Attachment 7.02

Control mechanism formula

31 January 2023

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Contents

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Abbreviations

The following table provides a list of abbreviations and acronyms used throughout this document. Defined terms are identified in this document by capitals.

Term	Definition
ABS	Australian Bureau of Statistics
ACS	Alternative Control Services
AER	Australian Energy Regulator
CPI	Consumer Price Index
DUoS	Distribution Use of System
F&A	Framework and Approach
NER	National Electricity Rules
NT	Northern Territory
PTRM	Post Tax Revenue Model
SCS	Standard Control Services
WACC	Weighted Average Cost of Capital

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Overview

The Australian Energy Regulator's (**AER**'s) Framework and Approach sets out the price control mechanism that we apply to direct control service tariffs for each of the services we will offer in the 2024–29 regulatory period and adjusted annually via an annual pricing proposal. This attachment sets out our proposed formulae for the application of the AER's price control mechanisms.

The AER published its Framework and Approach paper for the 2024–29 regulatory period in July 2022.[1] This sets out detail on service classifications, control mechanisms, and incentive schemes.

Our focus in this document is control mechanisms, which are the formulae that describe how revenue and price caps apply over the 2024–29 period for our standard control services and alternative control services.

We propose to adopt the control mechanisms set out in the Framework and Approach, including:

• A revenue cap (section 1.1) and side constraint (section 1.2) for Standard Control Services (**SCS**).

• A price cap for each Alternative Control Services (**ACS**), including for Power and Water's type 1–6 metering services and ancillary network services, which are fee-based or quoted services.

The AER's proposed service classification is shown in Figure OV.1.

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[1]   AER, *Framework and approach: Power and Water Corporation (Northern Territory) – Regulatory control period commencing 1 July 2024*, July 2022.

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Figure OV.1:   Service classification
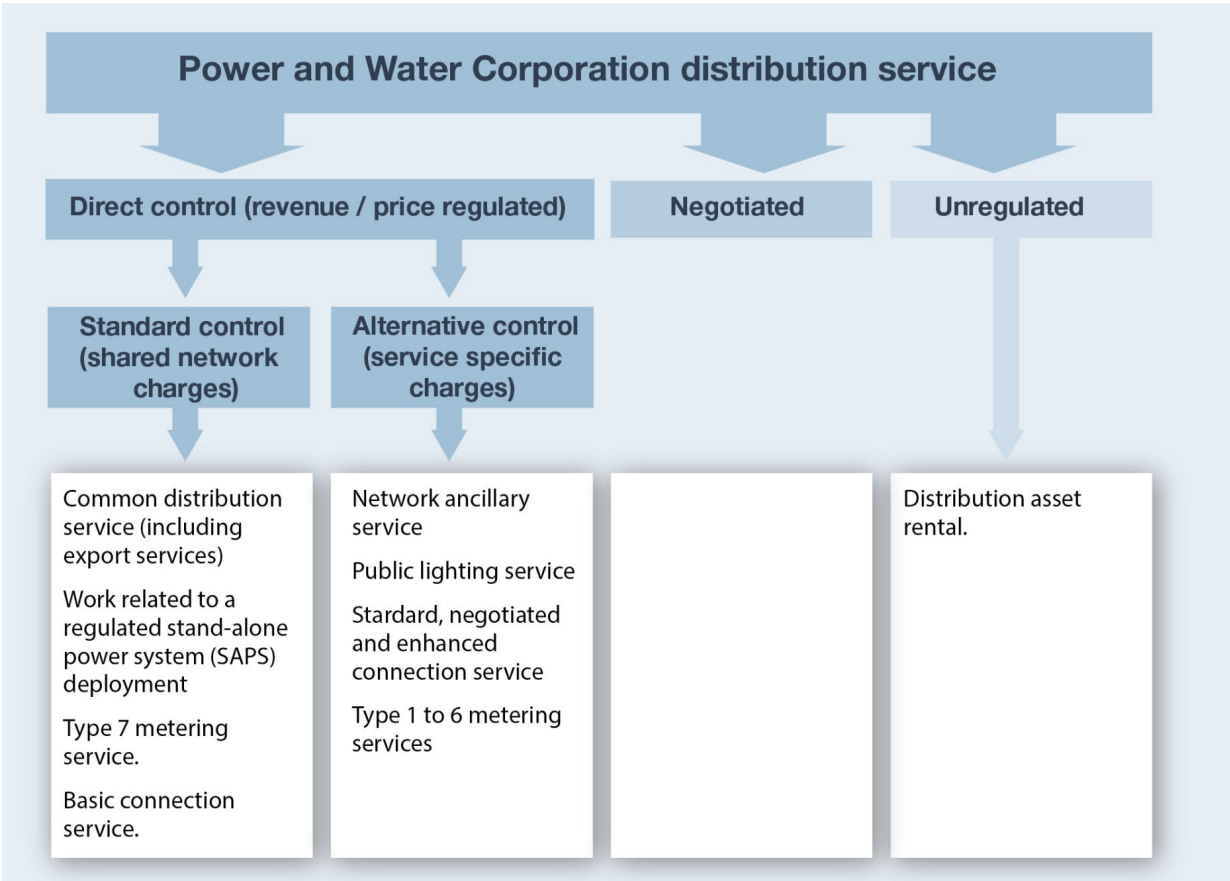
Source: AER Framework and approach.[2]

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2   AER, *Framework and approach: Power and Water Corporation (Northern Territory): Regulatory control period commencing 1 July 2024*, July 2022, p.6

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1. Standard control services

The Framework and Approach applies a revenue cap form of control to SCS. We propose to adopt that form of control and the formulae adopted by the AER for both the cap and the side constraint.

This chapter steps through both components as well as the unders and overs account, which is used to implement the revenue cap.

1.1 Proposed revenue cap

We have adopted the control mechanism for SCS as set out in the AER's Framework and Approach (**F&A**) with the inclusion of an adjustment factor to give effect to 6.4.3(b)(5A) of the Northern Territory (**NT**) National Electricity Rules (**NER**).

$$TAR_t \geq \sum_{i=1}^{n} \sum_{j=1}^{m} p_t^{ij} q_t^{ij}$$

i = 1,…,n and j = 1,…,m and t = 1, 2 ,3, 4, 5

$$TAR_t = AAR_t + I_t + B_t + C_t \qquad \text{t = 1, 2, 3, 4, 5}$$

$$AAR_t = AR_t \qquad \text{t = 1}$$

$$AAR_t = AAR_{t-1} \times (1 + \Delta CPI_t) \times (1 - X_t) \qquad \text{t = 2, 3, 4, 5}$$

Where:

Variable	Represents
t	the regulatory year with t = 1 being the 2024–25 financial year.
TAR_t	the total allowable revenue in year t.
p_t^{ij}	the price of component 'j' of tariff 'i' in year t.
q_t^{ij}	the forecast quantity of component 'j' of tariff 'i' in year t.
AR_t	the annual smoothed revenue requirement in the Post Tax Revenue Model (PTRM) for year t.
AAR_t	the adjusted annual smoothed revenue requirement for year t.

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Variable	Represents
I_t	the sum of incentive scheme adjustments for year t. The adjustments that apply will be decided in the distribution determination.[3]
B_t	the sum of annual adjustment factors to balance the unders and overs account for year t. The adjustments that apply will also be decided in the distribution determination, which we propose to calculate using the following: $DUoS\ Under\ and\ Overs\ True - Up_t = -(Opening\ Balance_t)\ (1 + WACC_t)^{.5}$ where: $DUoS\ Under\ and\ Overs\ True - Up_t$ is the true-up for the balance of the Distribution Use of System (**DUoS**) unders and overs account in year t. $Opening\ Balance_t$ is the opening balance of the DUoS unders and overs account in year t as calculated by the method in section 1.3. $WACC_t$ is the approved weighted average cost of capital used in regulatory year t in the DUoS unders and overs account in section 1.3.
C_t	the approved pass-through amounts (positive or negative) for year t, as determined by the AER. It will also include any annual or end of period adjustments for year t. Eligible pass-throughs will be decided in the distribution determination.
ΔCPI_t	the annual percentage change in the Australian Bureau of Statistics' (**ABS**) Consumer Price Index (**CPI**) All Groups, Weighted Average of Eight Capital Cities[4] from December in year $t–2$ to December in year $t–1$. For example, for the 2024–25 year, $t–2$ is December 2022 and $t–1$ is December 2023.
X_t	the X factor in year t, incorporating annual adjustments to the Post Tax Revenue Model (**PTRM**) for the trailing cost of debt where necessary. The initial X factors will be decided in the distribution determination.

1.2   Proposed side constraint

We propose the following side constraint formula for SCS for the 2024–29 regulatory control period:

$$\frac{\sum_{i=1}^{n}\sum_{j=1}^{m} d_t^{ij} q_t^{ij}}{\sum_{i=1}^{n}\sum_{j=1}^{m} d_{t-1}^{ij} q_t^{ij}} \leq (1 + \Delta CPI_t) \times (1 - X_t) \times (1 + 2\%) + I_t' + B_t' + C_t'$$

Where each tariff class has "n" tariffs, with each up to "m" components, and where:

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[3]   If no incentives were accrued in year t, this parameter will be taken to be 0. The subsequent distribution determination for will include a final carryover from the demand management innovation allowance mechanism (Mechanism). The Mechanism will result in a lump-sum carryover from the 2024–29 regulatory control period being deducted from/added to the allowed revenue in the second regulatory year of the subsequent regulatory control period.

[4]   If the ABS does not or ceases to publish the index, then CPI will mean an index which the AER considers is the best available alternative index.

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Variable	Represents
d_t^{ij}	the proposed price for component 'j' of tariff 'i' for year t.
d_{t-1}^{ij}	the price charged for component 'j' of tariff 'i' in year t–1.
q_t^{ij}	the forecast quantity of component 'j' of tariff 'i' in year t.
ΔCPI_t	the annual percentage change in the ABS's CPI All Groups, Weighted Average of Eight Capital Cities[5] from December in year t–2 to December in year t–1. For example, for the 2024–25 year, t–2 is December 2022 and t–1 is December 2023.
X_t	the X factor in year t, incorporating annual adjustments to the PTRM for the trailing cost of debt where necessary. The initial X factors will be decided in the distribution determination. If X>0, then X will be set equal to zero for the purposes of the side constraint formula.
I_t'	the annual percentage change from the sum of incentive schemes adjustments in year t relating to approved demand management incentive scheme amounts from year t–2.
B_t'	the percentage change from the sum of annual adjustment factors for year t and includes the true-up for any under or over recovery of actual revenue collected through DUoS charges calculated using the method.
C_t'	the annual percentage change from the sum of approved cost pass through amounts (positive or negative) with respect to regulatory year t, as determined by the AER.

With the exception of the CPI and X factor, the percentage for each of the other factors above can be calculated by dividing the incremental revenues (as used in the total annual revenue formula) for each factor by the expected revenues for regulatory year t–1 (based on the prices in year t–1 multiplied by the forecast quantities for year t).

1.3   Proposed unders and overs account

In the application of the proposed revenue cap formula for SCS, we will maintain an under and overs account in its annual pricing proposal.

We must provide the amounts for the following entries in its unders and overs account for the most recently completed regulatory year (t–2), the current regulatory year (t–1) and the next regulatory year (t):[6]

- An opening balance for year t–2, year t–1 and year t.

- An interest charge for one year on the opening balance for each regulatory year (t–2, t–1 and t). These adjustments are to be calculated using the respective nominal weighted average cost of capital (**WACC**) for each intervening year between regulatory year t–2 and year t.[7] The WACC applied for each year will be that approved by the AER for the relevant year.

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5   If the ABS does not or ceases to publish the index, then CPI will mean an index which the AER considers is the best available alternative index.
6   In exceptional circumstances, the DUoS unders and overs account can accommodate additional years—such as year t–3. If available, amounts provided for additional years must be audited.
7   The WACC for each year will be that approved by the AER for the respective year.

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- The amount of revenue recovered from DUoS charges in respect of that year, less the total annual revenue for the year in question.

- An adjustment to the net amount in item 3 by six months of interest. These adjustments are to be calculated using the approved nominal WACC.

- The total sum of items 1–4 to derive the closing balance for each year.

We must provide details of calculations in the format set out in the Table below. Amounts provided for the most recently completed regulatory year ($t–2$) must be audited. Amounts provided for the current regulatory year ($t–1$) will be regarded as an estimate. Amounts for the next regulatory year (t) will be regarded as a forecast.

In proposing variations to the amount and structure of DUoS charges, we are expected to achieve a closing balance as close to zero as practicable in its unders and overs account in each forecast year in its annual pricing proposals during the 2024–29 regulatory control period.

The example in the table below was taken from the AER's draft decision for Power and Water Corporation for the 2019–24 period.[8]

Table 1.1   Example calculation of unders and overs account ($'000, nominal)

	Year $t–2$ (actual)	Year $t–1$ (estimate)	Year t (forecast)
(A) Revenue from DUoS charges	**45,779**	**40,269**	**39,510**
(B) Less TAR for regulatory year =	**43,039**	**41,427**	**44,429**
+ Adjusted annual smoothed revenues (AAR$_t$)	40,189	41,393	44,393
+ DMIS adjustments (I$_t$)	1,026	34	36
+ Annual adjustments (B$_t$)[a]	0	0	0
+ Cost pass through amount (C$_t$)	1,824	0	0
(C) Revenue deliberately under-recovered in year	**1,000**	**0**	**0**
(A minus B plus C) Under/over recovery of revenue for regulatory year	**3,740**	**−1,158**	**−4,919**[b]
DUoS unders and overs account			
Nominal WACC (per cent)	5.00%	5.50%	6.00%
Opening balance	1,737	5,656[c]	4,778
Interest on opening balance	87	311	287
Under/over recovery of revenue for regulatory year	3,740	−1,158	−4,919

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8   See: AER, *Power and Water Distribution Determination 2019 to 2024 – Draft Decision – Attachment 13 – Control Mechanisms*, September 2018, Table 13.4.

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	Year t–2 (actual)	Year t–1 (estimate)	Year t (forecast)
Interest on under/over recovery for regulatory year	92	–31	–145
Closing balance	**5,656**	**4,778**	**0**

Notes:

(a) B_t parameter calculations in the DUoS unders and overs account exclude the true-up for DUoS revenue under/over recovery for regulatory year and are therefore expected to be 0.

(b) Approved DUoS revenue under/over recovery for regulatory year t.

(c) Opening balance is the previous year's closing balance.

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2. Alternative control services

The F&A applies the price cap form of control to ACS, including metering and fee-based and quoted services. We propose to adopt that form of control and the formulae adopted by the AER for the price caps.

This chapter steps through the price caps for ACS.

2.1 Type 1–6 metering and ancillary fee-based services

We have adopted the control mechanism for type 1–6 metering and ancillary fee-based services as set out in the AER's Framework and Approach paper:[9]

$$\bar{p}_t^i \geq p_t^i \qquad \text{where i = 1,…,n and t = 1, 2, 3, 4, 5}$$

$$\bar{p}_t^i = \bar{p}_{t-1}^i \times (1 + \Delta CPI_t) \times (1 - X_t^i) + A_t^i \qquad \text{where } i = 1,…,n \text{ and } t = 1, 2, 3, 4, 5$$

Where:

Variable	Represents
t	the regulatory year with t = 1 being the 2024–25 financial year.
$\bar{p}_t^i$	the cap on the price of service i in year t.
p_t^i	the price of service i in year t. The initial value is to be decided in the distribution determination.
$\bar{p}_{t-1}^i$	the cap on the price of service i in year t–1.
ΔCPI_t	the annual percentage change in the ABS's CPI All Groups, Weighted Average of Eight Capital Cities[10] from December in year t–2 to December in year t–1. For example, for the 2024–25 year, t–2 is December 2022 and t–1 is December 2023.
X_t^i	the X factor for service 'i' in year t. The X factors are to be decided in the distribution determination.
A_t^i	the sum of any adjustments for service 'i' in year t. Likely to include, but not limited to adjustments for any approved cost pass through amounts. These are to be decided in the distribution determination.

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[9]   The heading to Figure 3.2 in the F&A paper refers to 'legacy metering'. Consistent with the service classification in that paper, we have opted to refer to metering types instead (i.e., types 1–6) as this better reflects the nature of our metering services.

[10]   If the ABS does not or ceases to publish the index, then CPI will mean an index which the AER considers is the best available alternative index.

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2.2 Quoted services

We have adopted the control mechanism for quoted services as set out in the AER's Framework and Approach paper.

$$Price = Labour + Contractor\ Services + Materials + Margin + Tax$$

Where:

Variable	Represents
t	the regulatory year with t = 1 being the 2024–25 financial year.
$Price$	the charge paid by the customer.
$Labour$	the labour costs directly incurred in the provision of the service which may include labour on-costs, fleet on-costs and overheads. Labour is escalated annually by $(1 + \Delta CPI_t) \times (1 - X_t^i)$.
ΔCPI_t	the annual percentage change in the ABS's CPI All Groups, Weighted Average of Eight Capital Cities[11] from December in year t–2 to December in year t–1. For example, for the 2024–25 year, t–2 is December 2022 and t–1 is December 2023.
X_t^i	the X factor for service 'i' in year t. The X factors are to be decided in the distribution determination and will be based on the approach that we undertake to develop our initial prices.
$Contractor\ Services$	the costs associated with the use of external labour including overheads and any direct costs incurred. The contracted services charge applies the rates under existing contractual arrangements. Direct costs incurred are passed on to the customer.
$Materials$	the cost of materials directly incurred in the provision of the service, material storage and logistic on-costs and overheads.
$Margin$	is equal to 6 per cent of the total cost of Labour, Contractor Services and Materials.
Tax	reflects the tax payable based on revenue less expenses where the company tax rate is applied.

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[11]   If the ABS does not or ceases to publish the index, then CPI will mean an index which the AER considers is the best available alternative index.

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