) | $\Delta REC_i = REC_{Ri} - REC_{Si}$ |
| For Year 2 (FY2023-24) | $\Delta REC_2 = REC_{R2} - REC_{S2}$ |
| For Year 3 (FY2024-25) | $\Delta REC_3 = REC_{R3} - REC_{S3}$ |
| For Year 4 (FY2025-26) | $\Delta REC_4 = REC_{R4} - REC_{S4}$ |

Where:

**$\Delta REC_N$** is the difference between the forecast renewable component of the benchmark price approved by IPART, and an updated renewable price that reflects movements in the LRET, SRES and ESS, for the $n^{th}$ year of the 2022 Determination period

**(3) Calculate the annual true-up values for each year of the determination period**
For each year of the 2022 Determination Period, we propose to calculate the true-up value for the renewable element of the benchmark energy price by:

1. starting with the change in the renewable component of the benchmark energy price calculated in accordance with Formula 2 (**$\Delta REC_N$**); and
2. multiplying by the benchmark energy volumes to set prices for 4 years in the 2022 Determination.

**Formula 4A.5 – Calculate annual true-up value for the renewable component**

| | |
|---|---|
| For Year 1 (FY2022-23) | $RT_i = AREC_i \times BEV_i$ |
| For Year 2 (FY2023-24) | $RT_2 = AREC_2 \times BEV_2$ |
| For Year 3 (FY2024-25) | $RT_3 = AREC_3 \times BEV_3$ |
| For Year 4 (FY2025-26) | $RT_4 = AREC_4 \times BEV_4$ |

Where:

**$RT_N$** is the true-up value for the renewable component of the benchmark energy price for the $n_{th}$ year of the 2022 Determination period;

**$BEV_N$** is the benchmark energy volumes approved by IPART approved by IPART and included in the 2022 Determination used by IPART, including assumptions for fixed and variable volumes required to operate the pipeline and transport water, and the pumping profile (when to pump water).

**(4) Calculate the present value of the annual true-up amounts**

The process for calculating the present value of the true-up amounts is discussed in the following section.

### Calculating the annual true-up value for the network component

We expect the process for calculating the true-up value for the network component of the benchmark energy price will be similar to that set out above for the wholesale component. Specifically, we expect this will involve:

- Determining the actual network charges (fixed and variable) that WaterNSW was charged by Essential Energy.
- Calculating the difference between these actual network charges and the forecast network charges that were approved by IPART and included in the 2022 Determination.
- Calculating the true-up value for the network component by multiplying the price difference from the step above by the benchmark energy volumes approved by IPART.
- Calculating the present value of the annual true-up amounts.

## Process for calculating the annuity

The proposed end-of-period true-up covers two key elements of the benchmark energy price:

- wholesale energy costs, including RERT and generator compensation charges; and
- network costs

(collectively referred to as '**Uncontrollable Energy Costs**')

The true-up is structured around three periods:

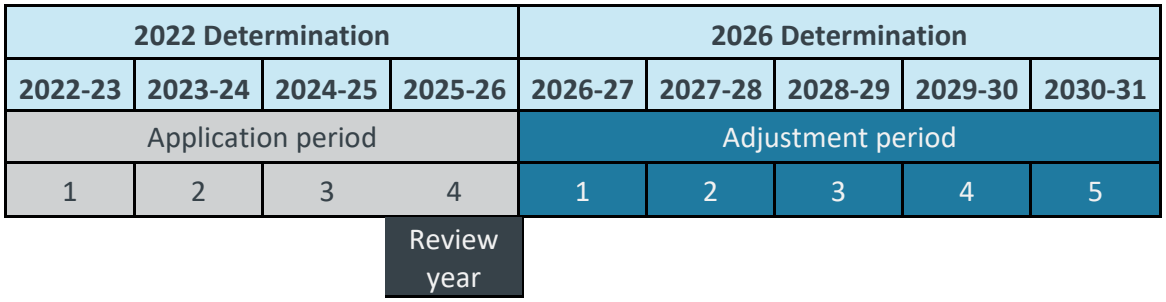
A **Review Year**: which is the year in which the true-up amount is determined, and would typically be the final year of the regulatory period (i.e., for the 2022-26 regulatory period, it would be financial year 2025-26 which is the year in which we expect IPART to determine WaterNSW's prices for the following regulatory period).

**Application Period**: which is the 2022 Determination period (The 4 years commencing 1 July 2022).

**Adjustment Period**: which is the subsequent regulatory period (length unknown currently).

The following figure illustrates these time periods for the next true-up

process. **Figure 4A.6: Proposed time periods for the true-up process**




We consider that the end-of-period true-up will involve the following steps:

**Prices in the 2022 Determination are, where possible, based on a forecast of Uncontrollable Energy Costs**

Our proposed prices include where possible an estimate of efficient Uncontrollable Energy Costs over the 2022 Determination period. Our approach to developing forecasts of Uncontrollable Energy Costs was set out in our Initial Pricing Proposal. Given the delay to the start of the next regulatory period, we have updated these price forecasts (see section above). As noted above, WaterNSW is not able to forecast RERT and generator compensation charges, and hence the expected value of these charges has not been included in WaterNSW's proposed prices for the 2022 Determination period.

**Calculate annual true-up value for movements in Uncontrollable Costs**

WaterNSW will monitor changes in the Uncontrollable Energy Costs over the 2022 Determination period. In the Review Year, WaterNSW will calculate the difference between the forecast and actual or updated benchmark value of Uncontrollable Energy Costs for each year of the Application Period. The process for calculating these differences is set in the sections above.

**Calculate total difference between forecast and actual or benchmark Uncontrollable Costs**

The cost impacts calculated in the step above will be summed in each year to provide an aggregate cost impact for Uncontrollable Energy Costs in each year of the Application Period. These annual cost impacts (assumed to be mid-year values) will be escalated to a present value in the Review Year (assumed to be an end of year value for the Review Year). The escalation factor we propose to use is set out below.

**Calculate true-up value**

IPART will calculate a true-up value based on an annual annuity over the Adjustment Period. The cash flows of this annuity (calculated as end of year values) are set such that the present value of the annuity as of 2025-26 (end of year) is equal to the present value of total difference between actual and forecast Uncontrollable Energy Costs as of 2025-26 (end of year). The cash flows of the annuity (end of year values) are each discounted back six months to arrive at the true-up allowance (mid-year values). The discount rate we propose to use is set out below.

### Determining financing costs

WaterNSW has proposed applying the same process that IPART applies to SDP's Energy Adjustment Mechanism.[27]

Specifically, WaterNSW proposes using the 3-year BBB Corporate Bond Rate series currently published by the RBA. If this series is discontinued in the future, WaterNSW proposes using a suitable alternative series. The RBA series is a monthly nominal series. If the RBA series is available, the true-up will use:

- For the application period: simple averages of 12 monthly observations for the relevant years of the application period. For partial years, the simple average of six-monthly observations will be converted to a six-month interest rate.
- For the review year: the simple average of the available months for the review year.
- For the adjustment period: the simple average of the available months for the review year, converted to real using the RBA's latest inflation forecast and the Fisher equation.

To discount the annuity values from end of year to mid-year values: the simple average of the available months of the review year, converted to real values using the RBA's latest inflation forecast and the Fisher equation, converted to a six-month interest rate.

[27] IPART, Methodology Paper - Sydney Desalination Plant Pty Ltd - Energy Adjustment and Efficiency Carryover Mechanisms - June 2017. https://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Metro-Pricing/Sydney-Desalination-Plant-prices-from-1-July-2017/27-Jun-2017-Final-Methodology-Paper-on-Energy-Adjustment-and-Efficiency-Carryover-Mechanisms/Methodology-Paper-Sydney-Desalination-Plant-Pty-Ltd-Energ-1?timeline_id=5440