Economic Regulation Authority

Final decision on access arrangement for the Mid-West and South-West Gas Distribution Systems (2025 to 2029)

Attachment 6: Depreciation

8 November 2024

D283312

Acknowledgement of Country

At the ERA we value our cultural diversity and respect the traditional custodians of the land and waters on which we live and work.

We acknowledge their continuing connection to culture and community, their traditions and stories. We commit to listening, continuously improving our performance and building a brighter future together.

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Note

This attachment forms part of the ERA's final decision on 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 final decision, which is comprised of the following document and attachments:

- Final decision on access arrangement for the Mid-West and South-West Gas Distribution Systems (2025 to 2029) – Overview, 8 November 2024:
  - Attachment 1: Access arrangement and services
  - Attachment 2: Demand
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  - Attachment 4: Regulatory capital base
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  - Attachment 6: Depreciation (this document)
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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 revised 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 $371.2 million (real 2023) over the AA6 period.
- *Accelerated depreciation allowance*: ATCO included an additional $87 million (real 2023) allowance for accelerated depreciation. 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). The same amount of depreciation is recovered over the life of the asset. ATCO submitted that accelerated depreciation is needed to manage increasing levels of revenue uncertainty for the gas distribution network and to stabilise future price variability.

The ERA has considered and accepted ATCO's depreciation approach to calculate base depreciation. The ERA has allowed for a total of $367.8 million (real 2023) for base level depreciation over the AA6 period, which varies from ATCO's proposed amount due to the ERA's approved capital expenditure levels in this final decision.

As set out in Attachment 2 of the decision, customer numbers and gas volumes are expected to continue to increase for the next five years.

However, customer demand in the long-term (that is, beyond the period of AA6) is uncertain. Since the AA5 final decision there have been policy and technological changes regarding the role of fossil fuels in the Australian economy, including policies to target net zero emissions by 2050. The changes have increased the level of uncertainty for the future of gas and the role of gas networks.

ATCO has proposed to use accelerated depreciation to manage that increasing uncertainty.

Consistent with the National Gas Law and National Gas Rules, the use of accelerated depreciation can support the recovery of efficient costs, support the use of the network over its life, support efficient investment in the network 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 capital expenditure. That is, over the life of the asset the same amount of depreciation is recovered and there is no double counting. Accelerated depreciation is flexible and will be re-assessed such that increases or reductions to depreciation can be made at each regulatory reset.

In its revised proposal, ATCO incorporated feedback from the ERA's draft decision and improved its approach to modelling the future of its gas network.

Guided by the National Gas Objective and the revenue and pricing principles, the ERA has assessed ATCO's accelerated depreciation revised proposal against five considerations:

- Managing the risk of stranding assets

- Reasonable opportunity to recover efficient costs
- Intergenerational equity and efficient pricing over time
- Financeability of investments for gas network services
- Supporting gas network utilisation and emissions reduction.

ATCO's updated modelling considers stranding risk across multiple scenarios and quantified this risk through ATCO's ability to recover both its assets and efficient cost of service. ATCO's updated modelling for the revised proposal has found that asset stranding is possible over multiple plausible scenarios.

The ERA accepts that there is a stranding risk and finds that it is appropriate to provide some accelerated depreciation to mitigate this risk for ATCO's network and its customers. However, given the level of future uncertainty regarding customer demand, customers should not take on all the exposure to stranding risk.

The ERA has not approved the accelerated depreciation proposed by ATCO of $87 million (real 2023). Instead, the ERA has considered the application of its accelerated depreciation factors, which has included the effect on consumers (both current and future). After balancing these considerations, the ERA has approved accelerated depreciation of $38.1 million (real 2023) over the AA6 period to be evenly allocated across each regulatory year.

The ERA's accelerated depreciation considerations have been developed in the course of determining an access arrangement for the gas distribution system (GDS). As such, they reflect the information, consultation and analysis available to the ERA throughout the course of the AA6 assessment process.

The reasons for the ERA's final decision in respect of the matters relevant to depreciation and its required amendments to ATCO's revised proposal 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 $405.9 million (real as at 31 December 2023). The yearly values for each year of the access arrangement period are set out in Table 6.8 of this final decision.

Regulatory requirement

1. The *National Gas Access (WA) Act 2009* implements a modified version of the National Gas Law (NGL) and National Gas Rules (NGR) in Western Australia. The rules referenced in this decision are those that apply in Western Australia.[1]

2. Depreciation of the capital base is one of the components (building blocks) for determining the service provider's total revenue requirement when using the "building block" approach, which is required by the NGR.[2] 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).

3. 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 refence 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.

[1] The current rules that apply in Western Australia are available from the Australian Energy Market Commission: AEMC, 'National Gas Rules (Western Australia)' (online) (accessed November 2024).
At the time of this decision, *National Gas Rules – Western Australia version 12 (1 February 2024)* was in effect.

[2] NGR, rule 76.

- 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.

ERA draft decision

4. ATCO's AA6 initial proposal for regulatory depreciation included two parts:

    - *Base straight-line 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 viewed that accelerated depreciation is needed to manage increasing levels of uncertainty for the gas distribution network and to stabilise future price variability.

5. The ERA's draft decision on both components is detailed below.

Base straight-line depreciation allowance

6. The base depreciation method maintains the existing approach from AA5 and uses the straight-line method that amounts to ATCO's initial proposal of $348.7 million (real 2023) for AA6.

7. Economic lives remain unchanged from AA5 except for equity raising costs. ATCO has reduced the economic life of the equity raising costs asset category on the basis that it aligns with the average life of assets as at 31 December 2024 instead of 31 December 2019.

8. The ERA accepted ATCO's approach for its base level of depreciation and adjusted the amount for the updated capital base and expenditure for AA6 which resulted in regulatory depreciation of $347.3 million (real 2023) and is presented in Table 6.1.

Table 6.1: 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

9. ATCO proposed that an amount of accelerated depreciation be provided in addition to the base level of depreciation. ATCO's initial AA6 proposal 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 represented 23 per cent of the increase in proposed AA6 revenue.

10. 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 contended that, consistent with the NGL, accelerated depreciation would provide 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.

11. The ERA considered the additional accelerated depreciation allowance proposal.

12. 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 the asset life horizon and a judgement on the amount and timing of capital recovery over this period. Accelerated depreciation is a flexible tool that can be varied over time depending on the view of forward stranding risk.

13. While customer numbers and gas volumes are expected to be at least stable for the next five years, customer gas demand in the long-term is uncertain and may increasingly diverge from historically stable levels. Since the AA5 final decision there have been policy and technological changes regarding the role of fossil fuels in the Australian economy. This has included government 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.

14. Accelerated depreciation is a regulatory tool that can help manage the potential for declining levels of future customer demand. Consistent with the NGL and 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.

15. 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 dipping.

16. In its draft decision, the ERA did not consider that ATCO's AA6 proposal was robust or supported by a strong modelling method. The ERA's consideration of ATCO's accelerated depreciation modelling methodology is detailed in the draft decision.

17. The ERA's draft decision on the AA6 regulatory depreciation allowance is detailed in Table 6.2.

Table 6.2: 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**

18. The ERA set out the following draft decision 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 [Draft Decision Attachment 6].

    6.2 ATCO to remove its proposed accelerated depreciation.

ATCO response to draft decision

19. ATCO's AA6 revised proposal for regulatory depreciation included two parts:

    - *Base straight-line depreciation* allowance: ATCO accepted the ERA's draft decision with regards to the approach and methodology but included additional capital expenditure for their revised proposal. This results in a base level of depreciation of $371.2 million (real 2023) over the AA6 period.
    - *Accelerated depreciation* allowance: ATCO included an additional $87 million (real 2023) allowance for accelerated depreciation over the AA6 period. ATCO maintained that accelerated depreciation is needed to manage increasing levels of uncertainty for the gas distribution network.

Base straight-line depreciation allowance

20. ATCO accepted the ERA's base depreciation approach and calculated an updated base level of depreciation due to additional capital expenditure in its revised proposal.

21. ATCO has calculated the depreciation on its regulated asset base with the straight-line method approach as set out in Table 6.3 and incorporates the economic lives of Table 6.4.

22. ATCO's revised capital expenditure does have a material effect on depreciation. Compared with the draft decision, ATCO's revised proposal includes changes to asset classes that result in a net increase of $23.8 million (2023 real):

    - Increases in base depreciation of $26.1 million (real 2023): Information Technology (98 per cent) and Telemetry and Monitoring (2 per cent).
    - Decreases in base depreciation of $2.3 million (real 2023): Meters and Services (57 per cent) Buildings and Vehicles (22 per cent) and Pipes (21 per cent).

23. As required by the NGR, ATCO has also proposed the forecast depreciation approach to be used for calculating the opening capital base for AA7.

Table 6.3: ATCO's revised base depreciation for AA6 ($ million real at 31 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	**35.0**
Medium / Low Pressure Mains	14.6	15.3	15.9	16.6	17.2	**79.6**
Low Pressure Mains	1.7	1.7	1.7	1.7	1.7	**8.4**
Regulators	1.6	1.7	1.0	1.0	1.1	**6.3**
Secondary Gate Stations	(1.3)	0.2	0.2	0.3	0.3	**(0.3)**
Buildings	0.9	1.0	1.1	1.1	1.1	**5.2**
Meter and Services Pipes	28.7	29.0	29.5	29.4	29.4	**145.9**
Equipment & Vehicles	1.0	1.0	1.0	1.0	0.9	**4.9**
Vehicle	1.5	1.9	1.8	1.8	1.8	**8.7**
Information Technology	(0.1)	9.1	13.7	14.1	13.5	**50.3**
Telemetry and Monitoring	0.6	0.7	1.0	1.2	1.3	**4.7**
Full Retail Contestability	(0.2)	–	–	–	–	**(0.2)**
Land	–	–	–	–	–	**–**
Equity Raising Cost	0.0	0.0	0.0	0.0	0.0	**0.1**
Base depreciation	**60.2**	**72.9**	**78.4**	**79.7**	**80.0**	**371.2**

Source: ATCO Gas 2025-29 Revised Plan p.204.

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, Information Technology and Full Retail Contestability.

Table 6.4: ATCO's proposed economic lives for AA6 (years)

Asset categories	AA5	AA6 initial proposal	AA6 revised proposal
Current and new asset categories			
High Pressure Mains - Steel	80	80	80
High Pressure Mains - PE	60	60	60
Medium / Low Pressure Mains	60	60	60
Regulators	40	40	40
Secondary Gate Stations	40	40	40
Buildings	40	40	40
Meter and Services Pipes	25	25	25
Equipment & Vehicles	10	10	10
Information Technology	5	5	5
Telemetry and Monitoring	10	10	10
Equity Raising Cost	66	54	54
Historical asset categories no longer used for new capital expenditure			
Medium Pressure Mains	60	60	60
Low Pressure Mains	60	60	60

Source: ATCO Revised Proposal Tariff Model, ATCO Initial Proposal Tariff Model.

Accelerated depreciation

24. ATCO did not accept the ERA's draft decision for no accelerated depreciation and revised its proposal for an amount of accelerated depreciation to be provided in addition to the base level of depreciation shown above.

25. ATCO's AA6 revised proposal has included $87.2 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 32 per cent of the increase in revised AA6 revenue compared to the draft decision.

26. Table 6.5 presents the proposed accelerated depreciation amounts for the AA6 period.

Table 6.5: ATCO's revised forecast depreciation for AA6 ($ million real at 31 December 2023)

	2025	2026	2027	2028	2029	Total
Base depreciation	60.2	72.9	78.4	79.7	80.0	**371.2**
Accelerated depreciation	24.9	17.0	16.5	14.2	14.7	**87.2**
Regulatory depreciation - total	**85.1**	**89.9**	**94.9**	**93.9**	**94.7**	**458.4**

Source: ERA analysis, ATCO Gas 2025-29 Revised Plan p. 239.

27. ATCO refined its modelling approach to address the matters raised by the ERA and Frontier Economics. ATCO also changed its approach to determining the amount of accelerated depreciation. Instead of it being a modelled outcome that resulted in constant levelised prices, ATCO has proposed a tilt mechanism to apply from AA6 onward.[3]

28. The model now incorporates a depreciation tilt rate to calculate a range of accelerated depreciation options. ATCO's updated approach considers a range of various depreciation tilts and then applies judgement to determine a preferred accelerated depreciation allowance.

29. ATCO has proposed that a tilt of 2 per cent be used, considering that it provides partial reduction of the stranding risk that it may face in the future due to decreased demand and customer numbers. This tilt has been applied on the existing regulated asset base and for new capital expenditure.

30. In its revenue modelling, ATCO has assigned the accelerated depreciation to the high pressure mains – steel asset class on an interim basis as it is the asset that has the highest remaining economic lives.

31. ATCO's revised regulatory depreciation amounts to $458.4 million (real 2023) for the AA6 period. Combined with proposed capital expenditure of $490.7 million (real 2023), this will result in a regulated asset base that is larger at the end of the AA6 period than in the beginning.

32. ATCO estimated that its proposed amount of accelerated depreciation would increase customer bills by $20 per year.[4]

33. The ERA engaged with ATCO regarding the modelling of accelerated depreciation, which resulted in revisions, refinements and changes that led to the consolidated version referred to as the "Second Update AD model." This is discussed below in the final decision section.

[3] A tilt is used by ATCO to provide for a depreciation payment profile that may be accelerated and is based on a formula which is discussed in Appendix 3. As chosen by ATCO, it has a mathematical interpretation where the tilt chosen provides for a profile that is decreasing by that amount in percentage terms period by period. For example, a 2 per cent tilt results in payments that decrease by 2 per cent a year, which is accomplished by increasing initial payments such that it can decline by the tilt factor and ensure all capital is recovered by the end of the economic life.

[4] ATCO, *ATCO Gas 2025-29 Revised Plan*, August 2024, p. 200.

Submissions to the ERA

34. Submissions from the Chamber of Minerals and Energy (CME), AGL, Alinta Energy, Wesfarmers Kleenheat Gas, Synergy, the WA Council of Social Service (WACOSS) and the WA Expert Consumer Panel addressed ATCO's proposal to provide for accelerated depreciation.

35. In summary, the submissions provided general support for the ERA's draft decision on accelerated depreciation:

- Some submissions maintained that the current policy environment was not supportive for accelerated depreciation, but if that changed then the case for accelerated depreciation should be reviewed at the time.
- Some submissions stated that there were inconsistencies with ATCO's proposal for accelerated depreciation when customer numbers, usage and capital investments (network growth and renewable gases) were increasing during the AA6 period.
- Submissions generally considered that price pressures were elevated for AA6, which made it difficult to support the provision of significant amounts of accelerated depreciation.

36. AGL, Alinta, Kleenheat, Synergy, WACOSS and the Consumer Panel did not support ATCO's revised proposal:

- AGL supported the ERA's draft decision to not allow accelerated depreciation for AA6.[5]
- Alinta did not support the provision of accelerated depreciation for AA6.[6] Alinta maintained its pre-existing concerns regarding the modelling approach adopted by ATCO for accelerated depreciation. Alinta stated that the ERA should consider accelerated depreciation for a later access arrangement if and when the case for it was clearer. However, Alinta submitted that if accelerated depreciation was to be provided for AA6, it should be of a low amount.
- Kleenheat was concerned that ATCO's revised proposal continued its proposal for accelerated depreciation despite the draft decision and maintained a belief that the current base depreciation approach would not result in the network investment being unrecoverable or reduce incentives for efficient operations.[7]
- Synergy supported the ERA's draft decision and noted the potential impact of accelerated depreciation on tariffs as indicated in the draft decision.[8]
- WACOSS supported the ERA's draft decision to reject ATCO's initial proposal for accelerated depreciation.[9] WACOSS maintained its position that accelerated depreciation inappropriately transfers the costs and risks of stranded assets to customers and considered that the revenue and pricing principles does not provide for a right to recover all costs. Further, WACOSS stated that for effective and equitable management of the transition from gas, gas networks need to

5 AGL Energy, *Submission on ERA draft decision and ATCO revised proposal*, 8 July 2024.

6 Alinta Energy, *Submission on ERA draft decision and ATCO revised proposal*, 9 July 2024.

7 Kleenheat, *Submission on ERA draft decision and ATCO revised proposal*, 8 July 2024.

8 Synergy, *Submission on ERA draft decision and ATCO revised proposal*, 9 July 2024.

9 WA Council of Social Service, *Submission on ERA draft decision and ATCO revised proposal*, 5 July 2024.

engage in long-term planning that avoids investment that encourages network growth or investments that are not cost efficient.

- The Consumer Panel commissioned TRAC Partners to provide advice on the ERA's draft decision.[10,11] The Consumer Panel did not specifically endorse the advice but considered that matters raised by TRAC would need to be addressed before it was capable of being accepted.

37. The CME acknowledged the difficulties in modelling the energy transition for gas and supported ATCO's efforts in its revised response, while also suggesting that the ERA consider information from the Australian Energy Market Operator regarding electrification and gas consumption for the final decision.[12]

38. Details of the matters raised in submissions are discussed as part of the ERA's final decision considerations.

10 WA Expert Consumer Panel, *TRAC Partners Technical Report on ERA draft decision and ATCO revised proposal*, 8 July 2024.

11 WA Expert Consumer Panel, *Submission on ERA draft decision and ATCO revised proposal*, 9 July 2024.

12 Chamber of Minerals & Energy WA, *Submission on ERA draft decision and ATCO revised proposal*, 11 July 2024.

Final decision

39. 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.

40. The magnitude and timing of regulatory depreciation determines 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. Importantly, over the life of the asset the same amount of depreciation is recovered under the different depreciation profiles.

Base straight-line depreciation allowance

41. The ERA has considered ATCO's revised level of depreciation for its base depreciation allowance (excluding accelerated depreciation).

42. 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.

43. The ERA has considered the capital expenditure values used in ATCO's calculation of the opening capital base for AA6 in Attachment 4. Regulatory depreciation is calculated from the ERA's final decision on the capital base.

44. For AA6, ATCO proposed 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 as used for AA5.

45. The ERA accepts ATCO's approach to calculate its base level of depreciation, which is consistent with its existing approach for AA5.

46. The ERA has estimated forecast depreciation for the revised levels of capital expenditure in the final decision for AA6. Consistent with the required amendments in this final decision, the ERA has recalculated total forecast base depreciation for AA6 as $367.8 million (real 2023), which is presented in Table 6.6 based on the asset lives contained in Table 6.7.

47. TRAC stated that the economic lives appeared low by way of comparison to the gas pipelines in eastern Australia.[13] The ERA considers that ATCO's proposed economic lives are consistent with the range of assets lives used by other Australian gas distribution networks and the ERA has not been persuaded by a case to change from the current asset lives approved in past access arrangements.

[13] WA Expert Consumer Panel, *TRAC Partners Technical Report on ERA draft decision and ATCO revised proposal*, 8 July 2024, pp. 21-22.

Table 6.6: ERA's final 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	35.0
Medium / Low Pressure Mains	14.6	15.3	15.9	16.6	17.3	79.8
Low Pressure Mains	1.7	1.7	1.7	1.7	1.7	8.4
Regulators	1.6	1.6	1.0	1.0	1.1	6.3
Secondary Gate Stations	(1.3)	0.2	0.2	0.2	0.2	(0.6)
Buildings	0.9	1.0	1.1	1.1	1.1	5.2
Meter and Services Pipes	28.7	29.1	29.8	30.0	30.3	147.9
Equipment & Vehicles	1.0	1.0	1.0	1.0	0.9	5.0
Vehicle	1.5	1.9	1.8	1.8	1.8	8.7
Information Technology	(0.2)	8.6	12.5	12.6	11.9	45.4
Telemetry and Monitoring	0.5	0.6	0.9	1.1	1.2	4.4
Equity Raising Cost	0.0	0.0	0.0	0.0	0.0	0.1
Base depreciation	**60.3**	**72.5**	**77.4**	**78.6**	**79.0**	**367.8**

Source: ERA Final Decision tariff model.

Table 6.7: ERA's final decision for economic lives in AA6 (years)

Asset categories	AA5 final decision	AA6 draft decision	AA6 revised proposal	AA6 final decision
Current and new asset categories				
High Pressure Mains - Steel	80	80	80	80
High Pressure Mains - PE	60	60	60	60
Medium / Low Pressure Mains	60	60	60	60
Regulators	40	40	40	40
Secondary Gate Stations	40	40	40	40
Buildings	40	40	40	40
Meter and Services Pipes	25	25	25	25
Equipment & Vehicles	10	10	10	10
Information Technology	5	5	5	5
Telemetry and Monitoring	10	10	10	10
Equity Raising Cost	66	54	54	54
Historical asset categories no longer used for new capital expenditure				
Medium Pressure Mains	60	60	60	60
Low Pressure Mains	60	60	60	60

Accelerated deprecation allowance

48. 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.[14]
- The revenue and pricing principles provide additional guidance on economic regulation and pricing, including that:[15]
  - A service provider should be provided a reasonable opportunity to recover at least their efficient costs, including the recovery of its regulatory asset base.

[14] 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, along with reducing Australia's greenhouse gas emissions.

[15] NGL, section 24.

- A regulator should have regard to the economic costs and risks of under-investments 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.

49. 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

50. Since ATCO's last access arrangement was approved in 2019, 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.
- Improvements in electrical appliances and technologies that can be used as substitutes for natural gas.
- Changes in consumer preferences and attitudes towards decarbonisation.

51. These changes raise uncertainty as to the role of gas networks in the future.

Context and historic approach to the provision of accelerated depreciation

52. Australian economic regulators have historically used straight-line depreciation methods.

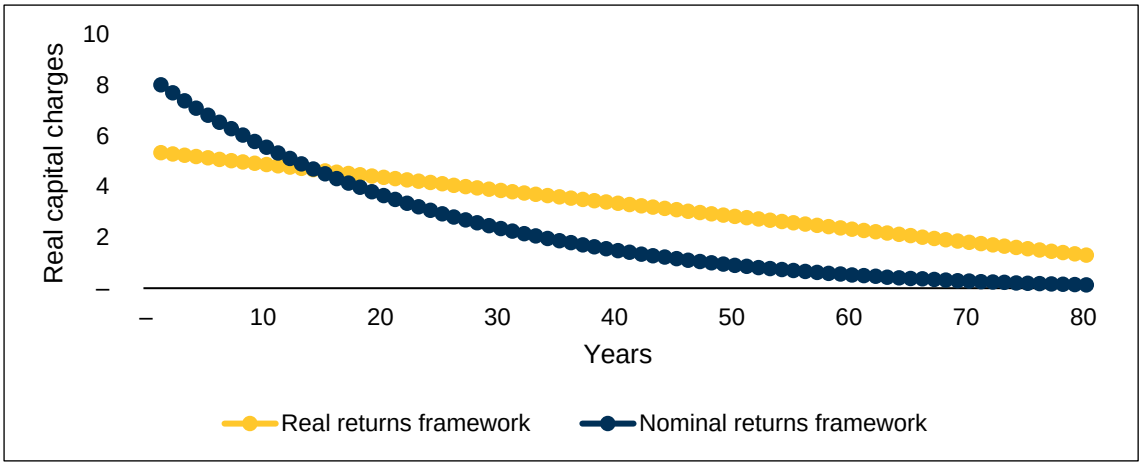
53. Network assets' economic lives have been considered to be roughly equivalent to the technical/engineering life. Infrastructure assets generally have a longer technical life than assets for other industries, which is especially the case for gas networks in Western Australia. Historically, the economic life in Western Australia for pipeline capital expenditure was 80 years. The longer economic lives in Western Australia mean that a larger proportion of the regulatory asset base is yet to be recovered for the ATCO network.

54. The calculation 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).

55. The ERA has provided regulatory depreciation in real terms, aligning with the real approach of the other building blocks of the Post Tax Revenue Model.[16] 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:

[16] The Australian Energy Regulator also applies a real approach.

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



Source: ERA analysis.

56. In terms of payment profiles, a straight-line approach has been taken by Australian economic regulators for regulatory depreciation.

57. 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.

58. 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.

59. However, the current environment challenges the assumptions and expectations that were previously applied in setting the regulatory arrangements for gas pipelines.

60. There is increasing uncertainty about the future of gas and its role. Policy developments on decarbonisation are occurring at both state and federal levels, along with technological improvements and possible changing consumer preferences that are increasing the variability of expected outcomes for gas networks that may be expected beyond the AA6 period.

61. This uncertainty creates doubt as to whether gas networks can operate in the same ways that they have in the past.

62. 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 use 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 as the regulatory tool to manage uncertainty. DBP did not seek a change to the depreciation profile via accelerated depreciation.[17]

63. Other economic regulators such as the Australian Energy Regulator (AER) have reconsidered the regulation of gas networks under uncertainty.[18] In its review, the AER expressed a preference for using accelerated depreciation to manage depreciation and has recently allowed it for Victorian gas distribution network service providers.[19]

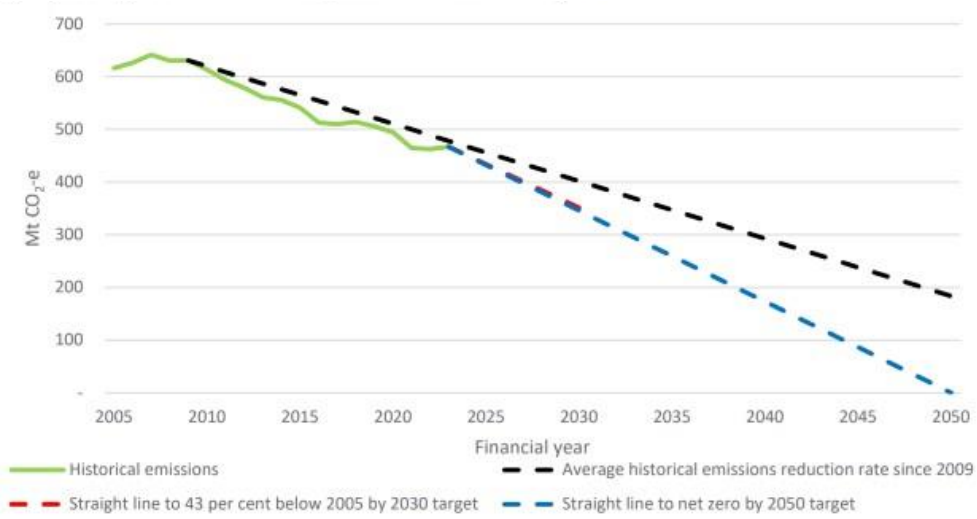
64. The future of any specific gas network, transmission or distribution, will be driven by its individual exposures to demand factors, the types of customers connected to the specific network and the technological and market factors impacting those customers.

Operating environment for ATCO's distribution network

65. While 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, Australian governments have set net zero by 2050 targets.

66. 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. [20]

Figure 6.2: Australian national emissions targets for 2030 and 2050



Source: Climate Change Authority (2023).[21]

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

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

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

20 AEMC, *Emissions targets statement under the National Energy Laws*, June 2024.

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

67. 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. The strategy expects that natural gas use will decline significantly as illustrated in Figure 6.3.

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

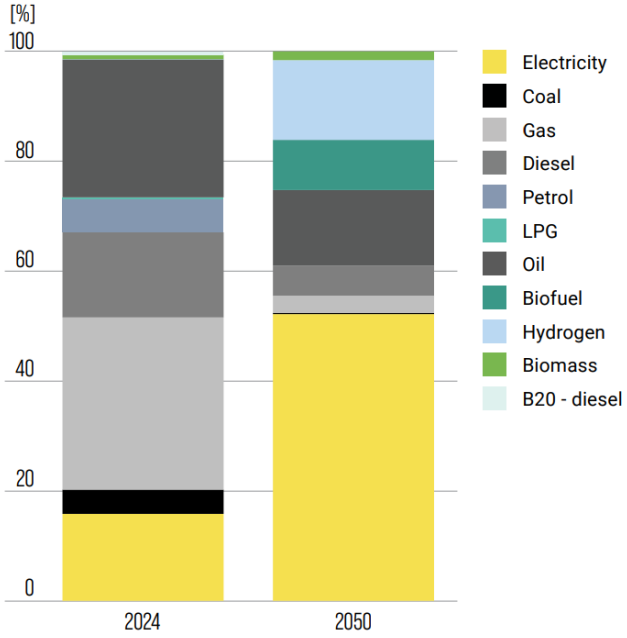


Figure 10: Indicative change in fuel mix in Western Australia from 2024 to 2050

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.

68. The Commonwealth Government released the Future Gas Strategy in May 2024.[22] This strategy document reaffirmed Australia's commitment to supporting net zero emissions by 2050 and identified guiding principles for an orderly transition. The ones relevant to gas pipelines include:

- The availability of affordable gas for Australian users throughout the transition.
- Gas markets adapting to remain fit for purpose during the energy transformation.

ATCO's revised proposal

69. ATCO considered the ERA's feedback on its accelerated depreciation approach in the draft decision and changed its framework, approach and modelling for accelerated depreciation from the initial proposal.

70. The consumer choice model remains, which models switching behaviour based on simulated prices, the external environment and consumer preferences.

[22] Australian Government, *Future Gas Strategy*, May 2024.

71. ATCO simulated consumer demand over a long-run period across the same four scenarios as used in its initial proposal:[23]

    - *Natural Gas Retained*: natural gas remains crucial in the ATCO network, consistent with medium-term expectations from previous regulatory periods.
    - *Hydrogen Future*: advancements in renewable hydrogen and other renewable gas technologies enable these gases to replace natural gas domestically and internationally, mirroring the current natural gas and LNG industries with a focus on high-volume exports.
    - *Energy Hybrid*: balanced technological advancements in renewable gases and electrification, resulting in a mix of consumers either transitioning to electricity or remaining on the gas network.
    - *Electricity Dominates*: rapid advancements in renewable electricity generation and storage significantly lower costs, leading to widespread electrification of industry and households.

72. ATCO has changed how it determines an accelerated depreciation amount:

    - ATCO no longer proposes to use a constant levelised real price approach that calculated the amount of accelerated depreciation as a modelled outcome. That is, accelerated depreciation was previously solved to deliver constant prices overtime.
    - The model now incorporates a depreciation tilt rate to calculate a range of accelerated depreciation options, with the assumption that such a tilt continues for future access arrangements.[24] The different levels of depreciation tilt affects both prices and asset recovery, influencing the amount of long-term stranding risk faced by the GDS. ATCO's updated approach now considers a range of depreciation tilts. Based on this range, ATCO uses its judgement to determine a preferred accelerated depreciation allowance.

73. The revised ATCO model now also incorporates a retail gas price cap mechanism that ensures that simulated retail gas prices cannot exceed some multiple of the expected 2029 retail price. This mechanism attempts to limit extreme price increases.

74. Delaying the commencement of accelerated depreciation has now been directly incorporated in the model to allow for a comparison of outcomes of different starting points for accelerated depreciation.

75. Further detail discussing ATCO's revised modelling approach is provided in Appendix 3 and in ATCO's Revised Plan.[25]

76. Based on the revised proposal modelling, ATCO has submitted that:

    - It will not have a reasonable opportunity to recover its costs using the straight-line depreciation method, as stranded asset risk was demonstrated in two scenarios (Electricity Dominates and Energy Hybrid).

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23 ATCO, *ATCO Gas 2025-29 Revised Plan*, August 2024, pp. 219-220.

24 The tilt chosen provides for a depreciation profile that is decreasing by that amount in percentage terms, period by period. For example, a 2 per cent tilt results in payments that decrease by 2 per cent a year, which is accomplished by increasing initial payments such that it can decline by the tilt factor and ensure all capital is recovered by the end of the economic life.

25 ATCO, *ATCO Gas 2025-29 Revised Plan*, August 2024, pp. 216-226.

- Stranding risk was most evident in the Electricity Dominates scenario, supported by Incenta (ATCO's consultant) who measured stranding risk as the sum of the unrecovered cost of service and terminal regulatory asset base, which was around $1,600 million (real 2023).
- There is no right amount of accelerated depreciation to be allowed.
- Its proposed 2 per cent tilt was a matter of judgement, trading off reductions in stranding risk (which is not fully eliminated) against missing the window of opportunity for timely action.
- Deferring accelerated depreciation would require higher tilts (more accelerated depreciation) in later access arrangements to achieve the same level of stranding reduction.

77. This model has subsequently been revised and the update is discussed further in the ERA's final decision discussion.

Final decision on accelerated depreciation

Accelerated depreciation as a regulatory tool

78. In its draft decision, the ERA accepted that accelerated depreciation is a regulatory tool that can manage the potential for declining levels of future customer demand. This consideration included detailing how the provision of accelerated depreciation aligns with the NGL and NGR.

79. However, in the draft decision, the ERA did not approve the accelerated depreciation proposed by ATCO as its proposal was not supported by robust modelling that allowed a decision to be made on the appropriate amount.

Second Update AD model and results

80. Stakeholders submitted that the revised modelling should be carefully considered by the ERA.[26,27] The majority of stakeholders supported the ERA's draft decision not allowing accelerated depreciation on the basis of inadequate modelling.[28,29,30,31,32]

81. The ERA engaged Frontier Economics to review ATCO's initial proposal for accelerated depreciation. This engagement continued for the revised proposal. Frontier Economics' final report has been published with this final decision.[33]

26 Alinta Energy, *Submission on ERA draft decision and ATCO revised proposal*, 9 July 2024, pp. 3-5.

27 Chamber of Minerals & Energy WA, *Submission on ERA draft decision and ATCO revised proposal*, 11 July 2024, p. 1.

28 AGL Energy, *Submission on ERA draft decision and ATCO revised proposal*, 8 July 2024, p. 1.

29 Alinta Energy, *Submission on ERA draft decision and ATCO revised proposal*, 9 July 2024.

30 Kleenheat, *Submission on ERA draft decision and ATCO revised proposal*, 8 July 2024, p. 2.

31 Synergy, *Submission on ERA draft decision and ATCO revised proposal*, 9 July 2024, p. 1.

32 WA Expert Consumer Panel, *Submission on ERA draft decision and ATCO revised proposal*, 9 July 2024.

33 Frontier Economics, *ATCO MWSW GDS Accelerated Depreciation Modelling Review – Stage 2*, September 2024.

82. Frontier Economics considered that:

- ATCO's revised approach provided a more reasonable basis to consider accelerated depreciation as it addressed deficiencies identified by the ERA and Frontier Economics.
- As proposed by Incenta, the relevant measure of asset stranding risk is both the unrecovered cost of service and the value of the RAB when the network ceases to be used (terminal RAB value).
- The usage of tilt to determine amounts of accelerated depreciation is a pragmatic approach.

83. In reviewing the revised accelerated depreciation proposal, the ERA and Frontier discovered issues relating to the treatment of retail gas prices and the modelling approach.[34] This has resulted in refinements and consolidation of models (ACIL Allen and Incenta models) which is referred to as the "Second Update AD model" (see Appendix 3 below for more details). This refined model sought to correct identified modelling errors and implement changes to improve the practical use of the model.

84. To make its final decision the ERA has relied on analysis and outputs from the Second Update AD model.

85. While the ATCO modelling has improved, some issues still justify a degree of caution. More detail is provided in Appendix 3. These concerns include:

- *Consumer switching*: One key issue raised by Frontier Economics is its reservations regarding the consumer switching model and the approach taken to implement the S-curves.[35] S-curves help inform on a customer's willingness to change from gas, thereby determining customer numbers and the resulting gas demand throughout the life of the model. The consumer switching model now expects customers to disconnect from the gas network at an economic cost to that individual. That is, with a negative net present value of moving to electricity that customer is still willing to disconnect from gas.
- *Retail gas price cap implementation*: The model caps retail gas prices as a multiple of the 2029 retail price. The price cap is therefore impacted by the level of accelerated depreciation provided in AA6. However, a retail gas price cap may in fact be constant across accelerated depreciation scenarios.
- *Modelled output stability*: There are some instances of instability in outputs to smaller incremental changes in accelerated depreciation.

86. However, even with the above concerns, the Second Update AD model's long-term demand scenarios are informative about stranded asset risk and the dynamics of providing some accelerated depreciation.

[34] Frontier Economics, *ATCO MWSW GDS Accelerated Depreciation Modelling Review – Stage 2*, September 2024, p. 36.

[35] Frontier Economics, *ATCO MWSW GDS Accelerated Depreciation Modelling Review – Stage 2*, September 2024, pp. 18-22.

87. To evaluate long-term demand forecasts from the Second Update AD model, Frontier Economics compared modelled gas demand with AEMO forecasts of similar scenarios and concluded that they were comparable.[36] While Frontier Economics considered that the Electricity Dominates demand forecasts were usable, Frontier Economics advised that some caution is warranted given ATCO's method.

88. Long-term demand outputs are necessary for estimating stranded asset risk. ATCO relied upon Incenta's calculation of stranding risk and how stranding is affected through the provision of accelerated depreciation.

89. The analysis of stranding risk quantified both:

- Terminal RAB value - The value of the regulatory asset base when the network ceases to be used. This represents the value of the RAB that is unrecovered.
- Unrecovered cost of service - Revenues that are not able to be recovered from customers before the network ceases operating. In the years preceding the end of the network, the ability to recover all the network's cost of service (including operating expenditure and rate of return) may be constrained by retail gas price caps or market forces.

90. As Incenta's estimates were based on superseded models, Frontier Economics re-estimated stranded asset risk using the Second Update AD model which is presented in Figure 6.4.

[36] Frontier Economics, *ATCO MWSW GDS Accelerated Depreciation Modelling Review – Stage 2*, September 2024, p. 36.

Figure 6.4: Frontier Economics' estimates of stranded asset risk using Second Update AD Model ($ million real at December 2023)

		Undiscounted			NPV		
Tilt factor	Applied from	Unrecovered COS	Unrecovered RAB at closure	Total	Unrecovered COS	Unrecovered RAB at closure	Total
Natural gas retained							
Base case	n/a	0.0	0.0	0.0	0.0	0.0	0.0
2%	2025	0.0	0.0	0.0	0.0	0.0	0.0
5%	2025	0.0	0.0	0.0	0.0	0.0	0.0
2%	2030	0.0	0.0	0.0	0.0	0.0	0.0
5%	2030	334.3	193.5	527.7	59.9	22.3	82.2
Energy hybrid							
Base case	n/a	773.0	0.0	773.0	118.6	0.0	118.6
2%	2025	463.6	0.0	463.6	71.4	0.0	71.4
5%	2025	147.8	0.0	147.8	20.9	0.0	20.9
2%	2030	596.6	0.0	596.6	99.7	0.0	99.7
5%	2030	497.6	289.8	787.4	149.3	52.9	202.2
Hydrogen future							
Base case	n/a	2,256.7	0.0	2,256.7	397.9	0.0	397.9
2%	2025	1,717.3	0.0	1,717.3	305.3	0.0	305.3
5%	2025	847.1	0.0	847.1	149.0	0.0	149.0
2%	2030	2,095.4	0.0	2,095.4	406.8	0.0	406.8
5%	2030	1,612.0	0.0	1,612.0	384.5	0.0	384.5
Electricity dominates							
Base case	n/a	1,154.8	619.7	1,774.5	244.6	82.0	326.6
2%	2025	760.9	391.2	1,152.2	158.5	51.7	210.2
5%	2025	354.5	181.3	535.8	72.9	24.0	96.9
2%	2030	927.1	441.2	1,368.2	216.1	64.0	280.1
5%	2030	652.0	277.5	929.6	196.3	53.0	249.3

Source: Incenta Updated Report, page 12; Frontier Economics analysis of the ACIL Allen and ATCO Second Update AD Model and the Incenta Second Update AD Model.

Source: Frontier Economics.[37]

91. The updated Frontier Economics estimates of asset stranding are generally higher than the ones provided by ATCO's revised proposal. Key changes include:

- The updated modelling results in decreased gas demand for the Energy Hybrid scenario, which increases stranded asset risk through unrecovered cost of service.

[37] Frontier Economics, *ATCO MWSW GDS Accelerated Depreciation Modelling Review – Stage 2*, September 2024, Table 5 at p. 35.

- Stranding risk is present in the Natural Gas Retained scenario where a 5 per cent tilt is provided in 2030.

92. The above table and analysis from Frontier Economics illustrates some relative dynamics of decisions on accelerated depreciation, including:

- Stranding exists across multiple scenarios, with faster demand reductions increasing stranding risk.
- Higher levels of accelerated depreciation reduce stranding risk. However, this applies up to a point when excessive levels of accelerated depreciation may increase stranding risk through higher prices reducing demand. This can be observed in the Natural Gas Retained scenario where a 5 per cent tilt in AA7 results in asset stranding that does not occur with straight-line depreciation.
- Delaying accelerated depreciation to the next regulatory period acts to increase stranding risk, or increases the amount of accelerated depreciation needed to reduce an equivalent amount of risk. For example, if a 2 per cent tilt is provided in 2025 for AA6, this would reduce asset stranding by about one-third in the Electricity Dominates and Energy Hybrid scenario. However, if accelerated depreciation was deferred to 2030, then the asset stranding reduction from a 2 per cent tilt would shrink to around 20 per cent.
- Accelerated depreciation can lead to long-term prices being less volatile than they may have otherwise been. Price effects are scenario dependent. Future prices can be lower due to the provision of accelerated depreciation. However, in scenarios where demand drastically declines prices increase. While prices increase, accelerated depreciation lowers the increases more than would otherwise be the case and results in lower volatility.

93. ATCO's accelerated depreciation modelling highlights that stranding risk is a complex, dynamic interaction between a long-run demand model and regulatory expenditure. Overall, the ERA considers that the updated modelling provided by ATCO has improved from the initial proposal. This has been driven by a change in approach, updated parameters and a revised method that allows for the analysis of key issues related to accelerated depreciation.

94. The ERA does not accept every aspect of ATCO's revised modelling, but also acknowledges that modelling future long-term uncertainty is inherently difficult.

95. The ERA does accept that the Second Update AD model plausibly demonstrates the presence of stranding risk in various scenarios. Additionally, the model provides analytical assistance regarding how accelerated depreciation can reduce such stranding risk for gas pipelines and current and future customers.

Uncertainty exists around long-term gas demand on the ATCO network

96. The possibility of reducing gas demand was not contemplated in ATCO's last access arrangement which was finalised in 2019. Since that time the Federal government has introduced Australian net zero 2050 targets and electrification of households has been developing across Australia.

97. The ERA notes that the long-term gas demand on the ATCO network has a high degree of uncertainty. This uncertainty is driven by the cumulative and compounding impact of potential changes in future:

- Federal and State government policy

- Technology
- Consumer preferences.

98. The ERA notes that this long-term uncertainty contrasts with the more stable demand outlook predicted for the five years of AA6. The ERA considers that short-term and long-term demand expectations may not be the same. Depreciation needs to be considered with a long-term perspective.

99. The ERA considers that the demand status quo for ATCO's gas network will not prevail over the longer term and that there exists a downward risk for gas demand as energy systems work towards government emissions targets. However, the size and speed of such declines is unknown.

100. When modelling long-term uncertainty, it is common practice to use scenario analysis as it is not possible to predict the future state of the world with accuracy.

101. The ERA considers that the use of scenario analysis is appropriate to model future uncertainty. ATCO's Electricity Dominates scenario generally aligns with the levels of emissions reductions needed to support net zero targets by 2050 with smaller residual demand for a period after 2050. Natural Gas Retained scenario is essentially a future that de-emphasises decarbonisation. The Hybrid Energy scenario represents a combination of the Electricity Dominates and Natural Gas Retained scenarios. Therefore, the scenarios appear to reasonably represent a range of plausible long-term futures.

Stranded asset risk

102. Uncertain future gas demand results in potential joint asset stranding risk that affects both gas pipelines and consumers:

- gas pipelines face loss of sunk investments and unrecovered costs
- consumers face a loss of sunk investments in appliances.

103. This stranding risk for gas pipelines may reduce the incentive for future investment and efficient network operation. If a gas pipeline 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 use of their appliances (in terms of service quality or duration).

104. This joint asset stranding risk reflects the co-dependent 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.

105. Stakeholders expressed the following views regarding stranded asset risk:

- Alinta maintained that ATCO did not sufficiently demonstrate stranded asset risk in its modelling.[38]

[38] Alinta Energy, *Submission on ERA draft decision and ATCO revised proposal*, 9 July 2024, p. 1.

- WACOSS maintained that accelerated deprecation inappropriately transfers the costs and risks of stranding assets to consumers, especially if little mitigation has taken place.[39]
- TRAC Partners (on behalf of the Consumer Panel) stated that stranded asset risk should be the focus of accelerated depreciation, along with complementary actions to mitigate risk.[40]

106. To demonstrate stranded asset risk, it is necessary to identify the drivers of uncertainty of the gas network's future customers and the network's future use and then deploy these drivers to quantify or model stranding risk over plausible long-term scenarios.

107. The analysis of stranding risk should quantify both terminal RAB value and unrecoverable cost of service. The Second Update AD model quantifies these factors.

108. The ERA accepts that the Second Update AD model plausibly demonstrates the presence of stranding risk in various scenarios.

109. The model includes analysis of the effect of deferring accelerated depreciation action. The ERA recognises that delaying accelerated depreciation to the next regulatory period can act to increase stranding risk.

110. The ERA's analysis of ATCO's models has indicated that the provision of excessive accelerated depreciation can actually increase stranding risk. This highlights that it is possible to provide too much accelerated depreciation, whereby the resulting increased prices perversely intensify the problem that accelerated depreciation sought to address.

111. The ERA considers that accelerated depreciation can be used as a tool to manage stranding risk.

Broad considerations in determining the amount of accelerated depreciation

112. The ERA considered a broad range of factors in deciding how much accelerated depreciation should be provided to ATCO in AA6.

113. Consistent with the NGL and NGR, the ERA has considered the:

- Reasonable opportunity to recover efficient costs
- Intergenerational equity and efficient pricing over time
- Financeability of investments for gas network services
- Supporting gas network utilisation and emissions reductions.

114. The following section considers these in more detail.

Reasonable opportunity to recover efficient costs

115. The NGL's revenue and pricing principles require a service provider to be given a reasonable opportunity to recover efficient costs.

116. A reasonable opportunity is informed by expectations of future demand, the length of an asset's life and the market environment. As discussed above, the previous operating

[39] WA Council of Social Service, *Submission on ERA draft decision and ATCO revised proposal*, 5 July 2024, p. 1.

[40] WA Expert Consumer Panel, *TRAC Partners Technical Report on ERA draft decision and ATCO revised proposal*, 8 July 2024, p. 6.

environment for gas distribution networks supported a straight-line depreciation profile provided in real terms. However, the future operating environment is unlikely to be like the past, which necessitates reconsideration of what it means to provide a reasonable opportunity to recover.

117. WACOSS considered that the revenue and pricing principles does not provide for a right to recover all costs.[41]

118. The ERA considers that the provision of accelerated depreciation should support providing a reasonable opportunity to recover efficient costs. Efficient costs include both the recovery of the regulatory asset base and other cost to serve. A reasonable opportunity to recover is distinct from providing a guaranteed recovery of efficient costs. There is no right for a network provider to recover all of its costs.

119. The ERA considers that accelerated depreciation for ATCO's AA6 can reduce stranding risk and this aligns with supporting a reasonable opportunity to recover efficient costs to ATCO. However, too much accelerated depreciation can increase stranding risk.

Intergenerational equity and efficient pricing over time

120. The National Gas Objective requires:

- consideration of the long-term interest of consumers, meaning both current and future customers
- consideration of economic efficiency, given that the choice of depreciation can promote price signals to guide the efficient use of, and investment in, gas pipelines.

121. In an environment of reducing future demand, future prices may escalate as fixed costs are spread over a smaller customer base. Reducing future demand could result in costs being concentrated on those who cannot afford to move to full electrification.

122. With possible future demand reductions, providing accelerated depreciation allows for smaller near-term price increases, which allow for lower or stable prices in the future. That is, accelerated depreciation supports current customers contributing to gas network costs to avoid costs being concentrated on remaining customers over the longer term.

123. The ERA has considered the interests of both current customers and future customers, and how depreciation profiles can support efficient prices over time.

Financeability of investments for gas network services

124. The National Gas Objective requires the consideration of efficient investment in the gas network for the long-term interest of customers to ensure quality, safety, reliability and security of supply. The revenue and pricing principles also requires consideration of over or under investment in the gas network.

125. The ERA considers that accelerated depreciation is a regulatory tool that supports sunk investment and provides incentives for "sustaining/maintenance" investment to support minimum quality, safety, reliability and security of supply.

Supporting gas network utilisation and emissions reduction

126. The National Gas Objective requires both the consideration of efficient use of gas networks, while the revenue and pricing principles requires the consideration of under

and over utilisation. Recently, the National Gas Objective has been amended to include an environmental objective.

127. Accelerated depreciation may support the efficient use of the gas network, especially if customer preferences change over time through their demand elasticities. While current demand is inelastic and not overly responsive to price increases, consumer demand in the future may be more price responsive given future alternatives. Therefore, through varying prices over time accelerated depreciation supports efficient use of the gas network.

128. There is a tension between network use and the emissions reduction objective. However, accelerated depreciation can support efficient pricing through time and in the long-term this may provide support to the competitiveness of renewable gases, which can support lower emissions.

AA6 accelerated depreciation amount

129. In determining an accelerated depreciation amount, the use of regulatory judgement is necessary to balance factors against each other, while also recognising different possible scenarios and various time periods.

130. The ERA considers there exists a downward risk for gas demand over the long-term. However, the size and speed of such declines is unknown.

131. The ERA accepts that updated modelling can provide plausible estimates of stranding risk and the impact of accelerated depreciation (these estimates are presented in Figure 6.4). This analysis assists the ERA by examining how stranding risk changes through the provision of different tilts (see Appendix 3).

132. In proposing an amount of accelerated depreciation ATCO considered various tilts and used its judgement to select a 2 per cent tilt.

133. Given the inherent uncertainty present in the task, the ERA will apply tilts rounded to the nearest whole percentage value to avoid applying a false degree of precision.

134. While ATCO has proposed a 2 per cent tilt, the ERA has evaluated alternative tilts based on its assessment of the factors above. These alternative tilts included a lower 1 per cent tilt.

135. The ERA does not accept the 2 per cent tilt proposed by ATCO and has used its regulatory judgement to apply a 1 per cent tilt instead.

136. The ERA was guided by the following:

- Despite improvements in the Second Update AD model, its outcomes could not be fully relied upon, and a downward adjustment was necessary.
- Not all scenarios demonstrate stranding risk.
- A 1 per cent tilt provides ATCO with an amount in addition to the base depreciation allowance which will reduce stranding risk, while maintaining incentives for ATCO to manage ongoing stranding risk.
- A 1 per cent tilt places a small upward pressure on AA6 tariffs, while reducing future price volatility.

- The current market environment has resulted in unavoidable increases in tariffs, where a 1 per cent tilt would result in a pricing impact that is lower than the 2 per cent tilt proposed by ATCO. Some stakeholders submitted that any tilt value to be provided should be low in order to balance the interests of consumers and retailers with the gas pipeline.[42]

137. On the basis of the revised modelling, ATCO's proposed 2 per cent tilt would result in a reduction of stranding risk of around $300 million (real 2023) at an acceleration depreciation cost of $87 million (real 2023).[43]

138. A 1 per cent tilt results in stranding reduction of around $200 million (real 2023) at an acceleration depreciation cost of $38 million (real 2023).

139. Based on available information, for the AA6 final decision the ERA considers that the provision of an accelerated depreciation amount through a 1 per cent tilt best meets the National Gas Objective and revenue and pricing principles. In the current uncertain environment, the ERA considers that this accelerated depreciation amount:

- balances the interests of both the current and future customers
- works towards the delivery of efficient prices over time
- mitigates stranding risk.

140. The ERA notes that accelerated depreciation is a flexible regulatory tool and will consider the accelerated depreciation allowance at the next regulatory reset based on the most current information available at that time.

141. The 1 per cent tilt applies to the final decision RAB as determined in Attachment 4, which differs from ATCO's revised proposal RAB.

142. For the purposes of regulatory modelling, the ERA accepts ATCO's proposal to allocate the amounts of accelerated depreciation to the High Pressure Mains – Steel asset class. These assets have the highest remaining economic lives and would have the most exposure to outcomes post 2050.

143. ATCO's proposed accelerated depreciation profile is a "front-ended" payment profile that allocates approximately half of the amount within the first two years. Some stakeholders expressed a preference for accelerated depreciation payments to occur towards the end of the access arrangement.[44]

144. The ERA considers that price and tariff impacts are best managed by the global tariff smoothing techniques that are applied as per Attachment 3. This approach emphasises that it is the total tariff and path that matters for consumers, not necessarily any individual component.

145. Therefore, the ERA does not accept ATCO's revised proposal approach and instead allocates accelerated depreciation by evenly splitting the total amount in real terms for each year of the regulatory period.

42 Alinta Energy, *Submission on ERA draft decision and ATCO revised proposal*, 9 July 2024, p. 12.

43 These stranding reductions are averaged across scenarios and should be understood as not being probability weighted and occurring over the long run.

44 WA Expert Consumer Panel, *Submission on ATCO Proposal and ERA issues paper*, November 2023, p. 21.

Forecast depreciation

Regulatory depreciation for AA6

146. The ERA accepts ATCO's approach to calculate its base level of depreciation, which is consistent with its existing approach.

147. However, the ERA does not accept ATCO's proposed 2 per cent tilt for accelerated depreciation. Instead, the ERA's final decision is to allow for a 1 per cent tilt as described above.

148. The ERA's forecast regulatory depreciation allowance is detailed in Table 6.8.

Table 6.8: ERA's final decision forecast of regulatory depreciation for AA6 ($ million real at December 2023)

	2025	2026	2027	2028	2029	Total
Base depreciation	60.3	72.5	77.4	78.6	79.0	367.8
Accelerated depreciation	7.6	7.6	7.6	7.6	7.6	38.1
Regulatory depreciation - total	**67.9**	**80.1**	**85.0**	**86.3**	**86.6**	**405.9**

Required Amendment

6.1 ATCO must amend the forecast depreciation of the capital base for AA6 to $405.9 million (real as at 31 December 2023). The yearly values for each year of the access arrangement period are set out in Table 6.8 of this final decision.

Appendix 1 List of Tables

Appendix 2 List of Figures

Appendix 3 Technical Annexure

Revised proposal AD models

149. The new concepts introduced by ATCO in its revised proposal for accelerated depreciation are discussed below.

Estimation of stranding risk

150. ATCO commissioned ACIL-Allen and Incenta for advice on various measures of stranding risk that may result from uncertain future demand and asset utilisation.

151. The modelling is based on a causal chain where consumers of the GDS switch from using gas appliances to electricity appliances due to various factors, which lowers customer numbers and gas usage in some scenarios.[45] In the Electricity Dominates scenario this eventually results in a customer base that is insufficient to support the operation of the GDS as recovery from this smaller customer base would require prices and tariffs levels beyond a consumer's willingness to pay.

152. The ERA considers the focus on stranded risk to be an improvement from the initial proposal, where accelerated deprecation was provided for every scenario, including ones where there was increasing customer numbers, gas usage and which accordingly faced no stranding risk.

153. This revised modelling approach considers the provision of straight-line depreciation as the base case that represents a status quo option. On this basis customer numbers and demand are estimated according to scenario parameters which reveals underlying stranding risk for that scenario. It is now possible to determine the year where assets are stranded, being the year where no customers remain on the gas network due to price increases. The value of this terminal regulated asset base at the stranding year is one potential measure of the stranding risk. The other is the value of the regulated asset base at the end of the 2074 modelling period. For example, in the Electricity Dominates scenario stranding occurs in 2069, with a RAB of around $600 million ($2023, real) or $75 million in present value terms. These approaches are ACIL-Allen's preferred measure of stranding risk.

154. The possibility that ATCO cannot recover part (or all) of its cost of service is another dimension of stranding risk that has been introduced by ATCO's revised proposal. In contrast to ACIL-Allen, Incenta considers that the true measure of stranding risk includes both the terminal regulated asset base and unrecovered cost of service.

155. Unrecovered cost of service could either be from operating expenses, depreciation or the rate of return. The inability to recover these costs would be an NPV negative situation for a gas pipeline.

156. The analysis finds that unrecovered cost of service is a larger component than the terminal regulated asset base. For the Electricity Dominates scenario, the unrecovered cost of service is around $1.2 billion (2023 real) while the terminal RAB is around $0.6 billion (2023 real).

[45] These factors include the price relativities between electricity and gas, the presence of rebates and other policy measures from the external environment, and customer preferences.

Introduction of retail gas price cap

157. An important mechanism in the calculation of stranding risk is the imposition of a retail gas price cap. This is an external assumption that seeks to limit future retail price increases to some maximum level. For example, a limit on the extent to which retail gas prices can rise may occur due to political concern regarding extreme gas price levels or natural market pressures driven by gas substitutes.

158. The model calculates the retail gas price cap as a multiple of the 2029 retail price. This 2029 reference point represents the last year of the AA6 period and can be interpreted as a "reasonable" constraint on prices.

159. This retail price cap introduces a new dynamic that was not present in the initial proposal. The fundamental logic of the accelerated depreciation model is that a reducing customer base will result in higher unit prices. However, if unit prices hit the cap, then customers do not end up facing the full charge and are more likely to remain on the gas network. For example, if the 2029 retail gas price was $30/GJ and the cap is 2.0x, then the price cap is $60/GJ. If reduced demand results in the retail price otherwise exceeding $60/GJ, this is not allowed by the model and customers would only face the capped price.

160. If the gas retail price cap binds, there will be unrecovered revenues as customers do not pay a cost reflective tariff. Given that regulated retail prices are the sum of network, wholesale gas and retailing charges, if the cap binds, then this loss is borne by either the gas distribution network, transmission network, retailer or upstream gas supplier.

161. ATCO's revised proposal assumes that first losses will be borne by the GDS. This may not be an unreasonable assumption given this allows operating costs throughout the value chain to be first recovered and then any residue left to contribute to the recovery of sunk investments. Retailers would be likely to be one of the first to exit as they do not have the same level of sunk costs as other members of the supply chain such as the gas networks and gas suppliers.

Introduction of tilt factor to determine accelerated depreciation amount

162. ATCO has introduced a depreciation tilt to modify the depreciation payment profile.

163. The tilt factor chosen by ATCO is similar to the one chosen by Victorian gas distribution networks and takes the following form:

$$Tilt\ Factor_t = \frac{g(1-g)^{t-1}}{1-(1-g)^T}$$

Where:[46]

t indexes the time period

g is the tilt rate

T is the economic life of the asset.

[46] Note that there is a typographical error with ATCO's tilt formula in the Revised Proposal as this does not correspond with how it is implemented in the financial models.

164. This tilt factor reprofiles deprecation based on the selection of the tilt rate, where a higher tilt rate results in greater accelerated depreciation. For reference, a tilt rate of around zero per cent corresponds to the straight-line depreciation method.

165. For example, a 2 per cent tilt results in payments that decrease by 2 per cent a year, which is accomplished by increasing initial payments such that depreciation can decline by the tilt factor and ensure all capital is recovered by the end of the economic life.

166. The tilt formula as proposed by ATCO may be modified to account for asset classes that have non-integer (non whole number) economic lives by rounding them up to the nearest integer. This prevents situations where the RAB is over-recovered and requires a negative depreciation charge to reverse it out. This issue was noted by ATCO in its Revised Proposal and handled in its revised model in a separate way to achieve the same outcome.

167. For ATCO's revised proposal, the choice of a tilt is an independent decision that affects the amount of asset stranding. It does so by allowing prices to increase which reduces the value of the terminal RAB (due to accelerated depreciation), along with avoiding losses on the rate of return due to a RAB that would otherwise be elevated.

168. However, the ERA observes that at the extremes it is also possible to induce stranding with very high tilts. Extreme tilts act to spark a "death spiral" which acts to accelerated customer losses and worsens stranded asset risk.

169. ATCO's revised proposal adopts a tilt rate of 2 per cent which corresponds to $87 million (real, 2023) of accelerated depreciation. This tilt does not fully prevent asset stranding from occurring, and it may reduce stranded asset risk by around one-third.

Second Update AD model

170. ATCO's revised proposal included two separate models:

- A long run demand model that incorporated a post-tax revenue model from ACIL-Allen.
- A stranding risk assessment model from Incenta.

171. Incenta's model took outputs from the ACIL-Allen model to create estimates of stranding risk. Therefore, any changes that occurred to the ACIL-Allen model required an update to the Incenta model, especially if the model architecture was changed.

172. As the ERA and Frontier Economics identified consistency issues with gas price and volume representations, this necessitated changes to the ACIL-Allen model that did not automatically flow to the Incenta model.

173. Accordingly, the ERA requested that ATCO consolidate these two models to ensure that Incenta's measures of stranding risk were always using the most up to date outputs from the ACIL-Allen model. This consolidated model was provided to the ERA and Frontier Economics, supersedes all other models and is available on the ERA's website.

Outstanding modelling matters

174. *S-curve implementation*: as discussed by Frontier Economics, the chosen switching parameters are such that consumers are switching in ways that are largely driven by non-financial considerations. This raises tensions with the underlying methodology which relies on relative NPVs as the single factor that changes the probability of connecting and disconnecting. At this point in time, the outcomes from the parametrisation are still consistent with independent forecasts. This may not always be the case in the future as there is a risk that the observed alignment is a coincidence.[47]

175. *Implementation of the price cap*: the concept of a price cap is reasonable as it reflects pricing constraints on a regulated distribution network whatever its source. Whether it should be based on the level of 2029 retail gas tariffs is debatable as this induces a relationship with accelerated depreciation.[48]

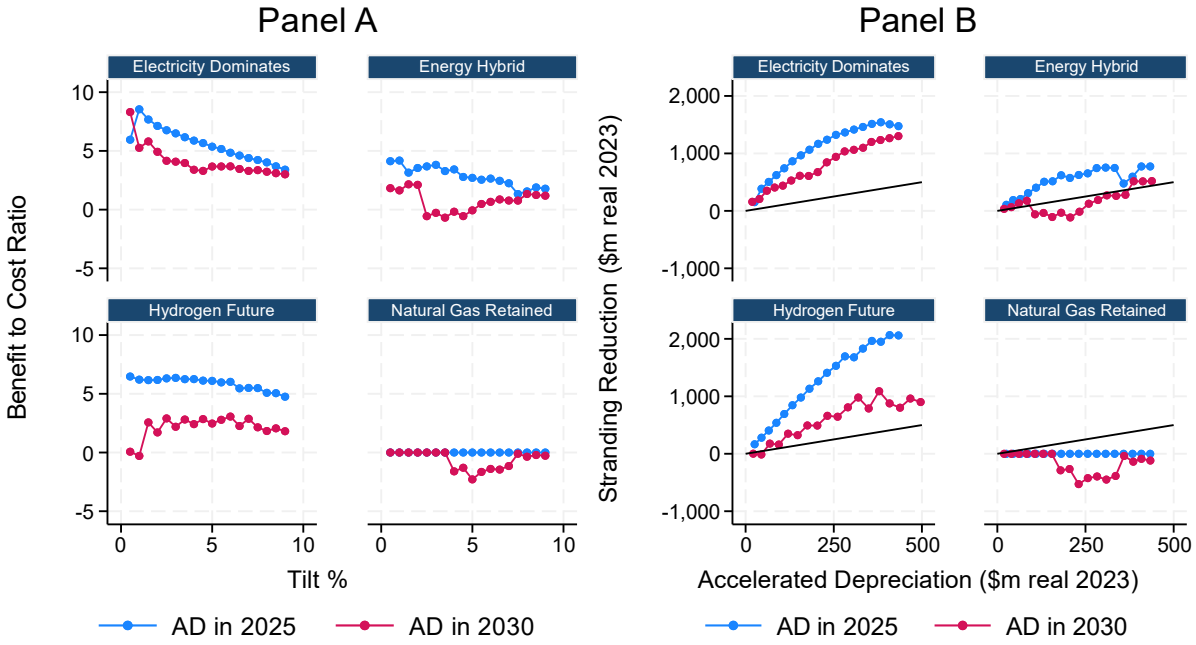
176. *Model stability via observed kinks in benefit cost ratios*: when analysing the reduction in stranding risk compared with the amount of accelerated depreciation required, kinks are observed across differing tilts for these ratios which are presented in Figure 6.5. These kinks are hard to understand as this illustrates "see-sawing", where the first incremental dollar of accelerated depreciation might relatively reduce stranding risk, but the second dollar increases it, and the third dollar then decreases it.[49] This behaviour is not currently well understood or well documented.

[47] To some degree this reflects a philosophical difference of opinion in financial economics about modelling inference and prediction. One view may be that a model's utility largely derives from its ability to explain or simulate reasonable outcomes. This view would place less weight on how reasonable an individual parameter may be and place more weight on how it is able to produce outcomes. The other view is that the reasonableness of one's inputs informs the reasonableness of outputs, more colloquially known as "garbage in garbage out". This view would place more weight on individual parameters.

[48] A larger tilt results in larger accelerated depreciation in AA6, which increases the 2029 retail price. As the price cap is a multiple of this price, this means that more accelerated depreciation provided allows for higher prices to be charged in future access arrangements. This is not consistent with a view that a price cap reflects willingness to pay and should not be directly related to accelerated depreciation.

[49] While the ratios themselves may not be monotonically changing across tilts, they can be expected to be relatively locally smooth and should not have gradient reversals.

Figure 6.5: Asset stranding and accelerated depreciation across AA6 and AA7.



Source: ERA analysis of the Second Update AD model.

Note: Panel A presents Benefit to Cost ratios at a range of tilts. Panel B presents stranding risk reductions for a range of accelerated depreciation values. Stranding risk is unrecovered cost of service and terminal RAB. Stranding reduction is equal to stranding risk at each tilt minus base stranding risk with no accelerated depreciation. Each dot represents a 0.5 per cent tilt increasing from left to right. The solid black line represents the 45-degree line where stranding risk reductions are equal to the amount of accelerated depreciation.

The impact of deferring AD

177. Deferring accelerated depreciation to the next access arrangement appears to lead to sub-par outcomes as illustrated by Figure 6.5. It appears that deferring accelerated depreciation creates additional problems across all scenarios, where accelerated depreciation loses its effectiveness when compared to being used earlier.

178. Regression analysis is presented in Table 6.9. Focusing on the Electricity Dominates scenario, where every one percentage point of tilt reduced stranding risk by around $210 million (real, 2023), waiting until the next access arrangement reduced the benefit of accelerated depreciation by nearly 25 per cent to around $158 million (real, 2023).

Table 6.9: Regression analysis of accelerated depreciation deferral across scenarios

Stranding reduction	Basis ($m)	Electricity Dominates	Energy Hybrid	Hydrogen Future	Natural Gas Retained	All scenarios pooled	All excluding Natural Gas Retained
AD in 2025	Present value	39	16	45	(0)	25	33
AD in 2030	Present value	18	(3)	4	(8)	3	6
Impact of waiting		**(21)**	**(19)**	**(42)**	**(8)**	**(22)**	**(27)**
AD in 2025	Real	210	102	257	–	142	190
AD in 2030	Real	158	38	123	(35)	71	106
Impact of waiting		**(52)**	**(64)**	**(135)**	**(35)**	**(71)**	**(84)**

Source: ERA analysis.

Note: Stranding reduction is the sum of unrecovered cost of service and terminal RAB in either real or present value $m. Each number represents how much stranding reduction occurs on average for another 1% tilt. Negative values means stranding increases due to the tilt. Regression analysis estimates a linearised model that relates the amount of stranding reduction for each dollar of accelerated depreciation.

179. This can also be evaluated in terms of how the cost of service under-recovery year and the regulatory asset base stranding year changes due to deferring accelerated depreciation from AA6 to AA7. These results are presented in Table 6.10.

Table 6.10: Accelerated depreciation deferral impacts on COS under-recovery year and RAB stranding year for Electricity Dominates scenario

	COS under-recovery year			RAB stranding year		
Tilt	**AD in 2025**	**AD in 2030**	**Change**	**AD in 2025**	**AD in 2030**	**Change**
0%	2048	2048	–	2069	2069	–
1%	2049	2048	(1)	2069	2069	–
2%	2049	2047	(2)	2069	2066	(3)
3%	2050	2046	(4)	2069	2062	(7)
4%	2051	2044	(7)	2069	2060	(9)
5%	2051	2043	(8)	2069	2059	(10)

Source: ERA analysis.

180. The Second Update AD model suggests that deferring accelerated depreciation to the next access arrangement will worsen outcomes. A two per cent tilt would bring forward cost of service under-recovery by two years and hasten RAB stranding by three years.