



Economic Regulation Authority

Draft decision on revisions to the access arrangement for the Mid-West and South-West Gas Distribution Systems

Attachment 6: Depreciation

24 April 2024

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Note

This attachment forms part of the ERA's draft decision on proposed revisions to the access arrangement for the Mid-West and South-West Gas Distribution Systems. It should be read in conjunction with all other parts of the draft decision, which is comprised of the following document and attachments:

Draft decision on revisions to the access arrangement for the Mid-West and South-West Gas Distribution Systems – Overview, 24 April 2024

- Attachment 1: Access arrangement and services
- Attachment 2: Demand
- Attachment 3: Revenue and tariffs
- Attachment 4: Regulatory capital base
- Attachment 5: Operating expenditure
- Attachment 6: Depreciation (this document)
- Attachment 7: Return on capital, taxation, incentives
- Attachment 8: Other access arrangement provisions
- Attachment 9: Service terms and conditions

Attachment 6. Summary

Depreciation of the capital base is one revenue component of the total revenue ATCO has proposed for the AA6 regulatory period and allows for the recovery of approved capital expenditure over time.

ATCO's AA6 proposed approach to calculating depreciation includes two parts:

- *Base depreciation allowance:* ATCO proposed maintaining the current depreciation approach used in AA5 and calculated a base level of depreciation. This approach continued the straight-line depreciation of assets and used the same economic lives of assets. This proposed base level of depreciation was a total of \$348.7 million (real 2023) over the AA6 period.
- *Accelerated depreciation allowance:* ATCO included an additional \$80 million (real 2023) allowance for accelerated depreciation. ATCO submitted that accelerated depreciation is needed to manage increasing levels of uncertainty for the gas distribution network and to stabilise future price variability.

The National Gas Objective requires the consideration of the long-term interests of consumers, which for depreciation involves the allocation of capital costs across current and future consumers for the life of an asset. The Revenue and Pricing Principles also guide regulatory allowances such that ATCO is provided with a reasonable opportunity to recover efficient capital expenditure. The provision of depreciation is dependent on customer demand across a short and long-term horizon and the associated judgements for the amount and timing of capital recovery.

The ERA's consideration of current demand for AA6 is discussed in Attachment 2. Customer numbers and gas volumes are expected to be at least stable for the next five years.

However, customer demand in the long-term is not as certain and customer demand may increasingly diverge over time from historically stable levels. Since the AA5 final decision there have been social, policy and technological changes regarding the role of fossil fuels in the Australian economy. This has included policies to target net zero emissions by 2050. These combined changes have increased the level of uncertainty for the future of gas and the role of gas networks.

Therefore, the best estimates of current demand do not have to be the same as future demand forecasts. For depreciation, consideration of a longer term perspective is also required to promote the long-term interests of consumers of gas networks in the presence of decarbonisation.

ATCO has proposed that increasing uncertainty about the future of gas justifies the provision of accelerated depreciation. This proposed accelerated depreciation represents 23 per cent of the increase in proposed AA6 revenue.

The provision of accelerated depreciation is a reasonable regulatory tool to manage the potential for declining levels of future customer demand. Consistent with the National Gas Law (NGL) and National Gas Rules (NGR), the use of accelerated depreciation can support the recovery of efficient costs, support the use of the network over its life and reduce potential price shocks for future customers, however, in the short term prices will increase.

While accelerated depreciation would result in ATCO recovering its capital sooner, ATCO would not recover more than its approved expenditure. That is, over the life of the asset the same amount of depreciation is recovered and there is no double counting.

While the ERA supports the possible use of accelerated depreciation as a regulatory tool, the ERA has reservations about the accelerated depreciation proposal in ATCO's submission.

The provision of accelerated depreciation in AA6 needs to be considered in the context of its potential long-term effect on future depreciation amounts and prices. The ERA does not consider that ATCO's AA6 proposal is robust nor is it supported by a strong modelling methodology. The ERA's concerns are further detailed in this attachment at paragraphs 100 to 158.

As a result, the ERA has not approved the accelerated depreciation proposed by ATCO.

To provide stakeholders with an indication of the impact that accelerated depreciation might have on revenues and tariffs, the ERA presents figures with both zero and ATCO's initial proposal of \$80 million (real 2023). Reflecting the draft decision and incorporating ATCO's proposed \$80 million accelerated depreciation in this draft decision would have increased the network bill for the average B3 (residential and small business) customer in 2025 by 21.4 per cent from \$204 in 2024 to \$248 in 2025 (8.9 percentage points attributable to accelerated depreciation).

Any future consideration of accelerated depreciation will have to consider the current market environment and the effect of any accelerated depreciation on consumers (both current and future).

The reasons for the ERA's draft decision in respect of the matters relevant to depreciation and details of required amendments are set out in this attachment.

Summary of required amendments

- 6.1 ATCO must amend the forecast depreciation of the capital base for AA6 to \$347.3 million (real as at 31 December 2023). The yearly values for each year of the access arrangement period are set out in Table 6.5 of this draft decision attachment.
- 6.2 ATCO to remove its proposed accelerated depreciation.

Regulatory requirements

1. Depreciation on the projected capital base is one of the components (building blocks) for determining the service provider's total revenue requirement using the building block approach, which is required by the regulatory framework set out in the NGR.¹ The total revenue requirement is the amount that is needed by the service provider to recover the efficient costs incurred in operating the pipeline (that is, the service provider's cost of service).
2. Rules 88 to 90 set out the following provisions for depreciation:
 - Depreciation schedule (rule 88):
 - The depreciation schedule sets out the basis on which the pipeline assets that form the capital base are to be depreciated for the purpose of determining a reference tariff. The schedule may consist of several separate schedules that each relate to a particular asset or class of assets.
 - Depreciation criteria (rule 89):
 - The depreciation schedule should be designed:
 - So that reference tariffs will vary, over time, in a way that promotes efficient growth in the market for reference services.
 - So that each asset or group of assets is depreciated over the economic life of that asset or group of assets.
 - To allow, as far as reasonably practicable, for adjustments that reflect changes in the expected economic life of a particular asset or group of assets.
 - So that, subject to the rules about capital redundancy, an asset is depreciated only once.
 - To allow for the service provider's reasonable needs for cash flow to meet financing, non-capital and other costs.
 - Compliance with the depreciation criteria may involve the deferral of a substantial proportion of the depreciation, particularly where the present market for pipeline services is immature; the reference tariffs have been calculated on the assumption of significant market growth; and the pipeline has been designed and constructed to accommodate future growth in demand.
 - Calculation of depreciation for rolling forward the capital base from one access arrangement period to the next (rule 90):
 - An access arrangement must contain provisions that govern the calculation of depreciation for establishing the opening capital base for the next access arrangement period. These provisions must resolve whether depreciation of the capital base is to be based on forecast or actual capital expenditure.

¹ NGR, rule 76.

ATCO proposal

3. ATCO's AA6 proposed approach to calculating regulatory depreciation includes two parts:
 - *Base depreciation allowance*: ATCO maintained the current depreciation approach used in AA5 and calculated a base level of depreciation. This approach continued the straight-line depreciation of assets and used the same economic lives of assets. This proposed base level of depreciation was a total of \$348.7 million (real, 2023) over the AA6 period.
 - *Accelerated depreciation allowance*: ATCO included an additional \$80 million (real 2023) allowance for accelerated depreciation. ATCO views that accelerated depreciation is needed to manage increasing levels of uncertainty for the gas distribution network and to stabilise future price variability.

Base depreciation allowance

4. ATCO maintained the current depreciation approach used in AA5 and calculated a base level of depreciation.
5. The straight-line depreciation of assets is maintained. This method allocates the same amount (in real terms) of depreciation to each year of the asset's life.
6. ATCO maintains the asset lives used in AA5, as shown in Table 6.1.

Table 6.1: ATCO's proposed economic lives for AA6 (years)

Asset Categories	AA5	AA6 proposed	Mean asset life remaining*
Current and new asset categories			
High Pressure Mains - Steel	80	80	78
High Pressure Mains - PE	60	60	52
Medium / Low Pressure Mains	60	60	39
Regulators	40	40	20
Secondary Gate Stations	40	40	11
Buildings	40	40	33
Meter and Services Pipes	25	25	13
Equipment & Vehicles	10	10	4
Information Technology	5	5	2
Telemetry and Monitoring	10	10	4
Equity Raising Cost	66	54	62
Historical asset categories no longer used for new capital expenditure			
Medium Pressure Mains	60	60	26
Low Pressure Mains	60	60	8

Source: ATCO Tariff Model, ERA analysis.

Note: * Estimated as at 2024 from ATCO's Tariff Model. Changes in economic lives from AA5 are highlighted in yellow.

7. These economic lives remain unchanged from AA5 except for equity raising costs. ATCO has reduced the economic life of this asset category by 12 years on the basis that it aligns with the average life of assets as at 31 December 2024 instead of 31 December 2019.
8. ATCO has calculated the depreciation on its regulated asset base with the straight-line approach as set out in Table 6.2.

Table 6.2: ATCO's proposed straight-line depreciation for AA6 (\$ million real at 31 December 2023)

Asset Categories	2025	2026	2027	2028	2029	Total
High Pressure Mains - Steel	4.4	4.5	4.5	4.6	4.7	22.7
High Pressure Mains - PE	(0.1)	0.1	0.1	0.1	0.1	0.2
Medium / Low Pressure Mains	23.4	24.1	24.7	25.4	26.0	123.6
Regulators	1.6	1.8	1.1	1.1	1.2	6.8
Secondary Gate Stations	(1.2)	0.3	0.4	0.4	0.5	0.3
Buildings	1.1	1.1	1.2	1.2	1.2	5.9
Meter and Services Pipes	28.8	29.2	29.7	29.7	29.8	147.1
Equipment & Vehicles	2.6	3.0	3.0	2.9	2.8	14.4
Information Technology	0.6	6.7	6.4	5.4	3.7	22.8
Telemetry and Monitoring	0.6	0.8	1.0	1.2	1.3	4.8
Equity Raising Cost	0.0	0.0	0.0	0.0	0.0	0.1
Straight-line depreciation	61.7	71.5	72.0	72.1	71.3	348.7

Source: ATCO tariff model, ERA analysis.

Note: Depreciation amounts may be negative due to categories that have a negative balance which are corrected through an adjustment in depreciation. This is the case for High Pressure Mains – PE, Secondary Gate Stations and Information Technology.

9. ATCO proposed a total revenue requirement of \$1,296.5 million (real) for AA6. This total revenue includes \$348.7 million (real) for the depreciation allowance.
10. As required by the NGR, ATCO has also proposed that the forecast depreciation approach to be used for calculating the opening capital base for AA7.

Accelerated depreciation

11. ATCO has also proposed that an amount of accelerated depreciation be provided in addition to the base level of depreciation shown above.
12. ATCO's AA6 proposal has included \$80 million (real 2023) for accelerated depreciation due to the uncertainty of the future of gas and the use of the gas distribution network. This represents 23 per cent of the increase in proposed AA6 revenue.
13. Since ATCO's last access arrangement was approved, technology and policy developments have created increasing levels of uncertainty around the future of distributed natural gas. These developments include:
 - The introduction of federal, state and corporate targets and policies to drive emissions reduction targets.
 - Improvements in electrical appliances and technologies that can be used as substitutes for natural gas.

14. In AA6, ATCO has proposed to bring forward an amount of depreciation to recognise the risk that under possible future scenarios its distribution gas pipeline network may have a reduced useful life. This accelerated depreciation provides for more depreciation in the earlier years of an asset's life and less depreciation in the later years of the asset's life (compared to a constant real depreciation method). ATCO contends that, consistent with the NGL, this provides it with a reasonable opportunity to recover its previously approved efficient investments, while maximising consumers' use of the network and minimising possible adverse future price effects on consumers if demand for gas declines.
15. ATCO's accelerated depreciation proposal does not change the economic life of its assets. Rather it changes the profile of asset recovery such that it is no longer a straight-line depreciation profile; it brings forward depreciation that it would have charged in the future to current periods.²
16. ATCO has proposed \$80 million (real 2023) in accelerated depreciation in AA6, which is approximately five per cent of its regulatory asset base. This is over and above the traditional straight-line depreciation amount. ATCO's proposed depreciation is presented in Table 6.3.

Table 6.3: ATCO's proposed forecast depreciation for AA6 (\$ million real at 31 December 2023)

	2025	2026	2027	2028	2029	Total
Base depreciation	61.7	71.5	72.0	72.1	71.3	348.7
Accelerated depreciation	16.0	16.0	16.0	16.0	16.0	80.0
Regulatory depreciation - total	77.7	87.5	88.0	88.1	87.3	428.7

Source: ERA analysis; ATCO, 2025-29 Plan, p. 215.

17. ATCO stated that accelerated depreciation would be an "effective way to maintain [its] network obligations while sustaining long-term price stability for our customers".³ ATCO cited that uncertainties regarding the energy transition necessitated the bringing forward of this amount for equity reasons due to the intergenerational impact of an energy transition on prices.⁴ Intergenerational equity considerations arise when the customer base changes due to technological or policy factors. For example, if the customer base declines over time due to these factors, then the remaining customers would disproportionately bear the burden of providing ATCO's revenue.⁵
18. ATCO stated that its accelerated depreciation amount will allow for stable long-term real prices for customers, which will promote efficient network use over time. That is, the proposed approach seeks to promote greater use of the network over time through greater price stability while enabling the recovery of ATCO's investment given the uncertain future of the gas network.

² Over the life of the asset ATCO recovers the same amount of depreciation under both the standard straight-line depreciation method and its proposed accelerated depreciation method.

³ ATCO, 2025-29 Plan, 1 September 2023, pp. viii, xii.

⁴ ATCO, 2025-29 Plan, 1 September 2023, p. 25.

⁵ ATCO, 2025-29 Plan, 1 September 2023, p. 24.

19. If actual demand is higher than what was expected under the accelerated depreciation proposal, there is a risk that consumers pay more than necessary ahead of time. This could harm current consumers by reducing welfare and reduced economic efficiency through distorting consumption over time. However, if accelerated depreciation is not provided and demand does decline, which results in ATCO's capital base being unrecoverable, then this would result in asset stranding for ATCO and reduce incentives for the efficient operation of, and investment in, the network. Further, future consumers might be harmed by price shocks as network costs are spread over a smaller customer base and their investments in gas appliances may be stranded.
20. ATCO engaged ACIL-Allen to advise it of a framework and approach to model future gas pipeline demand. ACIL-Allen did not recommend changing asset lives as this assumes that linear depreciation is appropriate in an environment where market changes could result in non-linear outcomes. However, ACIL-Allen did suggest that asset life shortening is implicit in the accelerated depreciation method.⁶
21. ATCO's framework and approach to modelling future gas pipeline demand resulted in four scenarios being constructed as plausible futures, with the accelerated depreciation being calculated as the amount that would result in a constant, real levelised network tariff into the future.⁷
22. The amounts of accelerated depreciation differed for each scenario, with the model proposing different amounts depending on the level of forecast demand and customer numbers.
23. ATCO also engaged Incenta Economic Consulting to provide an economic justification for accelerated depreciation, along with commenting on how to choose an amount.⁸
24. ATCO considered the analysis provided by both ACIL-Allen and Incenta and submitted that accelerated depreciation could be provided on any of the following bases:⁹
 - If each scenario was plausible, then any brought-forward depreciation path could be considered reasonable.
 - ACIL-Allen's recommendation as a least "no-regrets" approach to choose a depreciation path that is consistent with as many scenarios as possible, results in accelerated depreciation of \$120 million over AA6.
 - A lesser amount of \$80 million would minimise the cost impact of the transition for customers in the short term and avoids the risk of much higher future price increases.
25. ATCO ultimately proposed accelerated depreciation of \$80 million (real 2023), which is incurred evenly at approximately \$16 million per year over the AA6 period.

⁶ ATCO, 2025-29 Plan: Attachment 03.002 Future of Gas Report, September 2023, p. vi.

⁷ ATCO, 2025-29 Plan: Attachment 03.002 Future of Gas Report, September 2023, p. 18.

⁸ ATCO, 2025-29 Plan: Attachment 11.001 Regulatory Depreciation for AA6, September 2023.

⁹ ATCO, 2025-29 Plan, 1 September 2023, p. 25.

Submissions

26. Submissions from AGL, Origin Energy, the WA Council of Social Service (WACOSS), the WA Expert Consumer Panel, Alinta Energy, Kleenheat, Synergy and Stewart Lee addressed ATCO's proposal to provide for accelerated depreciation of the gas distribution systems.
27. In summary, submissions:
 - Revealed divergent views about whether accelerated depreciation should be provided.
 - Provided general support for the concept of accelerated depreciation, but disagreement about whether ATCO met the burden of justifying its inclusion in AA6.
 - Noted that current market conditions with cost of living pressures should be considered when considering a proposal for accelerated depreciation.
28. AGL supported the use of accelerated depreciation for the following reasons:¹⁰
 - The scenarios used in ATCO's Future of Gas modelling have been used elsewhere and provided a reasonable description of outcomes.
 - Accelerated depreciation has been accepted by other regulators such as the Australian Energy Regulator.
 - Providing accelerated depreciation now was prudent to prepare for policy shifts and possible sudden changes, where some amount now seemed sensible given the context of a five-year access arrangement.
29. Origin supported accelerated depreciation in principle but considered that ATCO did not make its case for AA6. Additionally, Origin supported a flexible approach that can adjust when the policy environment becomes clearer, and uncertainty is resolved.¹¹
30. Alinta, WACOSS, the WA Expert Consumer Panel, Kleenheat, Synergy and other submissions did not support ATCO's proposal:
 - Alinta considered that it was too early to provide accelerated depreciation, where doing so could distort efficient investment incentives. Alinta submitted that ATCO was unwilling to bear the reasonable risks involved with owning a gas network, and that there has been insufficient consultation on this issue.¹²

¹⁰ AGL, AGL response to ERAWA Issues Paper on ATCO AA, November 2023.

¹¹ Origin Energy, RE: Proposed revisions to the access arrangement for the Mid-West and South-West Gas Distribution Systems – Issues paper, November 2023.

¹² Alinta, Proposed revisions to the access arrangement for the Mid-West and South-West Gas Distribution Systems – Issues Paper, November 2023.

- WACOSS considered that accelerated depreciation inappropriately transfers risks and costs to customers, particularly households under exceptional financial pressure in the present environment. WACOSS stated that ATCO was best placed to respond to falling demand risk, and must show that it is taking necessary and sufficient action before any consideration of accelerated depreciation is appropriate, which in WACOSS' opinion was not demonstrated in ATCO's proposal. WACOSS suggested that asset stranding risk should be managed by new customers fully funding any works to expand the network.¹³
 - The WA Expert Consumer Panel considered that accelerated depreciation shifted too much risk to customers from ATCO and its shareholders, while also providing incentives for network over-investment. The Panel also considered that there should be no accelerated depreciation for new capital expenditure. However, they submitted that if the ERA was to provide accelerated depreciation, it should be less than what ATCO proposed and recover more towards the end of the five year regulatory period.¹⁴
 - Kleenheat submitted that pre-empting the outcome of the energy transition risks consumers paying more than necessary ahead of time.¹⁵
 - Synergy suggested that the capital redundancy provisions of the NGR should be considered instead of accelerated depreciation but stated that ATCO has not demonstrated any evidence of redundancy risks within the AA6 period.¹⁶
 - Other submissions considered that the analysis presented was not robust and should have been provided with sensitivity analysis.¹⁷
31. Details of the matters raised in submissions are discussed as part of the ERA's draft decision considerations.

¹³ WACOSS, Submission to the Economic Regulation Authority on the Access Arrangement for the Mid-West and South-West Gas Distribution System, November 2023.

¹⁴ WA Expert Consumer Panel, Submission to the ERA's Issues Paper about ATCO AA6 Proposed Access Arrangement, November 2023.

¹⁵ Kleenheat, Kleenheat submission on the proposed revised access arrangement for Mid-West to South-West Gas Distribution Systems, November 2023.

¹⁶ Synergy, Response to issues paper on proposed revisions to the Mid-West and South-West Gas Distribution Systems Access Arrangement, November 2023.

¹⁷ Stewart Lee, Submission from Stewart Lee, November 2023.

Draft decision

32. Regulatory depreciation is one revenue component of total revenue allowed under the national gas framework. Regulatory depreciation accounts for the recovery of previously approved capital expenditure that has been incorporated into the regulatory asset base.
33. The size of regulatory depreciation will affect the speed at which the recovery of capital occurs and how the amount of depreciation will change over time. Regulators have traditionally used a straight-line depreciation approach which recovers the same amount of depreciation each year. However, the depreciation profile could bring forward the recovery of capital or defer the recovery of capital. Over the life of the asset the same amount of depreciation is recovered under the different depreciation profiles.
34. An accelerated depreciation profile would recover more depreciation over and above the straight-line depreciation allowance.

Base depreciation allowance

35. The ERA has considered ATCO's proposed level of depreciation for its base depreciation allowance (excluding accelerated depreciation).
36. The current access arrangement specified that the depreciation of the opening capital base for AA6 is the forecast depreciation included in the AA5 target revenue.
37. The ERA is satisfied that the depreciation values used in ATCO's calculation of the opening capital base for AA6 are consistent with the depreciation values included in the AA5 target revenue.
38. For AA6, ATCO proposes to retain the methods set out in the current access arrangement which specify depreciation is calculated using:
 - Economic lives specified in the access arrangement consistent with AA5.
 - The straight-line depreciation method as was used in AA5.
 - The depreciation of the opening capital base for AA7 will be the forecast depreciation included in the AA6 target revenue, which is the same approach for AA5.
39. The ERA accepts ATCO's approach to calculate its base level of depreciation, which is consistent with its existing approach.
40. The ERA has estimated forecast depreciation for the revised levels of capital expenditure in the draft decision for AA6. Consistent with the required amendments in this draft decision, the ERA has recalculated total forecast base depreciation for AA6 as \$347.3 million (Table 6.4).

Table 6.4: ERA's draft decision for AA6 base regulatory depreciation (\$ million real at December 2023)

Asset Categories	2025	2026	2027	2028	2029	Total
High Pressure Mains - Steel	4.3	4.4	4.4	4.5	4.5	22.1
High Pressure Mains - PE	(0.1)	0.1	0.1	0.1	0.1	0.2
Medium Pressure Mains	7.0	7.0	7.0	7.0	7.0	35.2
Medium / Low Pressure Mains	14.7	15.3	15.9	16.5	17.2	79.5
Low Pressure Mains	1.7	1.7	1.7	1.7	1.7	8.4
Regulators	1.6	1.7	1.0	1.0	1.0	6.3
Secondary Gate Stations	(1.3)	0.2	0.2	0.2	0.2	(0.6)
Buildings	1.0	1.1	1.2	1.2	1.2	5.7
Meter and Services Pipes	28.7	29.1	29.7	29.8	29.9	147.2
Equipment & Vehicles	1.0	1.0	1.1	1.0	0.9	5.1
Vehicle	1.6	2.0	1.9	1.9	1.9	9.2
Information Technology	(0.3)	5.7	6.7	7.0	5.6	24.8
Telemetry and Monitoring	0.6	0.7	0.8	1.0	1.0	4.1
Equity Raising Cost	0.0	0.0	0.0	0.0	0.0	0.1
Base depreciation	60.6	70.0	71.6	72.8	72.4	347.3

Source: ERA Draft Decision tariff model

Accelerated depreciation allowance

41. In past access arrangements, regulatory depreciation was calculated through the straight-line depreciation of the real regulated asset base (RAB) (asset values do not include the effect of inflation) and separately adjusted for indexation of the RAB for inflation. This method allows consumers to pay the same real dollar amount of depreciation each year over the life of the asset.
42. Traditionally, Australian economic regulators have used straight-line depreciation methods. This means that the same real depreciation amount is recovered each year. This contrasts with depreciation schedules that may recover more (or less) depreciation in the earlier years of the asset's life and less (or more) depreciation in the later years.
43. Several sections of the NGL are relevant to determining regulatory depreciation including:

- The national gas objective requires that the depreciation schedule should be used to create prices that promote the efficient use of the network, including recognising the long-term interest of consumers.¹⁸
 - The revenue and pricing principles provide additional guidance on economic regulation and pricing, including that:¹⁹
 - A service provider should be provided a reasonable opportunity to recover at least their efficient costs, including the recovery of its regulatory asset base.
 - A regulator should have regard to the economic costs and risks of potential under- and over-investments in a pipeline, including potential investment signals that may lead to under-investment and its effect on the provision of service to future consumers.
 - A regulator should have regard to the economic costs and risk of the potential for under-use and over-use of a pipeline, including price signals that are sent to consumers over time that may adversely affect the network's use.
44. Under rule 89(1) of the NGR, the depreciation schedule is also guided by the following principles to provide depreciation such: that reference tariffs will vary, over time, in a way to promote efficient use of the network; to allow, as far as reasonably practicable, for adjustment reflecting changes in the expected economic life of a particular asset; and that there can be no double (or greater) recovery of invested capital.

Increased uncertainty of future demand

45. Since ATCO's last access arrangement was approved, technology and policy developments have resulted in increasing levels of uncertainty around the future of distributed natural gas. These developments have included:
- The introduction of federal, state and corporate targets and policies to drive emissions reduction targets over time.
 - Improvements in electrical appliances and technologies that can be used as substitutes for natural gas.
 - Changes in consumer preferences and attitudes towards decarbonisation.
46. These changes potentially raise uncertainty as to the role of gas networks in the future where decarbonisation is pursued by governments and consumers.

Context and historic approach to the provision of accelerated depreciation

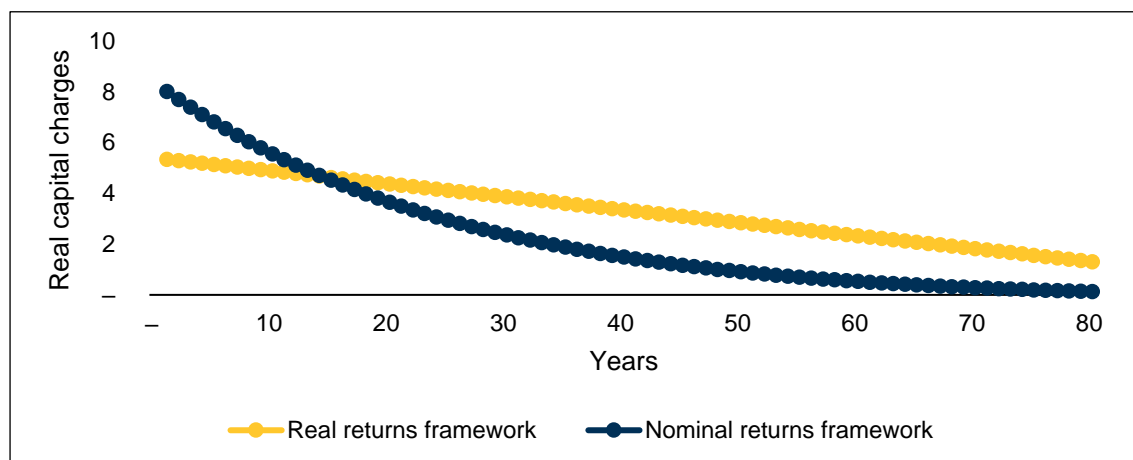
47. The ERA's approach to regulatory depreciation is informed by the principle of providing a reasonable opportunity for a gas pipeline to recover its efficient costs over the economic life of its network assets.

¹⁸ NGL, section 23. The national gas objective is to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas.

¹⁹ NGL, section 24.

48. In the recent past, the prospect of decarbonisation and reduced use of gas was not considered to be likely by pipelines, customers, government, or regulators. The regulatory arrangements adopted promoted gas usage.
49. The economic life of network assets was considered to be roughly equivalent to its technical/engineering life as a close approximation. Infrastructure assets generally have a longer technical life than assets for other industries, which was especially the case for gas networks in Western Australia. Historically, the economic life in Western Australia was a period of 80 years for pipeline capital expenditure. By way of contrast, gas distribution pipelines in Australia's eastern states have economic lives of around 60 years. Other economic regulators in New Zealand and the United Kingdom have chosen 45 years as their economic lives for new gas investments in recent years.^{20, 21} The longer economic lives in Western Australia mean that a larger proportion of the RAB is yet to be recovered.
50. The choice of regulatory depreciation also required consideration of whether it should be provided in real or nominal terms, along with the profile of payments (accelerated, straight-line or deferred).
51. The ERA has historically chosen to provide regulatory depreciation in real terms, aligning with the real approach of the other building blocks of the Post Tax Revenue Model.²² This approach provided gas pipelines with a measure of inflation protection, and customers faced capital charges that were relatively more levelised when compared with a nominal approach. This general concept is illustrated in Figure 6.1:

Figure 6.1: Illustrative comparison of capital charges provided under real and nominal return frameworks



Source: ERA analysis.

52. In terms of payment profiles, a straight-line approach has historically been taken by Australian economic regulators for regulatory depreciation. This results in a constant amount of regulatory depreciation being charged, compared with other profiles that either accelerate or defer the recovery of invested capital over the asset's economic life.

²⁰ New Zealand Commerce Commission, Default price-quality paths for gas pipeline businesses from 1 October 2022 – Final Reasons Paper, 31 May 2022, pp. 99-100.

²¹ Ofgem, RIIO-2 Final Determinations – Finance Annex, 3 February 2021, pp. 112-113.

²² The Australian Energy Regulator also applies a real approach.

53. Taken together, the combination of a real, straight-line approach for depreciation results in a constant charge being provided over periods approaching a century for regulated gas pipelines in Western Australia. Under an environment of expected constant (or growing) demand and customer numbers, this would result in stable (or declining) prices and generations of customers contributing relatively equally to their usage of the gas network.
54. The long economic life has also resulted in a situation where depreciation charges have been relatively low for customers, which in turn has effectively deferred capital recovery for gas pipelines into the future. These outcomes were in the long-term interest of consumers as they allowed for price stability and near-term affordability, while also providing a reasonable expectation that gas networks would eventually recover their capital with some measure of inflation protection.
55. However, the current environment challenges the assumptions and expectations that were previously applied in setting the regulatory arrangements for gas pipelines.
56. There is increasing uncertainty about the future of gas and its role in the economy and society. Policy developments on decarbonisation are occurring at both state and federal levels, along with technological improvements and future changing consumer preferences which are increasing the variability of expected outcomes for gas networks that may be expected beyond the AA6 period.
57. This uncertainty also creates some doubt as to whether gas networks can operate as expected in the past, which increases the risk for gas pipelines and customers.
58. In 2021, the ERA considered the increased uncertainty of gas networks in its decision on the Dampier to Bunbury Natural Gas Pipeline (DBNGP). At that time, the ERA considered that there was a likelihood that the usage of the DBNGP would decline over time due to technological and policy change, and accepted DBP's proposed reduction in the economic life of the pipeline. DBP did not seek a change to the depreciation profile.²³
59. Other economic regulators such as the Australian Energy Regulator have explored the regulation of gas networks under uncertainty.²⁴ In its review, the Australian Energy Regulator expressed a preference for using accelerated depreciation to manage depreciation and has recently allowed it for Victorian gas distribution network service providers.²⁵
60. The future of gas transmission and distribution networks cannot be assumed to be the same given the differing exposures to demand factors, customer types and market, technological and regulatory forces now and into the future.

Operating environment for gas distribution networks

61. The operating environment for gas distribution networks is challenging to predict over the medium to long term due to the uncertain speed and extent of decarbonisation.

²³ ERA, Final decision on proposed revisions to the Dampier to Bunbury Natural Gas Pipeline access arrangement 2021 to 2025, April 2021, pp. 313-357.

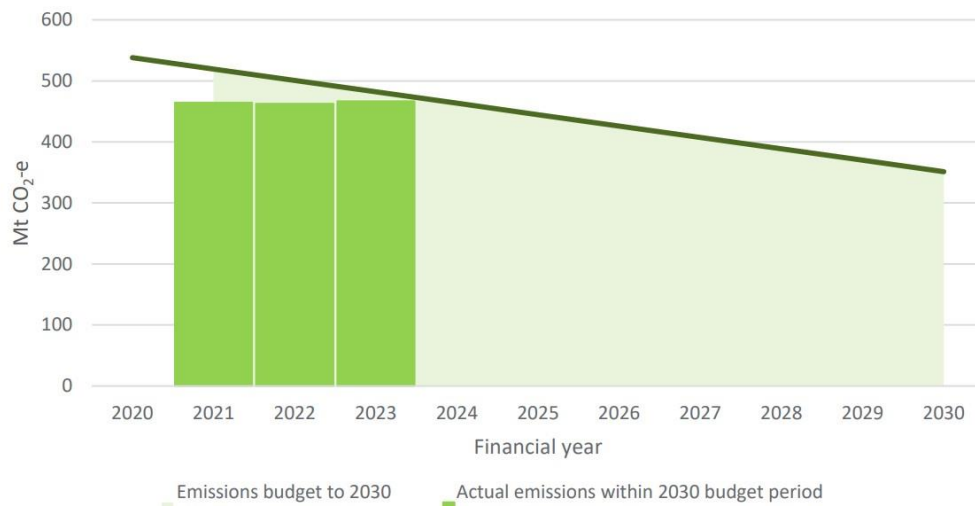
²⁴ AER, Information Paper: Regulating gas pipelines under uncertainty, November 2021.

²⁵ AER, Final decision: Australian Gas Networks (Victoria & Albury) Gas distribution access arrangement, June 2023, p. 8.

62. The future of gas is likely to be different in each Australian state and territory, given differing levels of government policy support that ranges from prohibiting new gas connections to support for renewable gases, or no explicitly stated position.
63. One commonality across all Australian governments is a net zero target by 2050.²⁶ The Commonwealth Government has set both a 2030 target of 43 per cent below 2005 levels and a net zero target by 2050 which are presented in Figure 6.2.

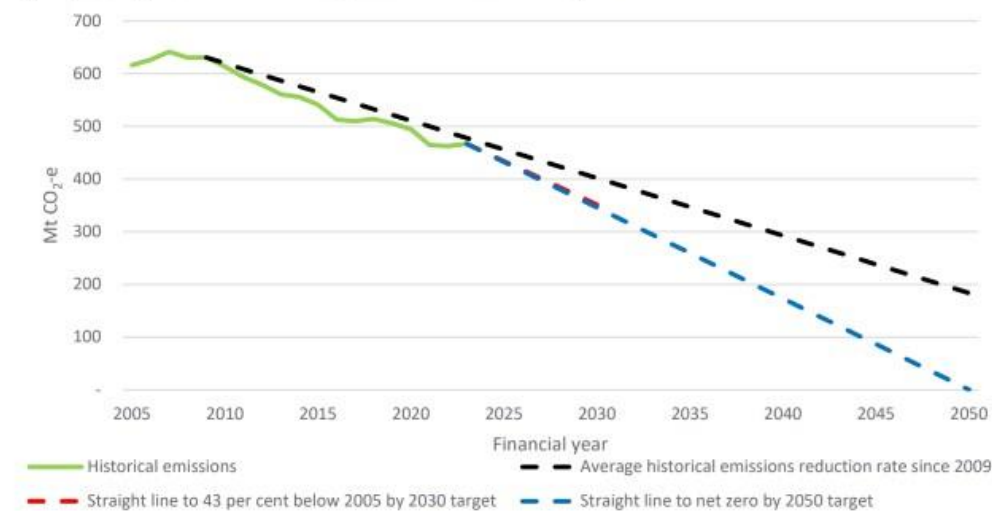
Figure 6.2: Australian national emissions targets for 2030 and 2050

Figure 3.2: Progress against Australia's 2021–2030 emissions budget



Notes: Includes preliminary estimates of emissions from April to June 2023.
Source: (DCCEEW, 2023m)

Figure 3.1: Progress to Australia's 2030 emissions reduction target



Source: Climate Change Authority (2023).²⁷

²⁶ AEMC, *Emissions targets statement under the National Energy Laws*, February 2024.

²⁷ Climate Change Authority, 2023 Annual Progress Report, October 2023, pp. 4-5.

64. The Western Australian Government has announced a net zero target by 2050 and released the Sectoral Emissions Strategy for Western Australia in December 2023, which outlines the transition strategy to net zero emissions.²⁸ The strategy expects that total gas use will decline as illustrated in Figure 6.3 but has not explicitly outlined a pathway to achieve those reductions.

Figure 6.3: WA Sectoral Emissions Strategy indicative change in fuel mix

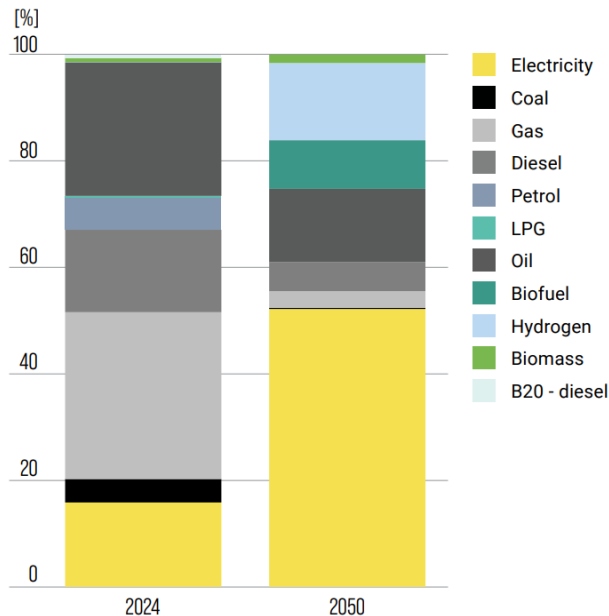


Figure 10: Indicative change in fuel mix in Western Australia from 2024 to 2050

Source: WA Government (2023), *Sectoral emissions reduction strategy for Western Australia*, p. 15.

Note: Fuel mix refers to the mix of energy inputs used across Western Australia. Electricity can be produced from either fossil fuel or renewable sources. Achieving net zero emissions across the economy requires the electricity sector to decarbonise faster than other sectors while simultaneously meeting a step change in total demand as other sectors electrify.

65. The speed of decarbonisation can affect how quickly arrangements need to change. A slow transition provides for the space and ability for learning to occur, where adjustments can be made as uncertainty becomes resolved through the passage of time and additional information. However, a sudden transition results in the absence of those advantages and creates little time to adjust with potentially higher volatility.
66. Given the uncertainty surrounding the energy transition it may be important to adopt methods that allow for some flexibility in regulatory approaches to allow for adjustment as more information becomes available.

Considerations of the ERA

67. The following considerations will guide the ERA in deciding regulatory depreciation for AA6.

²⁸ WA Government, *Sectoral emissions reduction strategy for Western Australia – Pathways and priority actions for the state's transition to net zero emissions*, December 2023.

The national gas objective and the revenue and pricing principles

68. The national gas objective requires the consideration of economic efficiency, where the choice of depreciation can promote price signals to guide the efficient use of, and investment in, gas pipelines. The revenue and pricing principles also require the service provider to be given a reasonable opportunity to recover efficient costs.
69. Alinta and the WA Expert Consumer Panel submitted that allowing for accelerated depreciation would distort investment incentives.^{29,30} The ERA considers that while ATCO may recover its capital sooner than it expected when it first made its respective investment, it is also unable to earn the rate of return on returned capital (that is, the depreciated capital), which is a future saving for customers. There is no double counting of depreciation.
70. Stakeholders expressed concern that accelerated depreciation would result in risk shifting in ATCO's favour at the expense of consumers:
- Alinta stated that the revenue and pricing principles do not guarantee a right of capital recovery, but a reasonable opportunity should be provided that does not result in consumers compensating ATCO for engaging in two-way bets.³¹
 - WACOSS stated that accelerated depreciation inappropriately transfers risks and costs to customers, particularly households under financial pressure in the present environment.³² WACOSS further stated that ATCO was best placed to respond to falling demand risk, such that ATCO must show that it is taking necessary and sufficient action before any consideration of accelerated depreciation is appropriate, which in WACOSS's opinion was not demonstrated in ATCO's proposal.³³
 - The WA Expert Consumer Panel expressed concern that allowing accelerated depreciation would shift too much risk to customers and away from ATCO and its shareholders.³⁴
71. The ERA notes that the regulatory regime (price cap control) provides for a reasonable opportunity to recover revenue and the provision of any accelerated depreciation within an access arrangement period does not eliminate ATCO's risk by guaranteeing revenue recovery.
72. The ERA considers that it is useful to evaluate the risk arguments raised by stakeholders through the concept of transition risk. Decarbonisation transition risk is the collection of shocks to climate policy, reputation, market preferences and

²⁹ Alinta, Proposed revisions to the access arrangement for the Mid-West and South-West Gas Distribution Systems – Issues Paper, November 2023, pp. 11-12.

³⁰ WA Expert Consumer Panel, Submission to the ERA's Issues Paper about ATCO AA6 Proposed Access Arrangement, November 2023, p. 4.

³¹ Alinta, Proposed revisions to the access arrangement for the Mid-West and South-West Gas Distribution Systems – Issues Paper, November 2023, p. 12.

³² WACOSS, Submission to the Economic Regulation Authority on the Access Arrangement for the Mid-West and South-West Gas Distribution System, November 2023, p. 4.

³³ WACOSS, Submission to the Economic Regulation Authority on the Access Arrangement for the Mid-West and South-West Gas Distribution System, November 2023, p. 4.

³⁴ WA Expert Consumer Panel, Submission to the ERA's Issues Paper about ATCO AA6 Proposed Access Arrangement, November 2023, p. 4.

technological innovation that affects gas networks and customers as the energy sector transitions away from fossil fuels.³⁵

73. Transition risk jointly affects the investments by networks and customers in their pipelines and appliances respectively. This reflects the codependent relationship between networks and customers, as the gas network derives its value from customers who connect to use the appliances that they have invested in.
74. Current and future customer disconnections from the gas network reduces revenue for the network operator, risking the operator's ability to recover its sunk capital investment. If a network services provider does not adequately recover its costs the network may not be properly maintained, or abandoned, which affects remaining customers who might otherwise face welfare losses from the reduced usage of their appliances (in terms of quality or duration).³⁶
75. In an environment of uncertainty, accelerated depreciation can be used as a tool to help attain the national gas objective to ensure the safe and reliable use of the network for remaining customers such that their appliance investments are not stranded.
76. Accelerated depreciation may be an imperfect solution. There is no perfect information on future gas pipeline demand, which risks accelerated depreciation being applied too early or too late. On balance, in an environment of potential declining future demand accelerated depreciation may be preferable to the straight-line method as it better achieves the national gas objective while allowing greater flexibility.
77. The provision of accelerated depreciation may incorporate efficient costs, provide a reasonable opportunity for gas pipelines to recover their investments and preserve incentives for the safe and reliable operation of the gas distribution system for remaining customers.
78. Other Australian regulators such as the Australian Energy Regulator have accepted that accelerated depreciation is consistent with the national gas objective in the Victorian gas distribution network decisions. The ERA has also accepted similar arguments for gas transmission networks in the 2021 Dampier to Bunbury Natural Gas Pipeline access arrangement decision.

Future network use

79. While ATCO submitted that gas demand is likely to decline over the long run, multiple stakeholders disagreed:
 - Alinta considered that ATCO's proposal relied heavily on broad and generic uncertainty to justify accelerated depreciation, which was not a sufficient reason to adopt a new approach that also had not been appropriately consulted on with stakeholders.³⁷ Alinta considered that the Western Australia gas market is sufficiently different to the east coast in terms of energy reform, comparative advantage in gas and the presence of the domestic gas reservation policy, to not

³⁵ See Bolton, Patrick and Marcin Kacperczyk, Global Pricing of Transition Risk, The Journal of Finance 78(6) 2023, pp. 3677-3754, [available online](#).

³⁶ While it may be possible to consider the case of causality running in the other direction, it is not the case that gas networks are actively disconnecting customers on their own motion and cannot be considered to be a reasonable description of events happening in Western Australia.

³⁷ Alinta, Proposed revisions to the access arrangement for the Mid-West and South-West Gas Distribution Systems – Issues Paper, November 2023, p.14.

warrant consideration of accelerated depreciation for AA5.³⁸ Further, while accelerated depreciation has been provided elsewhere, ATCO has characteristics that distinguish it from other networks in other jurisdictions.³⁹ Alinta submitted that in the absence of Western Australian Government policies on the role of gas, price signals should continue as they are currently.⁴⁰

- Kleenheat acknowledged the future uncertainty of gas but stated that the Western Australian Government has provided clear support for continuing natural gas residential connections.⁴¹
 - Synergy stated that natural gas was still cost effective, with regulated retail tariffs and no Western Australian Government policies regarding connections, which may result in a different future for gas than in other Australian jurisdictions.⁴²
80. The ERA considers that while there are no explicit government policies that either ban or otherwise restrict gas distribution use in Western Australia for the AA6 period, decarbonisation and the energy transition via the implementation of governmental 2050 net zero targets will likely reduce network use from current levels, though this may occur in an uneven manner and with variable speed.
81. The remaining lives of ATCO's assets are long and over this period various changes could affect the future use of the gas pipeline. Over the next 50 years these changes could include the introduction of further decarbonisation policies or incentives, the further advancement of gas substitution technology and a change in consumer behaviour. For example, the Western Australian Parliament is in the process of passing a legislated net zero emissions target.⁴³ The Western Australian sectorial emissions strategy also expects that total gas use will decline materially in 2050 but at this stage has not explicitly outlined a pathway to achieve those reductions.⁴⁴
82. The ERA further considers that actual forecast demand reductions are not strictly necessary before accelerated depreciation can be considered, though that would obviously strengthen the case for it. This is because reasonable expectations of future gas demand will inform decisions today for either demand increases or decreases. It is also the case that waiting until the realisation of gas demand declines could leave it too late for networks, consumers and regulators to respond if the window for capital recovery is lost due to inaction.

³⁸ Alinta, Proposed revisions to the access arrangement for the Mid-West and South-West Gas Distribution Systems – Issues Paper, November 2023, p. 7.

³⁹ Alinta, Proposed revisions to the access arrangement for the Mid-West and South-West Gas Distribution Systems – Issues Paper, November 2023, p. 7.

⁴⁰ Alinta, Proposed revisions to the access arrangement for the Mid-West and South-West Gas Distribution Systems – Issues Paper, November 2023, p. 15.

⁴¹ Kleenheat, Kleenheat submission on the proposed revised access arrangement for Mid-West to South-West Gas Distribution Systems, November 2023, p. 3.

⁴² Synergy, Response to issues paper on proposed revisions to the Mid-West and South-West Gas Distribution Systems Access Arrangement, November 2023, p. 3.

⁴³ Climate Change Bill 2023 (WA), cl. 7.

⁴⁴ WA Government, Sectoral emissions reduction strategy for Western Australia – Pathways and priority actions for the state's transition to net zero emissions, December 2023.

83. Further, accelerated depreciation could also promote greater use of the network, as stated by Incenta in its report for ATCO.⁴⁵ The preservation of network use is in the long-term interests of consumers, with respect to price and access, as it allows for a greater number of customers to contribute their proportion of capital costs compared to the situation where such costs are borne by a smaller customer base. This has the benefit of reducing individual customer price impacts.
84. The ERA considers that the reasonable recovery of costs from users should be related to their proportional usage of the network. If gas use is expected to decline, this suggests that the return of capital should be sought from customers who are currently using the network while there is an opportunity to do so. The provision of accelerated depreciation is one means of achieving a re-alignment of costs due to changing demand and promotes greater network utilisation that might reduce future price shocks.
85. The ERA expects that ATCO will monitor and provide regular updates regarding network utilisation and disconnections throughout AA6 and beyond. This information will inform regulatory decision making in an uncertain environment.

Prices for current and future customers

86. As discussed above, reducing price shocks is in the long-term interests of consumers as this will reduce the probability of price related disconnections and encourage network use. However, this is distinct from the levelised price argument promoted by ATCO, ACIL-Allen and Incenta.
87. One purported benefit of levelised prices is that it reduces price volatility on an *ex ante* basis. Stakeholder submissions provided mixed views about whether lower price volatility can be in the long-term interests of consumers. While most submissions regarded levelised long-term prices as being important, there was some disagreement about the use of accelerated depreciation to achieve levelisation as proposed by ATCO:
- Alinta agreed that stable pricing may be important, but argued that it is not the sole consideration, especially if the price signal of the stable price is not correct.⁴⁶
 - The WA Expert Consumer Panel made a similar point as Alinta, stating that a levelised price that was not correct would not result in either efficient investment, use and operation of the gas network.⁴⁷
88. The ERA considers that levelised prices are more of a secondary consideration that is useful in providing a perspective beyond any one access arrangement determination but cannot be the dominant reason for accepting accelerated depreciation.
89. Further, the nature of regulatory resets means that prices will have a certain degree of volatility as they reflect efficient costs and expected demand at a moment in time. This type of volatility is unavoidable and is in the long-term interests of consumers as prices are adjusted to cost efficient levels given the best available information.

⁴⁵ ATCO, 2025-29 Plan: Attachment 11.001 Regulatory Depreciation for AA6, September 2023, pp. 4,30-32.

⁴⁶ Alinta, Proposed revisions to the access arrangement for the Mid-West and South-West Gas Distribution Systems – Issues Paper, November 2023, p. 15.

⁴⁷ WA Expert Consumer Panel, Submission to the ERA's Issues Paper about ATCO AA6 Proposed Access Arrangement, November 2023, pp. 21-22.

Regulatory flexibility

90. The decision for providing accelerated depreciation involves a balance between acting too soon against acting too late. This is in the context of an ongoing energy transition with high degrees of uncertainty.
91. Stakeholder consultation resulted in mixed views on the appropriate balance:
- AGL submitted that a key issue was striking a balance between the risks borne by consumers and distribution networks during the transition, but did not suggest how that might be accomplished.⁴⁸ However, AGL did suggest that providing some amount of accelerated depreciation now was prudent to prepare for future policy shifts. AGL noted the potential for a sudden change as a result of a policy shift can lead to a dramatic downturn in demand.⁴⁹
 - Alinta considered that it was too early to be providing accelerated depreciation now.⁵⁰
 - Kleenheat stated that acting now might pre-empt the outcome of the energy transition and result in customers paying more than necessary ahead of time.⁵¹
92. The ERA considers that an environment of uncertainty requires that any regulatory depreciation approach be flexible and pragmatic, one capable of being revised as new information becomes revealed over time.
93. The ERA considers that the alteration of depreciation profiles from one access arrangement period to the next is a flexible approach that allows for adjustments if expectations are not realised. The ERA notes that a pure straight-line depreciation approach has no flexibility.

Other matters raised during consultation

94. Stakeholders raised alternatives to accelerated depreciation in response to the ERA's issues paper.
95. Alinta supported the consideration of disconnection fees, revised tariff structures and the capital expenditure framework as alternatives.⁵² The ERA has considered these matters in their respective attachments but considers that they complement accelerated depreciation and are not alternatives or substitutes for it.

⁴⁸ AGL, AGL response to ERAWA Issues Paper on ATCO AA, November 2023, p. 4.

⁴⁹ AGL, AGL response to ERAWA Issues Paper on ATCO AA, November 2023, pp. 5-6.

⁵⁰ Alinta, Proposed revisions to the access arrangement for the Mid-West and South-West Gas Distribution Systems – Issues Paper, November 2023, pp. 11-12.

⁵¹ Kleenheat, Kleenheat submission on the proposed revised access arrangement for Mid-West to South-West Gas Distribution Systems, November 2023, p. 3.

⁵² Alinta, Proposed revisions to the access arrangement for the Mid-West and South-West Gas Distribution Systems – Issues Paper, November 2023, pp. 11-12.

96. WACOSS suggested that the asset stranding risk should be managed by customers fully funding any works to expand the network.⁵³ Before capital expenditure is added to the capital base, ATCO is required to demonstrate to the ERA that it is both prudent and, in the case for the addition of new connections, the present value of the expected incremental revenue from the new connections exceeds the present value of the expenditure. The ERA has reviewed ATCO's expenditure for new connections in Appendix 4 of this draft decision. While the ERA is satisfied that this expenditure during AA6 is likely to satisfy the conditions above, if this was not likely to be the case during the period then ATCO could seek to recover any shortfall through capital contributions.
97. Synergy proposed that the capital redundancy provisions of the NGR could be used instead of accelerated depreciation, and that any industry or "systemic" risk should be considered in the rate of return instead of accelerated depreciation.⁵⁴ The ERA considers that while capital redundancy provisions exist this does not remove the need to provide a gas service provider with a reasonable opportunity to recovery its capital while also supporting the efficient use of the gas pipeline overtime. In addition, it is not possible to alter the rate of return method due to the binding nature of the 2022 Gas Instrument.

Draft decision on accelerated depreciation

98. For the reasons discussed above, the ERA considers that accelerated depreciation is a reasonable regulatory tool to manage the potential for reducing levels of future customer demand.
99. The ERA notes that though stakeholders provided mixed views regarding whether accelerated depreciation should be provided, there was majority support about the concept. The main point of contention is whether or not ATCO has justified its proposed amounts for AA6.

Amount of accelerated depreciation

100. While the ERA supports the possible use of accelerated depreciation as a regulatory tool, the amount of accelerated depreciation to be provided is a contingent but separate question.
101. ATCO has proposed an amount of \$80 million (real 2023) for AA6 based on modelling by ACIL-Allen and advice from Incenta.
102. In its consideration of the proposed accelerated depreciation, the ERA engaged Frontier Economics to review the modelling underlying ATCO's proposal.⁵⁵
103. The ERA does not consider that ATCO's proposed amount is a robust estimate of accelerated depreciation. This is due to concerns about the modelling methodology and approach, along with how the model was implemented and the resulting outcomes. The reasons for these concerns are discussed below.

⁵³ WACOSS, Submission to the Economic Regulation Authority on the Access Arrangement for the Mid-West and South-West Gas Distribution System, November 2023, p. 1.

⁵⁴ Synergy, Response to issues paper on proposed revisions to the Mid-West and South-West Gas Distribution Systems Access Arrangement, November 2023, p. 3.

⁵⁵ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024.

Methodology and approach

104. The model does not include a feedback loop for the solved distribution network prices and how customers respond to those solved prices.
105. ATCO's proposed accelerated depreciation model uses a set of assumptions to forecast how customer numbers and gas demand might vary across four scenarios. One of the assumptions required for the model's operation is forecast retail gas prices from 2024 to 2074. These prices are sourced from ACIL-Allen and used as an input in the model.
106. However, the key outputs of the model are the adjusted distribution network charges, which themselves are a component of the retail gas prices that are used as inputs.⁵⁶ No additional details were provided about how retail gas prices were estimated as part of ATCO's proposal. Further clarification from ACIL-Allen indicated that the prices were calculated using its proprietary model, though ACIL-Allen did not disclose either the method or components of the prices.⁵⁷
107. The modelling approach also does not incorporate a feedback loop of how retail price changes due to accelerated depreciation might affect gas demand. That is, despite the model's purpose in solving for gas network tariffs to incorporate accelerated depreciation, customers never end up facing those solved prices, which appears to defeat the purpose of the modelling.
108. This is problematic as the effect of accelerated depreciation could be to increase prices and so reduce demand, which may induce earlier customer switching. This dynamic interaction is a more plausible description of how consumers might behave when facing changing retail gas prices that are driven by the changing distribution network charge.
109. Frontier Economics advises that this is a critical methodological decision. ATCO's proposed approach to calculate demand does not reflect how network and retail prices would change over time under a given scenario. This is because there is no iteration or convergence within the model that links retail price inputs and demand forecasts in the model with the distribution tariffs produced by the model.⁵⁸
110. As the initial inputs do not reflect how network and retail prices would change over time in a given scenario, the difficulty with the modelling approach is exacerbated by the fact that only gas wholesale prices vary over the modelling period. This is unlikely to adequately capture retail price variation across the scenarios over time.⁵⁹ Frontier Economics considers that this methodological approach creates doubt regarding the robustness of results for demand and for the amount of accelerated depreciation calculated.⁶⁰

⁵⁶ Conceptually, if retail gas prices were known in advance, then distribution network charges could be backed out in the rest of the model.

⁵⁷ These components include whether or not retail gas prices were inclusive of carbon taxes, and whether they consisted of transmission, distribution, wholesale costs and retail margins (and the assumptions therein).

⁵⁸ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, pp. 18,21-22.

⁵⁹ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, p. 47.

⁶⁰ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, p. 47.

111. The ERA considers that ATCO's static modelling approach limits what conclusions can be drawn as outcomes are disconnected from the solutions that the model purports to find.

The S-Curve approach for customer switching

112. ATCO's accelerated depreciation approach uses an S-curve to model how customers might switch from gas to electricity appliances due to expected cost differences. These cost differences can be expressed as a net present value which differs across customers depending on their discount rates.
113. S-curves are commonly used when considering the adoption of new technologies and are used to reflect the different stages of customer adoption as the technology matures. They are referred to as S-curves because if you graphed the non-linear relationship between the speed of adoption of the new technology over time it would look similar to the letter S. The switching from gas to electricity appliances in this case would be expected to be slow at first, then rapidly rise before flattening out again as it reaches maturity.
114. The ERA considers that customer switching can be adequately modelled using a discrete choice framework such as the logistic function that underpins ACIL-Allen's S-curve. While the form of S-curve seems appropriate, it still requires multiple separate parameters to be set in order to be used.
115. Ideally, the parameters of the logistic function could be estimated empirically and then applied to the model. However, such data does not yet exist, and historical disconnection data is not likely to be fully representative of future disconnections.
116. ACIL-Allen's approach appears to calibrate the parameters of the S-curve using two points (mostly switched, not switched) using a linearised net present value function. This assumes that customers switch largely according to financial motives and give the same weight to capital and operating costs such that the net present value is additive. There is no explicit role or recognition of non-financial parameters in the switching decision, for example environmental preferences. Additionally, the S-curve is constant across customers and scenarios, even though customer preferences are unlikely to be identical across customers, scenarios or time.
117. Frontier Economics reviewed the S-curve methodology and considered that it was a reasonable method.⁶¹ However, Frontier expressed reservations regarding the calibration process employed by ACIL-Allen to arrive at the assumptions regarding the net present values corresponding to gas and electricity connections.⁶² Frontier also provided suggestions to test the assumptions used to parameterise the S-curve.⁶³
118. ATCO should consider the suggestions from Frontier. It may be the case that refinements to the parameters may not be possible until further information regarding disconnections is revealed in the future. The ERA also envisages that future S-curve parameters will be updated as more data on disconnections becomes available in the future.

⁶¹ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, p. 50.

⁶² Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, p. 51.

⁶³ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, p. 51.

119. However, the ERA notes that the S-curve switching parameters are a highly material part of the model, where small changes can drive large differences in outcomes and accordingly requires further analysis.

The reasonable opportunity to recover efficient costs

120. The ERA considers that ATCO has not sufficiently demonstrated that it would not have a reasonable opportunity to recover its costs but for the provision of its proposed accelerated depreciation amount in AA6.
121. Frontier Economics advised that the modelling did not address whether ATCO would not be able to recover its capital in the absence of accelerated depreciation, or that its expectation of recovering its costs were increased by the proposed accelerated depreciation:⁶⁴
- ACIL-Allen’s approach does not report or deal with cost recovery as its modelling never forecasts what happens when customers face the distribution network tariffs with or without accelerated depreciation.
 - Incenta suggests that recovery is unlikely in the “Electricity Dominates” scenario but offer no opinion for the other three scenarios.
122. Frontier Economics recommended further analysis regarding:
- Cost recovery with and without accelerated depreciation.⁶⁵
 - Efficient network use by forecasting demand from the network prices solved by the model.⁶⁶
 - The effect of deferring accelerated depreciation for all scenarios.⁶⁷
123. The ERA agrees with these recommendations and considers that one way in which to assess whether a proposed amount of accelerated depreciation is a reasonable opportunity is through the comparison of different profiles in terms of their amount and timing. This would be assisted with the following additional change to the model:
- The Excel model infrastructure should accommodate any arbitrary future start date for accelerated depreciation.
124. While Incenta has provided some analysis that examined the effect of deferring levelisation to later access arrangements, this is not the same as deferring accelerated depreciation.⁶⁸ It would be informative to understand how the allocation of any

⁶⁴ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, p. 55.

⁶⁵ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, p. 55.

⁶⁶ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, p. 56.

⁶⁷ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, pp. 57-58.

⁶⁸ This is through examination of a Confidential Summary prepared by Incenta that was provided to the ERA by ATCO. Tables 3 and 4 appear to provide estimates of the levelised price for B3 customers under two scenarios (Electricity Dominates and Hydrogen Future) for various access arrangement periods through a calculation that divides the present value of unadjusted future customer revenues to the present value of future customer volumes. This does not calculate how any proposed amount of accelerated depreciation that is deferred to a later period would impact on levelised prices for future access arrangements.

proposed amount of accelerated depreciation to other future periods would affect the reasonableness of ATCO's cost recovery.

125. Functionality for the deferral of accelerated depreciation should be directly built into the main accelerated depreciation models for transparency and public understanding as to how the change in start date affects the reasonable opportunity to recover costs.
126. The absence of such analysis makes it difficult to ascertain either way if the quantum and timing of the proposed accelerated depreciation is appropriate.

Approach to levelised prices

127. ATCO's two consultants offered two approaches in levelising prices.⁶⁹ ACIL-Allen focused on levelising overall weighted average prices, while Incenta focused on levelising prices by customer categories and tariff classes.
128. To the extent that levelising prices is an appropriate method, the ERA prefers Incenta's approach. This is because the distinct customer categories make it inappropriate to target some weighted average which would result in actual customers facing levelised prices that were designed for a synthetic customer that does not exist.
129. Frontier Economics advised that to the extent that there is merit in maintaining constant real tariffs, the relevant measure is what tariffs customers are actually paying.⁷⁰ However, Frontier Economics also expressed the view that it was ambiguous as to whether levelised prices could be said to either advantage or disadvantage any particular group of customers over time.⁷¹
130. As ATCO's proposed accelerated depreciation amount was based on Incenta's advice, the ERA also considers that this approach should be directly incorporated into the main accelerated depreciation models.

Other matters

131. Other simplifications and choices that are likely to affect modelled outcomes include:
 - No household rooftop solar is recognised in any scenario, which is likely to have a material impact on switching decisions.⁷²
 - The industrial customer approach relies upon simplifications which seems questionable as customer numbers are largely kept constant over time (that is, unresponsive to changes in retail prices and the external environment), have identical factors to determine gas volumes across very different scenarios, or are assumed to follow the trends of residential or commercial customers.⁷³

⁶⁹ A levelised price seeks to maintain the same price to customers over time. This means that current customers experience similar prices to future customers.

⁷⁰ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, p. 54.

⁷¹ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, pp. 56-57.

⁷² Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, pp. 51-53.

⁷³ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, pp. 47-48.

- Choice of appliances do not seem to be localised for Western Australia.⁷⁴
132. The ERA notes that most submissions did not comment on ATCO's modelling methodology and approach. This is likely the case due to ATCO's consultation approach, where insufficient information and time was provided for stakeholders to understand how accelerated depreciation was estimated.
133. Similarly, ATCO did not engage with the ERA on its modelling methodology and approach in advance of its submission.
134. Alinta provided a substantive submission on the modelling. Alinta disagreed with the scenarios, assumptions, and approach for ATCO's Future of Gas modelling, suggesting that alternative scenarios be created in an independent manner, be localised to Western Australian conditions and done in consultation with a wide range of stakeholders.⁷⁵
135. The ERA also notes that ATCO's proposed AA6 demand forecasts did diverge from some of the starting demand positions used in the accelerated depreciation modelling. The ERA recognises that the demand profiles of scenarios may well increasingly diverge from the demand profile in AA6 as the scenarios are designed to represent different future states of the world.
136. This misalignment was also noted by Frontier Economics, who expressed concern regarding the magnitude of differences between the gas forecasts.⁷⁶ Frontier Economics also questioned whether more consideration should be given towards the use of a baseline number as a methodological approach and how baseline demand should be determined if ATCO's approach is maintained.⁷⁷
137. Misalignment of values may be permissible if it does not have a material impact on outcomes and can be seen as an acceptable modelling simplification. However, the ERA considers that this has not been demonstrated by ATCO in their initial proposal.

Model implementation

138. The ERA conducted a model audit with the support of Frontier Economics to understand how the methodology and approach adopted by ATCO were implemented in the model.
139. Generally, the four scenarios chosen seemed appropriate, but reservations remain regarding the implementation of those scenarios. The ERA considers that there has been inadequate explanation of the default assumptions used in the models relied upon by ATCO and requires greater disclosure and documentation.
140. Assumptions and their sources are not clearly stated or referenced, leading to inconsistencies or unverifiable parameters. A non-exhaustive list was identified by

⁷⁴ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, pp. 53-54.

⁷⁵ Alinta, Proposed revisions to the access arrangement for the Mid-West and South-West Gas Distribution Systems – Issues Paper, November 2023, pp. 11-13,15-16.

⁷⁶ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, pp. 11-12.

⁷⁷ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, p. 12.

Frontier Economics in Section 4 of its report and should be addressed by ATCO in its revised proposal.⁷⁸

141. A key modelling variable is the level and changes of retail gas and electricity prices, as exposure to these expected prices are a key determinant of customer switching. However, ATCO and its consultants have not provided a transparent explanation about what was driving changes in retail gas and electricity prices.
142. A detailed discussion of this matter is provided by Frontier Economics.⁷⁹ Additionally, Frontier Economics also notes that even the historic prices (pre-2024) used in the model do not align with the regulated residential electricity tariffs in Western Australia.⁸⁰
143. Since ATCO's initial proposal was submitted there have been recent developments in Western Australia's wholesale gas prices, along with the updated Western Australia GSOO, that should be considered by ATCO as part of its revised proposal.⁸¹
144. Frontier Economics also considered that the parameters chosen for the model were overly restrictive which prevented the model from presenting a wider range of outcomes that might be expected from various scenarios:⁸²
 - The retail electricity prices are identical for three scenarios, despite material differences between Gas Retained, Hydrogen Future and Energy Hybrid.⁸³ The wholesale gas price forecasts are also essentially the same for all scenarios except for Hydrogen Future.⁸⁴
 - Multiple inputs are constant across scenarios and over time that might reasonably be expected to vary, such as S-curve parameters, population and household growth.⁸⁵
 - Other drivers of distribution tariffs that might be expected to vary include forecasts of discount rates and appliance capital and operating costs.⁸⁶
 - The appliance switching decision point is the same for all scenarios (15 years), except for Electricity Dominates where it begins at 15 years and then decreases from 2046 onwards until reaching three years by 2068. This accelerates switching as it is being applied as a forcing variable that restricts outcomes.⁸⁷

⁷⁸ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, pp. 21-46, 59.

⁷⁹ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, pp. 15-19.

⁸⁰ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, p. 16.

⁸¹ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, p. 19.

⁸² Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, pp. 15-16, 18-19, 24.

⁸³ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, p. 18.

⁸⁴ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, pp. 17-18, 21.

⁸⁵ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, p. 19.

⁸⁶ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, pp. 19-20.

⁸⁷ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, pp. 37-39.

145. Other modelling implementation issues identified by the ERA include:
- All scenarios have a default zero level of technological and efficiency improvements for appliances, despite some scenarios having differing technological adoption as their main point of difference (for example, Electricity Dominates and Hydrogen Future).
 - Customers income levels are assumed to be all the same (medium), which is factually inaccurate and likely results in a bias for accelerated depreciation as higher income households are more likely to electrify due to greater resources and lower cost of capital.
146. The above findings broadly reflect the fact that the four scenarios chosen by ATCO largely have the same assumptions, where most differences are driven by retail gas and electricity prices. However, one notable difference is the long-term regulatory expenditure profiles used by ATCO across scenarios.
147. As the accelerated depreciation model is a long run demand model, long run estimates of expenditures of the gas network are necessary to understand how regulatory revenues may be provided for the next half century. The expenditure profiles detail the revenue building blocks that ATCO expects over the long run which would normally be subject to regulatory scrutiny at access arrangement determinations. However, ATCO's initial proposal did not provide explanations as to how these profiles were derived, but further clarifications indicated the following:
- Electricity Dominates: based on 2009 costs escalated to 2023 real dollars, with capital expenditure linearly decreasing from 2035 to 2050.
 - Hydrogen Future: capital expenditure based on engineering estimates of 100 per cent hydrogen blend from 2030 to 2050.
 - Gas Retained: largely based on AA6 proposed expenditure carried forward.
 - Energy Hybrid: capital expenditure based on engineering estimates of a 10 per cent hydrogen blend from 2030 to 2050.
148. The ERA does not have sufficient information to review such expenditure profiles as to form a view on their reasonableness. Frontier Economics' analysis indicated that the accelerated depreciation outputs were highly sensitive to relatively small changes in expenditure profiles.⁸⁸ For example, if the gas network expenditure profile was altered such that operating expenditure and unaccounted for gas expenditure were tied to total gas demand, this would result in accelerated depreciation amounts which were on average 25 per cent lower than ATCO's proposal over all scenarios excluding the Hydrogen Future.
149. The ERA considers that the above matters require additional clarification, adjustments and refinements from ATCO, especially considering how sensitive the model is to initial parameters which is discussed in the next section.

Model robustness

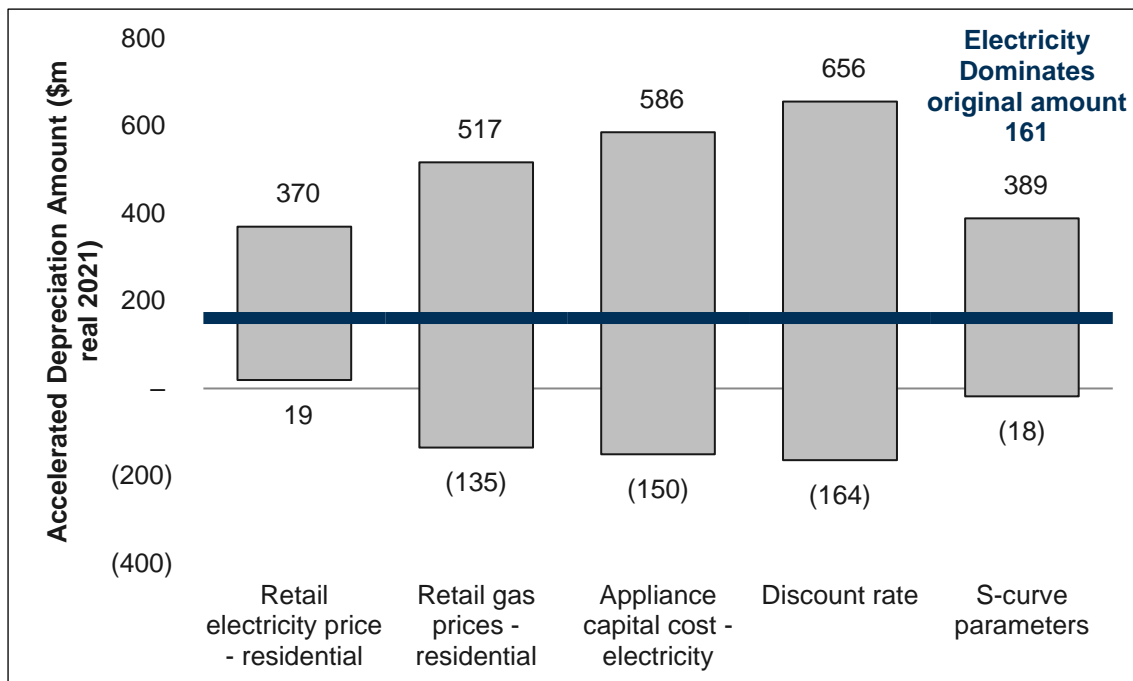
150. The robustness of ATCO's modelling was tested by conducting sensitivity analysis on variables that might be expected to have material impacts on final outcomes. This was

⁸⁸ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, pp. 36-37.

to provide an indication that the model was behaving as expected given the adopted methodology, approach and implementation. This was also used to identify the materiality of the parameters, especially given the issues identified in the section above.

151. This sensitivity analysis was conducted by Frontier Economics as this was not provided as part of ATCO's initial proposal, where one stakeholder stated that such analysis should have been conducted by ATCO prior to making their proposal.⁸⁹
152. Frontier Economics analysed how sensitive the final accelerated depreciation number was by changing one variable at a time. A detailed explanation of their approach and findings is provided in Section 4.5 of its report.⁹⁰
153. The resulting analysis reveals that while the model seems directionally correct,⁹¹ the amount of accelerated depreciation provided as a model outcome is extremely sensitive to a wide range of parameters, where the five most sensitive parameters are illustrated in Figure 6.4.

Figure 6.4: Sensitivity analysis of parameters for Electricity Dominates scenario



Source: Frontier Economics, ERA analysis.

Note: Figure presents the accelerated depreciation outcomes under the Electricity Dominates scenario where a single parameter is changed at a time by +/- 15 per cent, except for the discount rate where parameters were adjusted by +/- 5 percentage points. The blue line presents the accelerated depreciation amount as originally proposed. The grey bars represent the range of values contained within the input change interval.

⁸⁹ Stewart Lee, Submission from Stewart Lee, November 2023, p. 2.

⁹⁰ Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, pp. 43-45.

⁹¹ For example, increases to retail electricity prices reduce the amount of accelerated depreciation as electrification becomes more expensive which presumably slows gas disconnections. Conversely, increases to gas prices would increase switching to electric appliances and increase accelerated depreciation. This is observed in the sensitivity analysis, though the magnitude of such changes is very high.

154. Frontier Economics highlights that the magnitude of these impacts are so great that in some instances the accelerated depreciation amount more than doubles or even becomes negative due to a proportionally small +/- 15 per cent input change.⁹² Frontier Economics advised that further refinement of these inputs is likely necessary, along with the other inputs contained within Section 6.5 of its report.
155. The ERA notes that these parameters are amongst the ones that lack the most detail or explanations from ATCO, particularly the retail gas and electricity prices.
156. The ERA considers that ATCO needs to provide greater detail and explanation of the most sensitive parameters as the absence of this information raises doubts as to the robustness of such estimates and the utility of the modelling undertaken.
157. Stakeholders also indicated their lack of confidence in the robustness of modelled outcomes. This was principally due to how the model would always provide for accelerated depreciation, even in scenarios where gas demand was increasing:
- Alinta stated that it did not make sense to recommend accelerated depreciation when three of the four scenarios predict increasing gas demand.⁹³
 - The WA Expert Consumer Panel noted that the scenarios where gas usage and customer numbers increased were unlikely, but if those scenarios became a reality, then accelerated depreciation would be clearly inappropriate.⁹⁴
158. The ERA considers that ATCO needs to clearly explain how the outcomes of the scenarios where increasing gas demand still results in accelerated depreciation is plausible. The absence of an explanation also raises doubts as to the robustness of such estimates and the utility of the modelling undertaken.

Draft decision on the amount of accelerated depreciation

159. The ERA's draft decision is to not accept ATCO's proposed accelerated depreciation amount totalling \$80 million (real 2023) for AA6. Given the issues discussed above, the ERA is not able to calculate an alternative figure given the methodological and implementation matters identified.
160. To provide stakeholders with an indication of the impact that accelerated depreciation might have on revenues and tariffs, the ERA presents figures with both zero and ATCO's proposed \$80 million (real 2023) amount.

Impact of accelerated depreciation on customers

161. The ERA has not approved accelerated depreciation in its draft decision.

⁹² Frontier Economics, ATCO MWSW GDS Accelerated Depreciation Modelling Review, February 2024, p. 46.

⁹³ Alinta, Proposed revisions to the access arrangement for the Mid-West and South-West Gas Distribution Systems – Issues Paper, November 2023, p. 12.

⁹⁴ WA Expert Consumer Panel, Submission to the ERA's Issues Paper about ATCO AA6 Proposed Access Arrangement, November 2023, p. 22.

162. The ERA considers that while accelerated depreciation may result in ATCO recovering its capital sooner, over the life of the asset the same amount of depreciation is recovered and there is no double counting. There is also a corresponding benefit for future consumers as accelerated depreciation will reduce the size of the regulatory asset base and therefore ATCO will receive decreased rate of return payments. However, accelerated depreciation would result in increased prices to current consumers.
163. Any future consideration of accelerated depreciation will have to consider the current market environment and the effect of any accelerated depreciation on consumers (both current and future).

Forecast depreciation

164. The ERA accepts ATCO's approach to calculate its base level of depreciation, which is consistent with its existing approach.
165. However, the ERA does not include an allowance for accelerated depreciation.
166. The ERA's forecast regulatory depreciation allowance is detailed in Table 6.5.

Table 6.5: ERA's draft decision forecast of regulatory depreciation for AA6 (\$ million real at December 2023)

	2025	2026	2027	2028	2029	Total
Base depreciation	60.6	70.0	71.6	72.8	72.4	347.3
Accelerated depreciation	0.0	0.0	0.0	0.0	0.0	0.0
Regulatory depreciation - total	60.6	70.0	71.6	72.8	72.4	347.3

Required Amendment

- 6.1 ATCO must amend the forecast depreciation of the capital base for AA6 to \$347.3 million (real as at 31 December 2023). The yearly values for each year of the access arrangement period are set out in Table 6.5 of this draft decision attachment.
- 6.2 ATCO to remove its proposed accelerated depreciation.

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Appendix 3 National Gas Rules

The National Gas Law (NGL) and National Gas Rules (NGR), as enacted by the *National Gas (South Australia) Act 2008*, establish the legislative framework for the independent regulation of certain gas pipelines in Australia. The *National Gas Access (WA) Act 2009* implements a modified version of the NGL and NGR in Western Australia.

The legislative framework for the regulation of gas pipelines includes a central objective, being the national gas objective, which is:

... to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to—

- (a) price, quality, safety, reliability and security of supply of natural gas; and
- (b) the achievement of targets set by a participating jurisdiction—
 - (i) for reducing Australia’s greenhouse gas emissions; or
 - (ii) that are likely to contribute to reducing Australia’s greenhouse gas emissions.

Note—

The AEMC must publish targets in a targets statement: see section 72A.⁹⁵

The following extracts of the NGR, as they apply in Western Australia, are provided for information to assist readers.

76 Total revenue

Total revenue is to be determined for each regulatory year of the access arrangement period using the building block approach in which the building blocks are:

- (a) a return on the projected capital base for the year (See Divisions 4 and 5); and
- (b) depreciation on the projected capital base for the year (See Division 6); and
- (c) the estimated cost of corporate income tax for the year (See Division 5A); and
- (d) increments or decrements for the year resulting from the operation of an incentive mechanism to encourage gains in efficiency (See Division 9); and
- (e) a forecast of operating expenditure for the year (See Division 7).

...

88 Depreciation schedule

- (1) The depreciation schedule sets out the basis on which the pipeline assets constituting the capital base are to be depreciated for the purpose of determining a reference tariff.

⁹⁵ NGL, section 23.

The national gas objective has changed since the last review of ATCO’s access arrangement. The amended objective came into effect in Western Australia on 25 January 2024. See: Western Australian Government Gazette 24 January 2024 No.8 ([online](#)) (accessed April 2024).

- (2) The depreciation schedule may consist of a number of separate schedules, each relating to a particular asset or class of assets.

89 Depreciation criteria

- (1) The depreciation schedule should be designed:
- (a) so that reference tariffs will vary, over time, in a way that promotes efficient growth in the market for reference services; and
- (b) so that each asset or group of assets is depreciated over the economic life of that asset or group of assets; and
- (c) so as to allow, as far as reasonably practicable, for adjustment reflecting changes in the expected economic life of a particular asset, or a particular group of assets; and
- (d) so that (subject to the rules about capital redundancy), an asset is depreciated only once (i.e. that the amount by which the asset is depreciated over its economic life does not exceed the value of the asset at the time of its inclusion in the capital base (adjusted, if the accounting method approved by the [ERA] permits, for inflation)); and
- (e) so as to allow for the service provider's reasonable needs for cash flow to meet financing, non-capital and other costs.
- (2) Compliance with subrule (1)(a) may involve deferral of a substantial proportion of the depreciation, particularly where:
- (a) the present market for pipeline services is relatively immature; and
- (b) the reference tariffs have been calculated on the assumption of significant market growth; and
- (c) the pipeline has been designed and constructed so as to accommodate future growth in demand.

90 Calculation of depreciation for rolling forward capital base from one access arrangement period to the next

- (1) A full access arrangement must contain provisions governing the calculation of depreciation for establishing the opening capital base for the next access arrangement period after the one to which the access arrangement currently relates.
- (2) The provisions must resolve whether depreciation of the capital base is to be based on forecast or actual capital expenditure.