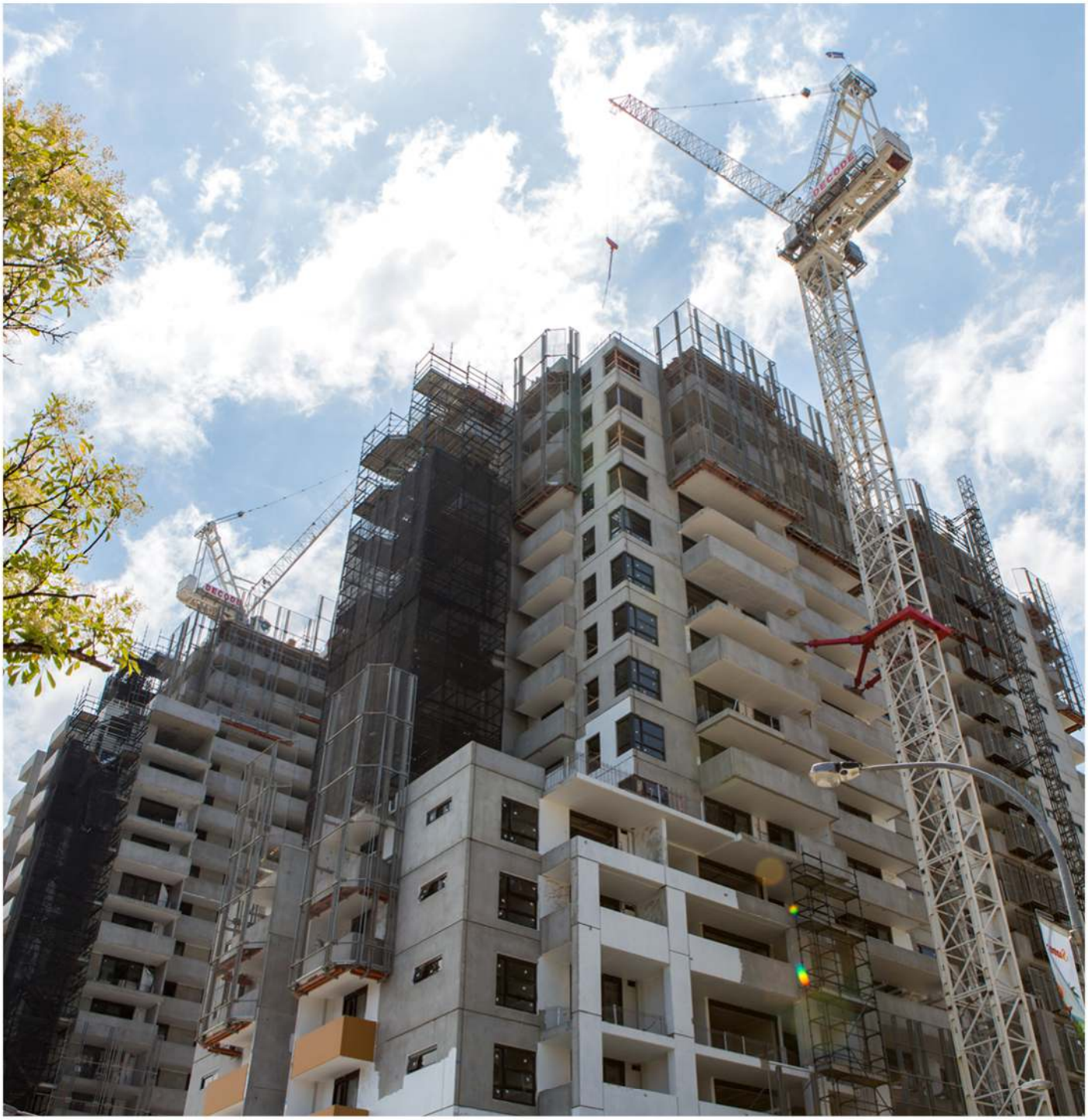

Jemena Gas Networks (NSW) Ltd

2020-25 Access Arrangement Proposal

Attachment 7.9

Capital base

Jemena
bringing energy to life

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Abbreviations

AA	Access Arrangement
AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
Capex	Capital Expenditure
CPI	Consumer Price Index
HP	High pressure
JEN	Jemena Electricity Networks (Vic) Ltd
JGN	Jemena Gas Networks (NSW) Ltd
MP	Medium pressure
NGR	National Gas Rules
NPV	Net Present Value
PTRM	Post-Tax Revenue Model
RAB	Regulatory Asset Base
TAB	Tax Asset Base
WARL	Weighted Average Remaining Life

Overview

Section 7.2 of our 2020 Plan sets out the changes in our capital base over the 2020-25 period. We estimate that the value of our asset base at the start of the 2020-25 period will be $3.35B ($2020), and that it will increase by approximately 2.7%, to $3.44B ($2020) by the end of the period.

This attachment explains how we have calculated Jemena Gas Networks (NSW) Ltd.'s (**JGN's**) capital base and the tax asset base.

1. Capital base

1.1 Summary

The value of the assets we use in providing our services is known as our capital base, or regulated asset base (**RAB**). This represents the unrecovered capital expenditure (**capex**) that we have incurred to provide services to our customers.

Our capital base as at 1 July 2020 is estimated to be $3,353M ($2020) and is forecast to be $3,444M ($2020) at 30 June 2025.[1] The projected increase is principally due to the capex required to ensure ongoing reliable, safe and secure supply to our customers (refer Attachment 5.1).

The capital base has been rolled forward over the 2015-20 and 2020-25 Access Arrangement (**AA**) periods using the approaches set out in rules 77 and 78 of the National Gas Rules (**NGR**). The capital base has been adjusted for:

- the difference between actual and forecast net capex in 2014-15
- new conforming capex, net of capital contributions and asset disposals
- regulatory depreciation, being the difference between straight line depreciation and indexation—which we discuss further in section 2.

This process is illustrated in Figure 1–1.

Figure 1–1: How the capital base is calculated

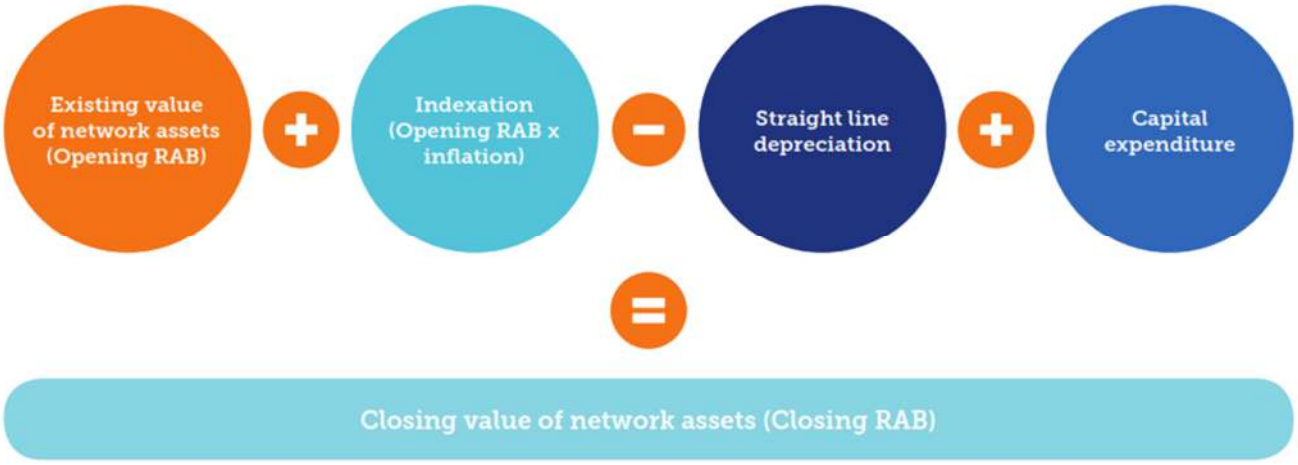

Table 1–1 summarises the capital base—or RAB—roll-forward from 1 July 2015 to 30 June 2025. Attachments 7.2, 7.3 and 6.3 provide the calculations behind the roll-forward. The rest of this chapter discusses each of the components listed above.

[1] The capital base does not include assets used for non-reference services. Cost allocation to JGN's services is explained in the JGN Cost Allocation Methodology, included as Attachment 6.5.

Table 1–1: Forecast value of RAB at 30 June 2025 ($2020, $M)

Capital base	Opening RAB at 1-Jul-15	Opening RAB at 1-Jul-20	Closing RAB at 30-Jun-25
Wilton-Wollongong trunk	9	8	7
Wilton-Newcastle trunk	142	126	110
NSW distribution network	3,111	3,219	3,328
Combined total	**3,262**	**3,353**	**3,444**

(1) In its direction dated 9 June 2009, the Australian Energy Regulator (**AER**) required JGN to consolidate the AAs for its four covered pipelines subject to the condition that it maintain separate capital bases for each of the Wilton to Newcastle and Wilton to Wollongong trunk pipelines and the NSW distribution system (including the Central West distribution system), in addition to the aggregated capital base.[2]

1.2 Closing capital base as at 30 June 2020

The opening RAB as at 1 July 2015 is the closing RAB as at 30 June 2015 of $3,262 million (total, $2020) as determined by the AER.

We have rolled forward the capital base from 1 July 2015 to 30 June 2020 by adjusting for the items set out in rule 77.

This involved adjusting the opening capital base as at 1 July 2015 to:

- remove the difference between estimated and actual net capex in 2014-15 (as per our post-tax revenue model (**PTRM**) in Attachment 7.2)
- add indexation of the capital base each year using the increase in the consumer price index (**CPI**)
- add conforming capex (see section 1.4), net of capital contributions (see section 1.5) and asset disposals (see section 1.6)
- remove depreciation (see section 1.7)
- account for any conforming assets from the speculative investment account, redundant assets, or re-use redundant assets (see sections 1.9 and 1.10).

Tables 1–3 to 1–6 set out the resulting roll forward of the capital base over the 2015-20 AA period. We have not included any conforming assets from a speculative investment account, classified any assets as redundant assets, or re-used any assets previously classified as redundant.

We have deducted forecast depreciation in rolling forward its capital base from 2015-16 to 2019-20 in accordance with clause 3.10(a) and (b) of the 2015 AA.

We also separately reported the capital base for each of the Wilton to Wollongong and Wilton to Newcastle trunk pipelines and the NSW distribution system (including the Central West distribution system), as required by the AER's direction of 9 June 2009.[3]

The annual change in CPI that we used is set out in Table 1–2.

[2] AER, *Decision on Jemena Consolidation*, 9 June 2009.

[3] AER, *Decision on Jemena Consolidation*, 9 June 2009.

Table 1–2: Change in CPI (%)

	2015-16	2016-17	2017-18	2018-19	2019-20
Annual change in CPI (%)	1.69%	1.48%	1.91%	1.78%	2.25%

(1) Values up to and including 2018-19 are year on year CPI inflation for the year to December for the eight capital cities as published by the Australian Bureau of Statistics. The value for 2019-20 is as forecast by the Reserve Bank of Australia in its November 2018 *Monetary Policy Statement* for the year to December 2019.

(2) JGN proposes to update the 2019-20 forecast for actual inflation to December 2019 in its revised proposal, consistent with the RAB roll-forward approach.

(3) Source: Australian Bureau of Statistics and Reserve Bank of Australia.

Table 1–3: Roll forward of combined total capital base over the 2015-20 AA period ($Nom, $M)

	2015-16	2016-17	2017-18	2018-19	2019-20
Opening balance	2,980	3,092	3,162	3,240	3,295
Add net capex at start of year (2)	101	90	94	90	99
Add indexation (3)	52	47	62	59	76
Add net capex at end of year (2)	103	92	96	91	102
Less straight-line depreciation (4)	(144)	(159)	(174)	(186)	(173)
Adjustment	-	-	-	-	(46)
Closing balance	**3,092**	**3,162**	**3,240**	**3,295**	**3,353**

(1) Values for 2018-19 and 2019-20 are estimates based on our current outlook.

(2) Net capex = gross capex (including equity raising costs) less capital contributions less asset disposals.

(3) Indexation = (opening balance + net capex at start of year) x CPI for the year.

(4) Depreciation for the current period is consistent with AER approved forecast straight-line depreciation.

(5) These notes also apply to the other tables in section 1, where applicable.

Table 1–4: Roll forward of Wilton to Wollongong trunk pipeline capital base over the 2015-20 AA period ($Nom, $M)

	2015-16	2016-17	2017-18	2018-19	2019-20
Opening balance	8	9	9	9	9
Add net capex at start of year	0.1	0.4	-	0.02	0.2
Add indexation	0.1	0.1	0.2	0.2	0.2
Add net capex at end of year	0.1	0.4	-	0.02	0.2
Less straight-line depreciation	(0.2)	(0.2)	(0.3)	(0.3)	(0.3)
Adjustment	-	-	-	-	(1)
Closing balance	**9**	**9**	**9**	**9**	**8**

Table 1–5: Roll forward of Wilton to Newcastle trunk pipeline capital base over the 2015-20 AA period ($Nom, $M)

	2015-16	2016-17	2017-18	2018-19	2019-20
Opening balance	129	130	129	128	128
Add net capex at start of year	1	0.3	0.02	1	0.3
Add indexation	2	2	2	2	3
Add net capex at end of year	1	0.3	0.02	1	0.3
Less straight-line depreciation	(3)	(3)	(3)	(3)	(3)
Adjustment	-	-	-	-	(3)
Closing balance	**130**	**129**	**128**	**128**	**126**

Table 1–6: Roll forward of NSW distribution system capital base over current AA period ($Nom, $M)

	2015-16	2016-17	2017-18	2018-19	2019-20
Opening balance	2,842	2,954	3,024	3,103	3,157
Add net capex at start of year	100	90	94	89	99
Add indexation	50	45	60	57	73
Add net capex at end of year	102	91	96	91	101
Less straight-line depreciation	(141)	(155)	(170)	(182)	(169)
Adjustment	-	-	-	-	(42)
Closing balance	**2,954**	**3,024**	**3,103**	**3,157**	**3,219**

The closing balance values for 2019-20 constitute the opening capital base for the 2020-25 AA period.

1.3 Projected capital base for 2020-25 AA period

We have rolled forward the capital base from 1 July 2020 to 30 June 2025 using the approach set out in rule 78, which involved starting with the closing capital base as at 30 June 2020 discussed in section 1.2 and adjusting it to:

- add forecast conforming capex, net of capital contributions and asset disposals
- add indexation of the capital base, and
- remove forecast depreciation.

The resulting projected combined capital base in the 2020-25 AA period is set out in Table 1–7 and Table 1–8, to

Table 1–10 provide separated capital bases.

Table 1–7: Roll forward of combined total capital base over 2020-25 AA period ($Nom, $M)

	2020-21	2021-22	2022-23	2023-24	2024-25
Opening balance	3,353	3,484	3,601	3,697	3,782
Add net capex	203	199	187	188	195
Add indexation of capital base	81	84	87	90	92
Less straight-line depreciation	(152)	(167)	(179)	(193)	(186)

	2020-21	2021-22	2022-23	2023-24	2024-25
Closing balance	**3,484**	**3,601**	**3,697**	**3,782**	**3,883**

Table 1–8: Roll forward of Wilton to Wollongong capital base over 2020-25 AA period ($Nom, $M)

	2020-21	2021-22	2022-23	2023-24	2024-25
Opening balance	8	8	8	8	8
Add net capex	-	-	-	-	-
Add indexation of capital base	0.2	0.2	0.2	0.2	0.2
Less straight-line depreciation	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)
Closing balance	**8**	**8**	**8**	**8**	**8**

Table 1–9: Roll forward of Wilton to Newcastle trunk pipeline capital base over 2020-25 AA period ($Nom, $M)

	2020-21	2021-22	2022-23	2023-24	2024-25
Opening balance	126	126	125	125	124
Add net capex	-	-	-	-	-
Add indexation of capital base	3	3	3	3	3
Less straight-line depreciation	(3)	(3)	(3)	(4)	(4)
Closing balance	**126**	**125**	**125**	**124**	**124**

Table 1–10: Roll forward of NSW distribution system capital base over 2020-25 AA period ($Nom, $M)

	2020-21	2021-22	2022-23	2023-24	2024-25
Opening balance	3,219	3,351	3,468	3,565	3,650
Add net capex	203	199	187	188	195
Add indexation of capital base	78	81	84	86	88
Less straight-line depreciation	(149)	(163)	(175)	(189)	(182)
Closing balance	**3,351**	**3,468**	**3,565**	**3,650**	**3,751**

1.4 Conforming capital expenditure

Conforming capex is gross capex less the amount of capital contributions.

Table 1–11 and Table 1–12 set out our conforming capex over the 2015-20 and 2020-25 AA periods, respectively. Attachments 5.1 and 5.2 detail our gross capex forecast and historical spend. Section 1.5 outlines our capital contributions.

Table 1–11: Conforming capex over the 2015-20 AA period ($2020, $M)

Details	2015-16	2016-17	2017-18	2018-19 estimate	2019-20 forecast	Total
Gross capex	222	195	199	193	204	1,013
Less capital contributions	(3)	(1)	(1)	(7)	(2)	(15)
Conforming capex	**219**	**194**	**198**	**186**	**202**	**999**

(1) Values for 2018-19 are estimates based on JGN's current outlook for the year. Values for 2019-20 are forecast.
(2) Capex is assumed to be incurred 50% at the start of the year, and 50% at the end of the year, and are converted to year-end dollars. This timing is consistent with how allowed revenue was calculated for the 2015-20 AA period.

Table 1–12: Conforming capex over the 2020-25 AA period ($2020, $M)

Details	2020-21	2021-22	2022-23	2023-24	2024-25	Total
Gross capex	202	191	175	171	174	913
Less capital contributions	(5)	(2)	(2)	(2)	(2)	(13)
Conforming capex	**197**	**189**	**173**	**169**	**172**	**899**

1.5 Capital contributions

In most cases where a user requests a new or changed service, we must expend capital to meet the request. We request a capital contribution from the user where the present value of incremental costs associated with meeting the user's request—including capital and ongoing operating and maintenance costs—exceeds the present value of the incremental revenue that will be generated by the new or changed service. If the user declines to pay the contribution, the work does not proceed.

Where the user agrees to pay the contribution and the work proceeds, the user's contribution to the capital cost of the asset is excluded from the capital base. It is only our contribution to the cost of the asset—i.e. the total cost of the asset less the user's contribution—that enters the capital base – this makes our capex consistent with rule 79(2).

Table 1–13 and Table 1–14 set out our capital contributions over the 2015-20 and 2020-25 AA periods, respectively. Capital contributions are forecast in Attachment 5.2 and described in Attachment 5.1.

Table 1–13: Capital contributions over the 2015-20 AA period ($2020, $M)

	2015-16	2016-17	2017-18	2018-19 estimate	2019-20 forecast	Total
Total contributions received (2)	3	1	1	7	2	15

(1) Values for 2018-19 are estimates based on our current outlook for the year. Values for 2019-20 are forecast.
(2) Capital contributions are assumed to be incurred 50% at the start of the year, and 50% at the end of the year, and are converted to year-end dollars. This timing is consistent with how allowed revenue was calculated for the 2015-20 AA period.

The component of forecast capital contributions for the 2020-25 AA period that relates to customer-initiated works is based on the historically observed contributions in the last three years for which we have actual data. We also add in larger contributions separately, based on the projects in our capex forecast will attract contributions. We consider that this basis of forecasting is reasonable and that it produces the best forecast in the circumstances.

Table 1–14: Capital contributions over the 2020-25 AA period ($2020, $M)

Details	2020-21	2021-22	2022-23	2023-24	2024-25	Total
Total contributions forecast	5	2	2	2	2	13

1.6 Disposals

Forecast disposals for the 2020-25 AA period are estimated by applying the proportion of current AA period actual disposals to actual gross capex for each RAB asset category. We take a simple average of three years (2015-16, 2016-17 and 2017-18) of actual disposals relative to the actual gross capex for each asset class. These proportions are then multiplied to the forecast gross capex for 2019-20 to 2024-25 for respective asset category.

Table 1–15: Asset disposals over the 2020-25 AA period ($2020, $M)

	2020-21	2021-22	2022-23	2023-24	2024-25	Total
Total asset disposals	1	1	1	0.4	1	5

1.7 Depreciation

We have established a depreciation schedule that reflects the economic lives and cash flow needs of the business consistent with the NGR requirements. This is further discussed below.

Table 1–16 summarises our forecast deprecation over the 2020-25 AA period, determined by applying the real straight-line depreciation method. Section 2 provides more detail regarding our approach to depreciation.

Table 1–16: Forecast straight-line depreciation over 2020-25 AA period ($2020, $M)

Depreciation	2020-21	2021-22	2022-23	2023-24	2024-25	Total
Total	149	159	166	175	165	814

1.8 Equity raising costs

Equity raising costs are costs required to be paid by an entity when it undertakes a capital raising. We have used AER's benchmark approach to determine these costs by adopting the AER's PTRM – see Attachment 7.2 for more details. Currently these are forecasted to be zero for 2020-25 AA period.

1.9 Speculative capital

We propose including expenditure on our Western Sydney Green Gas Trial (our pilot hydrogen project) in a speculative capital account until we successfully show that hydrogen can be produced and injected into the network to help meet our unaccounted for gas obligations (see section 3.9 of Attachment 5.1 for details).

Consistent with rule 84, we propose only to include the share of expenditure not otherwise funded through a contribution from the Australian Renewable Energy Agency.

Only if successful, will the net expenditure be included in the RAB and only from the start of the 2025-30 AA period. Until then the value of the expenditure will be adjusted each year by the allowed rate of return in accordance with clause 6 of the 2020-25 AA.

1.10 Redundant assets

Our 2020-25 AA proposal does not include a capital redundancy policy, noting the operation of rule 85.

We have not identified any redundant assets in our capital base that might be covered by rule 85, nor any previously redundant assets that are now being used in a way contemplated by rule 86.

2. Regulatory depreciation

2.1 Year-on-year tracking approach

We are proposing to change our approach to calculating regulatory depreciation on the opening capital base as at 1 July 2020, from a weighted average remaining life (**WARL**) to a year-on-year tracking approach. The year on year approach is a well-accepted methodology that AER has adopted for Jemena Electricity Network (**JEN**) and other network businesses.

We are proposing to use this approach so that asset lives for new investments can be separately tracked from existing assets and is consistent with our approach for our electricity network business JEN.

We consider that the year-on-year tracking approach reflects the use of our assets over their standard economic lives more effectively than the alternative WARL approach. The WARL approach pools, or groups, all past expenditure within an asset class and estimates a single WARL for the entire asset class. By contrast, the year-on-year tracking approach tracks capex for each year of a regulatory control and depreciates it separately. It is more complex, but more accurate, than the WARL approach.

To implement the year-on-year tracking approach we have adopted a depreciation model used by the AER in recent electricity distribution decisions which we have included as Attachment 7.4.

2.2 Standard economic lives

Table 2–1 sets out the standard economic lives that we have adopted for the 2020-25 AA period.

As explained in Attachment 7.10, we have reduced lives for some asset classes from those applying over the 2015-20 AA period to reflect expected changes in economic lives, as contemplated by rule 89(1)(c).

We have also introduced a new asset class (*Existing pigging and inspection costs*) that we use to fully depreciate our existing capitalised in-line inspection and pigging costs over the 2020-25 AA period. This is discussed further in Section 2.3.

Table 2–1: Economic lives for new assets (years)

Asset Class	2015-20 AA period	2020-25 AA period
Trunk Wilton-Sydney	80	50
Trunk Sydney-Newcastle	80	50
Trunk Wilton-Wollongong	80	50
Contract Meters	20	15
Fixed Plant - Distribution	50	50
High Pressure (**HP**) Mains	80	50
HP Services	50	50
Medium Pressure (**MP**) Mains	50	30
MP Services	50	30
Meter Reading Devices	20	15
Country POTS	50	50
Tariff Meters	20	15
Buildings	48	48
Computers – IT infrastructure	5	5

Asset Class	2015-20 AA period	2020-25 AA period
Software - Inhouse	5	5
Fixed Plant	10	10
Furniture	10	10
Land	n/a	n/a
Leasehold Improvements	10	10
Low value assets	10	10
Mobile Plant	10	10
Vehicles	6	6
Existing pigging and inspection costs	n/a	n/a
Equity raising costs	53.7	26.5

2.3 Existing pigging and inspection costs

We are proposing to treat *future* in-line inspection and pigging costs as operating expenditure to better align with the short-lived nature of the benefits provided, which we discuss further in Attachment 6.1.

For similar reasons, we are also proposing to accelerate depreciation of *existing* in-line inspection and pigging costs that have been capitalised to our capital base over the 2020-25 AA period. These inspections, which are undertaken by intelligent 'pigs' (see section 5.4 of our 2020 Plan for more details), date back to 2015 and currently have a 72 year weighted average remaining asset life.

Consistent with the Australian Standard for Operations and Maintenance of gas pipelines (AS2885), we inspect our high pressure pipelines every 10 years. We believe that depreciating these assets so that they are fully depreciated by 2024-25 will reflect the usage (or economic life) of these assets, consistent with rule 89(1)(c).

To give effect to this we propose moving the capitalised value of those inspection costs to a new asset class (*Existing pigging and inspection costs*) at the start of the 2020-25 AA period and depreciate it over five years. No new in-line inspection and pigging costs will be capitalised. The forecast costs associated with these inspections will be expensed from 2020-21 onwards and have been forecasted in Attachments 6.2 and 6.3.

3. Tax asset base

To estimate corporate income tax we must roll-forward the TAB over both the 2015-20 AA period and the 2020-25 AA period. Across the two periods the TAB increases from $945M ($nominal) at the start of 2015-16 to $1,479M ($nominal) at the end of 2024-25, driven by new capex outpacing tax depreciation.

For the 2015-20 AA period, we used the same method and assumptions (e.g. depreciation rates) that were used to estimate the tax building block for that period. This roll-forward is summarised in Table 3–1.

For the 2020-25 AA period, we updated the method and assumptions to incorporate the AER's recommendations from its recent tax review. Apart from equity raising costs, buildings, inhouse software and leasehold improvement asset categories, we have applied diminishing value method to all other asset categories. JGN actual tax practice has been to capitalise refurbishment costs and therefore a consistent approach has been adopted to capitalise these for regulatory tax purposes. This roll-forward is summarised in Table 3–2. The tax depreciation rates adopted are set out in Table 3–3.

Table 3–1: Roll forward of tax asset base over the 2015-20 AA period ($Nominal, $M)

	2015-16	2016-17	2017-18	2018-19	2019-20
Opening balance	945	1,024	1,074	1,130	1,181
Add capex	205	182	189	187	201
Less depreciation	(126)	(131)	(133)	(136)	(140)
Closing balance	**1,024**	**1,074**	**1,130**	**1,181**	**1,242**

Table 3–2: Roll forward of tax asset base over the 2020-25 AA period ($Nominal, $M)

	2020-21	2021-22	2022-23	2023-24	2024-25
Opening balance	1,242	1,315	1,375	1,415	1,445
Add capex	206	199	187	188	195
Less depreciation	(132)	(139)	(147)	(157)	(161)
Closing balance	**1,315**	**1,375**	**1,415**	**1,445**	**1,479**

Table 3–3: Tax depreciation rates

Asset Class	2015-20 AA period	2020-25 AA period Opening TAB	2020-25 AA period Capex tax standard life
Trunk Wilton-Sydney	10.0%	10.0%	20.0
Trunk Sydney-Newcastle	10.0%	10.0%	20.0
Trunk Wilton-Wollongong	10.0%	10.0%	20.0
Contract Meters	10.0%	10.0%	15.0
Fixed Plant - Distribution	10.0%	10.0%	20.0
HP Mains	10.0%	10.0%	20.0
HP Services	10.0%	10.0%	20.0
MP Mains	10.0%	10.0%	20.0
MP Services	10.0%	10.0%	20.0

Asset Class	2015-20 AA period	2020-25 AA period Opening TAB	2020-25 AA period Capex tax standard life
Meter Reading Devices	10.0%	10.0%	15.0
Country POTS	10.0%	10.0%	20.0
Tariff Meters	10.0%	10.0%	15.0
Buildings	2.5%	2.5%	40.0
Computers – IT infrastructure	40.0%	40.0%	4.0
Software - Inhouse	50.0%	50.0%	5.0
Fixed Plant	20.0%	20.0%	10.8(1)
Furniture	20.0%	20.0%	10.8(1)
Land	n/a	n/a	n/a
Leasehold Improvements	2.5%	2.5%	40.0
Low value assets	60.0%	60.0%	6.5
Mobile Plant	20.0%	20.0%	6.5
Vehicles	25.0%	25.0%	7.5
Existing pigging and inspection costs	n/a	20.0%(2)	n/a(3)
Equity raising costs	11.0%	11.0%	5.0

(1) We propose to use a weighted average tax standard life of various equipment within this asset class.
(2) We propose to depreciate existing pigging and inspection costs under straight-line tax depreciation over 5 years to be consistent with the short-lived nature of these costs, as discussed in section 2
(3) New pigging and inspection costs will be expensed from 2020-21 onwards.