DRAFT DECISION
AusNet Services
Gas access arrangement
2018 to 2022

Attachment 2 – Capital base

July 2017

AUSTRALIAN
ENERGY
REGULATOR

Note

This attachment forms part of the AER's draft decision on the access arrangement for AusNet Services for 2018–22. It should be read with all other parts of the draft decision.

The draft decision includes the following documents:

Overview

Attachment 1 - Services covered by the access arrangement

Attachment 2 - Capital base

Attachment 3 - Rate of return

Attachment 4 - Value of imputation credits

Attachment 5 - Regulatory depreciation

Attachment 6 - Capital expenditure

Attachment 7 - Operating expenditure

Attachment 8 - Corporate income tax

Attachment 9 - Efficiency carryover mechanism

Attachment 10 - Reference tariff setting

Attachment 11 - Reference tariff variation mechanism

Attachment 12 - Non-tariff components

Attachment 13 - Demand

Attachment 14 - Other incentive schemes

Contents

Shortened forms

Shortened form	Extended form
AER	Australian Energy Regulator
ATO	Australian Tax Office
capex	capital expenditure
CAPM	capital asset pricing model
CESS	Capital Expenditure Sharing Scheme
CPI	consumer price index
DRP	debt risk premium
ECM	(Opex) Efficiency Carryover Mechanism
ERP	equity risk premium
Expenditure Guideline	Expenditure Forecast Assessment Guideline
gamma	Value of Imputation Credits
MRP	market risk premium
NGL	National Gas Law
NGO	national gas objective
NGR	National Gas Rules
NPV	net present value
opex	operating expenditure
PTRM	post-tax revenue model
RBA	Reserve Bank of Australia
RFM	roll forward model
RIN	regulatory information notice
RPP	revenue and pricing principles
SLCAPM	Sharpe-Lintner capital asset pricing model
STTM	Short Term Trading Market
TAB	Tax asset base
UAFG	Unaccounted for gas
WACC	weighted average cost of capital
WPI	Wage Price Index

2 Capital base

The capital base roll forward accounts for the value of AusNet's regulated assets over the access arrangement period. The opening capital base value for a regulatory year within the access arrangement period is rolled forward by indexing it for inflation, adding any conforming capex, and subtracting depreciation and other possible factors (for example, disposals or customer contributions).[1] Following this process, we arrive at a closing value of the capital base at the end of the relevant year. The opening value of the capital base is used to determine the return of capital (regulatory depreciation) and return on capital building block allowances.

This attachment sets out our draft decision on AusNet's opening capital base as at 1 January 2018 for the 2018–22 access arrangement period. It also sets out our draft decision on AusNet's projected capital base for the 2018–22 access arrangement period.

2.1 Draft decision

We accept AusNet's proposed opening capital base of $1575.7 million ($ nominal) as at 1 January 2018. However, we note that this capital base includes estimated capex for 2016 and 2017. We will update this with actual capex for 2016 and an updated estimate of 2017 capex in the final decision.

Table 2.1 summarises our draft decision on the roll forward of AusNet's capital base during the 2013–17 access arrangement period.

---

[1] The term 'rolled forward' means the process of carrying over the value of the capital base from one regulatory year to the next.

Table 2.1 AER's draft decision on AusNet's capital base roll forward for the 2013–17 access arrangement period ($million, nominal)

	2013	2014	2015	2016	2017
Opening capital base	1275.3	1339.2	1407.4	1471.0	1510.6
Net capex	86.8	94.1	92.6	83.7	99.6
Indexation of capital base	25.6	28.9	32.5	22.1	19.6
Less: straight-line depreciation	48.5	54.8	61.4	66.2	70.5
Closing capital base	1339.2	1407.4	1471.0	1510.6	1559.3
Difference between estimated and actual capex in 2012					12.1
Return on difference for 2012 capex					4.4
Opening capital base as at 1 January 2018					**1575.7**

Source: AER analysis.

We do not approve AusNet's proposed roll forward of its projected capital base over the 2018–22 access arrangement period, and do not approve its closing capital base at 31 December 2022 of $1837.5 million ($ nominal). This is because we have not approved AusNet's proposed inputs to the projected capital base roll forward, specifically expected inflation (attachment 3), depreciation (attachment 5), and forecast capex (attachment 6). Based on our approved amounts for these inputs, we determine a projected closing capital base of $1883.0 million ($ nominal) as at 31 December 2022. This is $45.5 million ($ nominal) more than that proposed by AusNet, an increase of 2.5 per cent. Our draft decision reductions to forecast capex are more than offset by the impact of the draft decision expected inflation rate. The net impact is a higher capital base at 31 December 2022 than that proposed by AusNet.

Table 2.2 sets out the projected roll forward of the capital base during the 2018–22 access arrangement period.

Table 2.2 AER's draft decision on AusNet's projected capital base roll forward for the 2018–22 access arrangement period ($million, nominal)

	2018	2019	2020	2021	2022
Opening capital base	1575.7	1636.0	1706.2	1772.4	1830.5
Net capex	104.1	103.2	102.0	97.4	95.5
Indexation of capital base	38.6	40.1	41.8	43.4	44.8
Less: straight-line depreciation	82.5	73.1	77.6	82.7	87.9
Closing capital base	1636.0	1706.2	1772.4	1830.5	1883.0

Source: AER analysis.

2.2 AusNet's proposal

AusNet proposed an opening capital base as at 1 January 2018 of $1575.7 million ($ nominal). This amount is calculated by rolling forward the opening capital base as at 1 January 2013 of $1275.3 million ($ nominal) by adding actual net capex, removing approved forecast depreciation and adding inflation indexation on the opening capital base in each year of the 2013–17 access arrangement period.

AusNet's proposed capital base roll forward during the 2013–17 access arrangement period is shown in Table 2.3.

Table 2.3   AusNet's proposed capital base roll forward during the 2013—17access arrangement period ($million, nominal)

	2013	2014	2015	2016	2017
Opening capital base	1275.3	1339.2	1407.4	1471.0	1510.6
Net capex	86.8	94.1	92.6	83.7	99.6
Indexation of capital base	25.6	28.9	32.5	22.1	19.6
Less: straight-line depreciation	48.5	54.8	61.4	66.2	70.5
Closing capital base	1339.2	1407.4	1471.0	1510.6	1559.3
Difference between estimated and actual capex in 2012					12.1
Return on difference for 2012 capex					4.4
Opening capital base as at 1 January 2018					**1575.7**

Source: AusNet Services, *Distribution GAAR Proposal RFM,* - 20161216 - Public.

AusNet proposed a projected closing capital base as at 31 December 2022 of $1837.5 million ($ nominal). AusNet determined this value by adjusting the closing value at 31 December 2017 for its proposed forecast net capex (attachment 6), depreciation (attachment 5) and expected inflation (attachment 3). The projected roll forward of the capital base during the 2018–22 access arrangement period is shown in Table 2.4.

Table 2.4   AusNet's proposed projected capital base roll forward during the 2018–22 access arrangement period ($million, nominal)

	2018	2019	2020	2021	2022
Opening capital base	1575.7	1628.5	1689.9	1747.2	1795.8
Net capex	109.4	107.0	105.9	100.7	97.8
Indexation of capital base	26.0	26.9	27.9	28.8	29.6
Less: straight-line depreciation	82.7	72.5	76.4	81.0	85.8
Closing capital base	**1628.5**	**1689.9**	**1747.2**	**1795.8**	**1837.5**

Source: AusNet Services, *Distribution GAAR Proposal PTRM,* 20161216 - Public.

AusNet proposed to use forecast depreciation to determine the opening capital base as at 1 January 2023, consistent with the approach applied in the access arrangement for the 2013–17 period.[2]

2.3 Assessment approach

Our approach to assessing AusNet's projected capital base is consistent with that adopted in previous gas decisions made under the NGR.[3] In accordance with rule 77(2) and rule 78 of the NGR, we applied three steps to calculate the projected capital base:

- First, we confirm the value of the opening capital base for the first year of the 2013─17 access arrangement period (in this case, 1 January 2013). This includes making an adjustment to account for any difference between actual and estimated capex in the final year of the previous access arrangement period (in this case, 2012). This adjustment must also remove any benefit or penalty associated with any difference between the estimated and actual capex for that year.[4] We note that this adjustment is subject to any further changes made in our assessment of conforming capex for 2012.

- Second, the opening capital base as at 1 January 2013 is rolled forward to determine the closing capital base as at 31 December 2017. This closing capital base is also used as the value of the opening capital base for the access arrangement period as at 1 January 2018. This involves:[5]

  - adding conforming actual capex for each year—this requires assessing the capex and determining that it is consistent with the provisions of the

---

[2]   AusNet, *Access Arrangement Information 2018-2022*, 20161221 - Public, p. 268.

[3]   For example, AER, *Final decision: Jemena Gas Networks (NSW) access arrangement 2015–20*, June 2015; AER, *Final decision: ActewAGL access arrangement 2016–21*, May 2016; AER, *Final decision: Australian Gas Networks (SA) access arrangement 2016–21*, May 2016.

[4]   NGR, r. 77(2)(a).

[5]   NGR, r. 77(2).

2013–17 access arrangement and data from audited annual reporting regulatory information notices, as well as the definition of 'conforming capital expenditure' in the NGR[6]

  o removing depreciation for each year based on the approach approved for the 2013–17 access arrangement

  o removing any capital contributions during the 2013–17 access arrangement period[7]

  o adding any speculative capex or redundant assets that were reused during the 2013–17 access arrangement period

  o removing any redundant assets and disposals during the 2013–17 access arrangement period

  o indexing the roll forward each year for actual inflation.

- Third, the capital base is projected over the 2018–22 access arrangement period by rolling forward the opening capital base as at 1 January 2018 to 31 December 2022. This involves performing the following on the opening capital base:[8]

  o adding forecast conforming capex for each year, net of any forecast capital contributions

  o removing forecast depreciation for each year

  o removing the forecast value of assets to be disposed of during the 2018–22 access arrangement period

  o indexing the capital base of the roll forward each year for expected inflation.

2.3.1 Interrelationships

The level of the capital base substantially impacts the service provider's revenue and the price consumers pay. It is an input into the determination of the return on capital and depreciation (return of capital) allowances.[9] Factors that influence the capital base will therefore flow through to these building block components and the annual building block revenue requirement. Other things being equal, a higher capital base increases both the return on capital and depreciation allowances. In turn, it increases the service provider's revenue, and prices for its services.

The capital base is determined by various factors, including;

- the opening capital base (meaning the value of existing assets at the beginning of the access arrangement period)

---

[6] NGR, r. 79(1).

[7] NGR, r. 82(3).

[8] NGR, r. 78.

[9] The size of the capital base also impacts the benchmark debt raising cost allowance. However, this amount is usually relatively small and therefore not a significant determinant of revenues overall.

- net capex[10]

- depreciation

- indexation adjustment – so the capital base is presented in nominal terms, consistent with the rate of return.

The opening capital base depends on the value of existing assets as well as actual conforming net capex, actual inflation outcomes and depreciation in the past.

The capital base when projected to the end of the access arrangement period may increase due to forecast new capex and the indexation adjustment. The size of the indexation adjustment depends on expected inflation (which also affects the nominal rate of return or WACC) and the size of the capital base at the start of each year.

Depreciation reduces the capital base. The depreciation allowance depends on the size of the opening capital base, the forecast net capex and the depreciation schedules applied to the assets.

We maintain the capital base in real terms by indexing for inflation. A nominal rate of return (WACC) is multiplied by the opening capital base to produce the return on capital building block.[11] By convention, the indexation adjustment is offset against depreciation to prevent double counting of inflation in the capital base and WACC, which are both presented in nominal terms. This reduces the apparent size of the depreciation building block that feeds into the annual building block model for setting revenue.[12] The implications of our approach to indexing the value of the capital base on revenues are discussed further in attachment 5.

Figure 2.1 shows the key drivers of the change in the capital base over the 2018–22 access arrangement period as proposed by AusNet. Overall, the closing capital base at the end of the 2018–22 access arrangement period would be 16.6 per cent higher than the opening capital base at the start of that period based on the proposal, in nominal terms. The proposed forecast net capex increases the capital base by about 33.1 per cent, while expected inflation increases it by about 8.8 per cent. Forecast depreciation, on the other hand, reduces the capital base by about 25.3 per cent.

---

[10]   Net capex is gross capex less disposals and capital contribution.
[11]   NGR, r. 87.
[12]   If the asset lives are extremely long, such that the capital base depreciation rate is lower than the inflation rate, then negative regulatory depreciation can emerge. The indexation adjustment is greater than the capital base depreciation in such circumstances. Please also refer to section 5.3.1 of attachment 5 of this draft decision for further explanation of the offsetting adjustment to the depreciation.

Figure 2.1   Key drivers of changes in the capital base ($million, nominal)
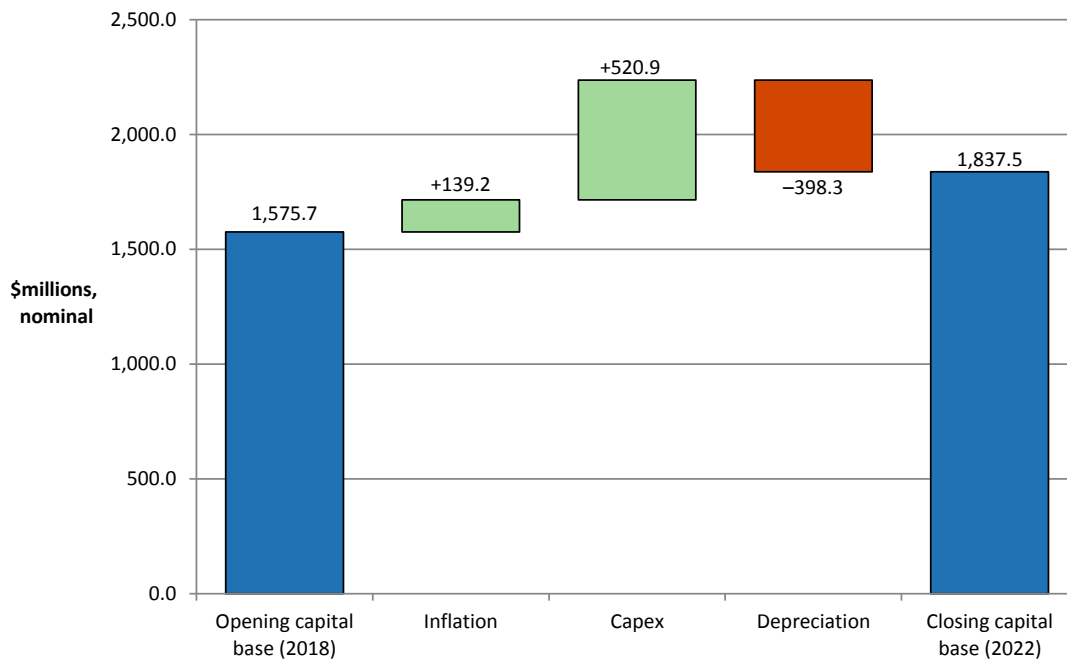
Source: AER analysis.

The capital base would rise by 9.2 per cent in real terms over the 2018–22 access arrangement period based on AusNet's proposal. The depreciation amount also largely depends on the opening capital base (which in turn depends on capex). Figure 2.1 shows forecast net capex is the largest driver of the increase in the capital base. Refer to attachment 6 for the discussion on forecast capex.

A ten per cent increase in the opening capital base causes revenues to increase by about three per cent. However, the impact on revenues of the annual change in capital base depends on the source of the capital base change, as some drivers affect more than one building block cost.[13]

2.4 Reasons for draft decision

We accept AusNet's proposed opening capital base of $1575.7 million ($ nominal) as at 1 January 2018. However, we note that this capital base includes estimated capex for 2016 and 2017. We will update this with actual capex for 2016 and an updated estimate of 2017 capex in the final decision.

---

[13]   If capex causes the capital base increase, then return on capital, depreciation, and debt raising costs all increase too. If a reduction in depreciation causes the capital base increase, revenue could increase or decrease. In this case, the higher return on capital is offset (perhaps more than offset) by the reduction in depreciation allowance. Inflation naturally increases the capital base in nominal terms. However, the real impact from changing the inflation forecast is inconsequential as revenues are updated annually by actual inflation and the X factor, which is generally unaffected by the assumed forecast inflation rate.

However, we do not approve AusNet's projected closing capital base of $1837.5 million ($ nominal) as at 31 December 2022. We instead determine a closing capital base of $1883.0 million ($ nominal) as at 31 December 2022, an increase of $45.5 million or 2.5 per cent from the proposed value. The reasons for our draft decision are discussed below.

We are satisfied each of these amendments is necessary having regard to the requirements of the NGR.

2.4.1 Roll forward of capital base during the 2013–17 access arrangement period

To determine the opening capital base as at 1 January 2018 we have assessed AusNet's proposed roll forward of its capital base over the 2013–17 access arrangement period. In doing so we reviewed the key inputs to AusNet's proposed RFM, such as asset lives, actual conforming net capex, inflation, and rate of return. We found these were correct and reconciled with relevant data sources such as annual regulatory reporting accounts and approved decision models for the 2013–17 access arrangement period. We therefore accept AusNet's proposed opening capital base of $1575.7 million ($ nominal) as at 1 January 2018.

2.4.1.1 Conforming capital expenditure in 2012 and the 2013–17 access arrangement period

Our assessment of conforming capex is set out in capex attachment 6. In determining the opening capital base as at 1 January 2018, we assessed whether AusNet's proposed capex amounts for 2012 and the 2013–17 access arrangement period are properly accounted for in the capital base roll forward.

We accept AusNet's proposed actual capex as conforming capex during the period 2012 to 2017. Therefore, we accept that actual conforming capex has been properly accounted for in the proposed capital base roll forward consistent with the requirements of the NGR.[14] However, we note that the proposed capex for 2016 and 2017 are estimates. Therefore the 'approved' capex for 2016 and 2017 in this draft decision are placeholder amounts. We expect AusNet will provide actual capex for 2016 in its revised proposal and the 2017 capex estimates may be revised based on more up to date information. We will assess whether the actual capex for 2016 is conforming capex in our final decision. We will undertake the assessment of whether the 2017 amount is conforming capex as part of the next access arrangement review.

---

[14]   NGR, r. 77(2)(b).

## 2.4.2 Projected capital base during the 2018–22 access arrangement period

We forecast AusNet's projected capital base at 31 December 2022 to be $1883.0 million ($ nominal), an increase of $45.5 million or 2.5 per cent from AusNet's proposal. This results from our draft decision on the inputs to the determination of the projected capital base. We have amended the inputs in the following ways:

- We reduced AusNet's proposed forecast net capex for the 2018–22 access arrangement period by $18.6 million ($ nominal) or 3.6 per cent. Our assessment of the proposed forecast capex is set out in attachment 6.

- We increased AusNet's proposed expected inflation rate of 1.65 per cent per annum to 2.45 per cent per annum (attachment 3). This results in an increase to the indexation of the capital base component for the 2018–22 access arrangement period by $69.5 million ($ nominal) or 50.0 per cent.

- We increased AusNet's proposed forecast straight-line depreciation allowance for the 2018–22 access arrangement period by $5.5 million ($ nominal) or 1.4 per cent (attachment 5).[15] This increase is the result of the different expected inflation rates used to inflate straight-line depreciation from real 2017 dollar terms to nominal terms. In real dollar terms our draft decision reduces straight-line depreciation by $3.9 million ($ 2017) or 1.0 per cent.

Figure 2.2 shows the key drivers of the change in AusNet's capital base over the 2018–22 access arrangement period for this draft decision. Overall, the closing capital base at the end of the 2018–22 access arrangement period is forecast to be 19.5 per cent higher than the opening capital base at the start of that period, in nominal terms. The approved forecast net capex increases the capital base by about 31.9 per cent, while expected inflation increases it by about 13.2 per cent. Forecast depreciation, on the other hand, reduces the capital base by about 25.6 per cent.

---

[15] Regulatory depreciation is the net total of straight-line depreciation and inflation indexation of the capital base.

Figure 2.2   Key drivers of changes in the capital base ($ million, nominal)
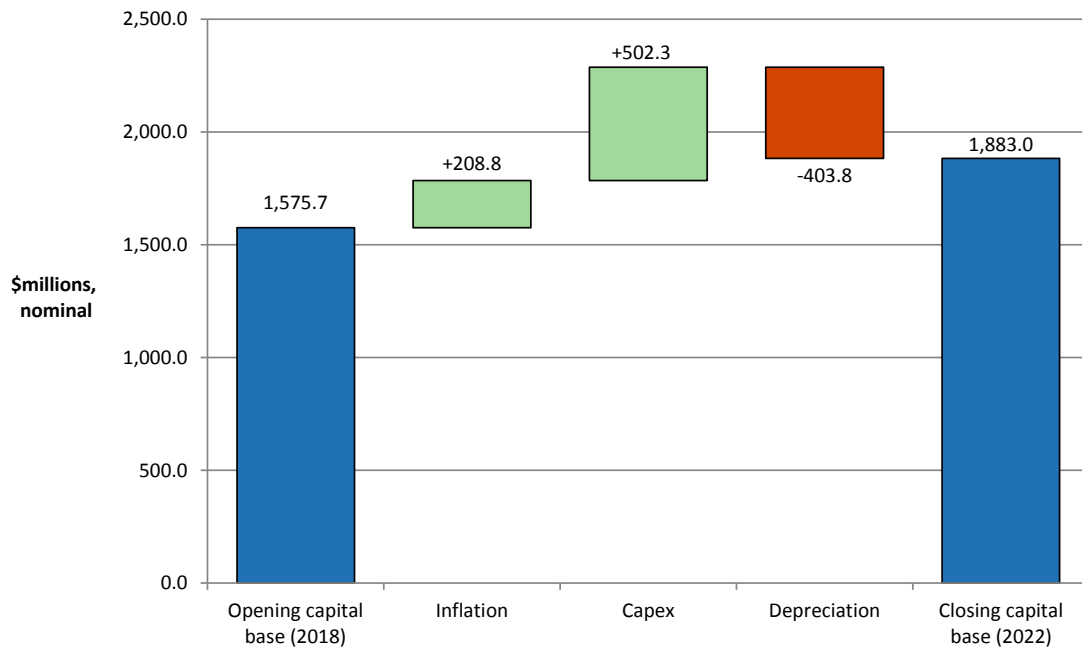
Source: AER analysis.

2.4.3 Capital base at the commencement of the 2023–27 access arrangement period

The capital base at the commencement of the 2023–27 access arrangement period will be subject to adjustments consistent with the NGR.[16] The adjustments for AusNet include (but are not limited to) actual inflation and approved depreciation over the 2018–22 access arrangement period.

We accept AusNet's proposal to establish the opening capital base as at 1 January 2023 using the depreciation schedules based on forecast capex over the 2018–22 access arrangement period.[17] We approved such an approach in our recent gas decisions.[18] This approach is also consistent with the approach outlined in our *Access Arrangement Guideline*.[19] The amount of the forecast depreciation is to be approved by us in the final decision for the 2018–22 access arrangement period.

However, we consider the access arrangement should further provide for the capital base as at 1 January 2023 is to be established using the approved depreciation schedules based on forecast capex at the asset class level.[20] Having regard to the

---

[16]   NGR, r. 77(2).
[17]   AusNet, *Access Arrangement Information 2018-2022*, 20161221 - Public, p. 268.
[18]   AER, *Final Decision Amadeus Gas Pipeline, Attachment 2 – Capital base*, May 2016, p.11; AER, *Final Decision Australian Gas Networks, Attachment 2 – Capital base*, May 2016, p.11.
[19]   AER, *Final access arrangement guideline*, March 2009, pp. 61–62.
[20]   NGR, r. 90.

capital base as determined in the preceding access arrangement, we consider this approach will provide for a forecast of depreciation over the 2018–22 access arrangement period that provides for continuity and consistency in determining depreciation from one access arrangement to the next.[21]

We note AusNet's access arrangement for the 2013–17 period contains fixed principle 7.2(a)(2) regarding the use of 'benchmark depreciation' to establish the opening capital base for the 2018–22 access arrangement period (the fifth access arrangement period).[22] We accept that this fixed principle applies until the end of the fifth access arrangement period (2018–22), which is the approved fixed period.[23]

AusNet proposed a new fixed principle 7.2(b), based on 7.2(a)(2) from the earlier access arrangement, but extended to deal with the establishment of the opening capital base for the 2023–27 access arrangement period (the sixth access arrangement period).[24] AusNet amended the fixed principle to clarify that 'benchmark depreciation' meant forecast depreciation (as opposed to actual depreciation).[25]

For the reasons discussed above, we agree with AusNet's proposal to establish the opening capital base for the 2023–27 access arrangement period using forecast depreciation. However, we do not accept the new fixed principle 7.2(b). Rule 90 of the NGR already provides that an access arrangement must include a provision governing the calculation of the opening capital base for the next access arrangement period.[26] We discuss above the content of this provision, which includes the use of forecast depreciation. Hence, the new fixed principle 7.2(b) is not required.

---

[21] NGL s. 24(4) and s. 28(2)(a)(i).

[22] AusNet, *Gas Access Arrangement Revision 2013–2017 Part B*, April 2013, pp.26–27.

[23] NGR, r. 99(3).

[24] AusNet, *Gas Access Arrangement Revision 2018–2022 Part B*, December 2016, pp.28–29.

[25] AusNet also broadened a reference to the National Gas Rules (without restricting it to the rules in force at a particular date).

[26] Rule 77(2)(d) of the NGR then stipulates that this provision will be followed in the subsequent access arrangement.

2.5 Revisions

We require the following revisions to make the access arrangement proposal acceptable:

Revision 2.1:	Make all necessary amendments to reflect this draft decision on the roll forward of the capital base for the 2013–17 access arrangement period, as set out in Table 2.1
Revision 2.2:	Make all necessary amendments to reflect this draft decision on the projected capital base for the 2018–22 access arrangement period, as set out in Table 2.2.
Revision 2.3:	Remove (and renumber where necessary) access arrangement fixed principle 7.2(b). Insert the following provision after section 6.4 of the 2018–22 access arrangement: **6.5 Depreciation for establishing the capital base as at 1 January 2023** The depreciation schedule (straight-line) for establishing the opening capital base as at 1 January 2023 will be based on forecast capital expenditure at the asset class level approved for the 2018–22 access arrangement period.