Draft decision

Jemena Gas Networks (NSW) Ltd

Access arrangement 2015–20

Attachment 5 – Regulatory depreciation

November 2014

AUSTRALIAN ENERGY REGULATOR

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Note

This attachment forms part of the AER's draft decision on Jemena Gas Networks' 2015–20 access arrangement. It should be read with 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

Contents

Shortened forms

Shortened form	Extended form
2010–15 access arrangement	Access arrangement for JGN effective from 1 July 2010 to 30 June 2015 inclusive
2010–15 access arrangement period	1 July 2010 to 30 June 2015 inclusive
2015–20 access arrangement	Access arrangement for JGN effective from 1 July 2015 to 30 June 2020 inclusive
2015–20 access arrangement period	1 July 2015 to 30 June 2020 inclusive
Access arrangement information	Jemena Gas Networks (NSW) Ltd, *Access Arrangement Information 2015–20*, 30 June 2014
Access arrangement proposal	Jemena Gas Networks (NSW) Ltd, *Access arrangement, JGN's NSW gas distribution networks, 1 July 2015 – 30 June 2020*, 30 June 2014
AER	Australian Energy Regulator
capex	capital expenditure
CAPM	capital asset pricing model
CCP	Consumer Challenge Panel
Code	National Third Party Access Code for Natural Gas Pipeline Systems
CPI	consumer price index
DRP	debt risk premium
ERP	equity risk premium
JGN	Jemena Gas Networks (NSW) Ltd (CAN 003 004 322)
MRP	market risk premium
NGL	national gas law
NGO	national gas objective
NGR	national gas rules

Shortened form	Extended form
opex	operating expenditure
PPI	partial performance indicators
PTRM	post-tax revenue model
RAB	regulatory asset base
RBA	Reserve Bank of Australia
Reference service agreement proposal	Jemena Gas Networks (NSW) Ltd, *Reference Service Agreement, JGN's NSW gas distribution networks*, 30 June 2014
RFM	roll forward model
RIN	regulatory information notice
RPP	revenue and pricing principles
SLCAPM	Sharpe-Lintner capital asset pricing model
WACC	weighted average cost of capital

5 Regulatory depreciation

When determining the total revenue for JGN, we must decide on the depreciation for the projected capital base (otherwise referred to as 'return of capital').[1] Regulatory depreciation is used to model the nominal asset values over the 2015–20 access arrangement period and the depreciation allowance in the total revenue requirement. Our draft decision on JGN's annual regulatory depreciation allowance is outlined in this attachment.[2] Our consideration of specific matters that affect the estimate of regulatory depreciation over the 2015–20 access arrangement period is also outlined in this attachment. These include:

- the standard asset lives for depreciating new assets associated with forecast capex[3]
- the remaining asset lives for depreciating existing assets in the opening capital base.[4]

5.1 Draft decision

We approve JGN's proposal to use the real straight-line method to calculate the regulatory depreciation allowance. With the exception of the 'Vehicles' asset class, we approve JGN's proposed standard asset lives assigned to each of its asset classes for the 2015–20 access arrangement period. For the 'Vehicles' asset class, we do not approve JGN's proposed standard asset life of four years, and instead require that this be set to six years. This is because six years reflect the weighted average life of the assets in this class and JGN's fleet management strategy (including as reflected in its forecast capex). We approve the remaining asset lives calculated using JGN's proposed approach, noting that there have been minor updates to these values reflecting other aspects of our draft decision.[5]

We do not approve the amount of the regulatory depreciation allowance proposed by JGN over the 2015–20 access arrangement period. Although the change to the standard asset life of the 'Vehicles' asset class is a factor, this is mainly because of our determinations on other components of JGN's proposal, which affect the regulatory depreciation allowance—for example, the forecast capex (attachment 6) and the opening capital base value (attachment 2).

Our draft decision on JGN's regulatory depreciation allowance is $424.9 million ($nominal) over the 2015–20 access arrangement period as set out in table 5-1.

Table 5-1 AER's draft decision on JGN's regulatory depreciation allowance for the 2015–20 access arrangement period ($million, nominal)

	2015–16	2016–17	2017–18	2018–19	2019–20	Total
Straight-line depreciation	146.2	161.4	177.7	191.5	180.2	857.0
Less: indexation on capital base	80.2	83.6	86.9	89.7	91.7	432.1
Regulatory depreciation	**66.0**	**77.8**	**90.8**	**101.8**	**88.5**	**424.9**

1 NGR, r. 76(b).
2 Regulatory depreciation allowance is the net total of the straight-line depreciation (negative) and the annual inflation indexation (positive) on the projected capital base.
3 The term 'standard asset life' is also referred to as 'standard economic life', 'standard life', asset life or (in the JGN proposal) 'economic asset life'.
4 The term 'remaining asset life' is also referred to as 'remaining economic life' or 'remaining life'.
5 For the final decision we will recalculate JGN's remaining economic lives based on JGN's method and any updated inputs (in particular, replacing the 2013–14 capex estimate with actual conforming capex).

Source: AER analysis

5.2 JGN's proposal

JGN proposed to determine the annual amount of regulatory depreciation for each asset class by applying the real straight-line depreciation method to the opening value of each asset class for each regulatory year. Real straight-line depreciation (as distinct from historical cost straight line) involves deducting the same real amount of depreciation in each year of an asset's life. This is consistent with:

- JGN's proposal to account for inflation by indexing the capital base
- the method contained in the AER's published post tax revenue model for electricity networks.

JGN's proposed depreciation for the 2015–20 access arrangement period is set out in table 5-2.

Table 5-2 JGN's proposed regulatory depreciation for the 2010–15 access arrangement period ($million, nominal)

	2015–16	2016–17	2017–18	2018–19	2019–20	Total
Straight-line depreciation	147.7	164.5	182.7	197.7	189.3	882.0
Less: indexation on opening capital base and capex at the first half of the regulatory year	80.5	84.9	89.2	93.3	96.5	444.5
Regulatory depreciation	**67.2**	**79.6**	**93.5**	**104.5**	**92.8**	**437.5**

Source: JGN, *Access arrangement proposal Appendix 12.1 Revenue model*, June 2014.
AER analysis

JGN did not propose any new asset classes. JGN's proposed asset lives for its existing asset classes used for its depreciation calculations are set out in Table 5-3.

JGN stated that its proposed standard asset lives:[6]

- are the same as those approved by the AER and used by JGN for the 2010–15 access arrangement period
- are consistent with the design lives used by JGN in engineering evaluations.

Table 5-3 JGN's proposed standard and remaining asset lives at 1 July 2015 (years)

	Standard asset life	Remaining asset life
Trunk Wilton-Sydney	80.0	38.1
Trunk Sydney-Newcastle	80.0	45.0
Transmission pipeline (Wilton-Wollongong)	80.0	37.9
Contract meters	20.0	8.4
Fixed Plant - distribution	50.0	50.0
HP mains	80.0	59.7

[6] JGN, *2015–20 Access arrangement information*, June 2014, p. 88 (paragraph 358).

	Standard asset life	Remaining asset life
HP services	50.0	50.0
MP mains	50.0	26.3
MP services	50.0	37.1
Meter reading devices	20.0	20.0
Country POTS	50.0	32.5
Tariff meters	20.0	9.0
Buildings	48.0	48.0
Computers	5.0	5.0
Software	5.0	4.1
Fixed plant	10.0	9.4
Furniture	10.0	10.0
Land	n/a	n/a
Leasehold improvements	10.0	10.0
Low value assets	10.0	10.0
Mobile plant	10.0	8.3
Vehicles	4.0	3.1
Stock[a]	1.0	1.0
Equity raising costs	53.7[b]	49.9

Source: JGN, *Access arrangement information*, June 2014, Table 8-13, p. 87.
JGN, *Access arrangement proposal Appendix 12.1 Revenue model*, June 2014.

a The 'Stock' asset class is not separately listed in JGN's access arrangement information, but is present in JGN's models in order to handle legacy residual assets in this class. There is no forecast capex allocated to this asset class during the 2015–20 access arrangement period.

b The standard asset life for the 'Equity raising costs' asset class reflects the weighted average standard asset life of the opening capital base at the time of the 2010 access arrangement decision. There is no forecast capex allocated to this asset class during the 2015–20 access arrangement.

5.3 Assessment approach

In its access arrangement proposal, JGN must provide a forecast of depreciation for the 2015–20 access arrangement period, including a demonstration of how the forecast is derived on the basis of the proposed depreciation method.[7] The depreciation schedule sets out the basis on which the pipeline assets constituting the capital base are to be depreciated for the purpose of determining a reference tariff. The depreciation schedule may consist of a number of separate schedules, each relating to a particular asset or class of asset.[8] In making a decision on the proposed depreciation schedule, we assess the compliance of the proposed depreciation schedule with the depreciation

7 NGR, r. 72(1)(c)(ii).
8 NGR, rr. 88(1) and 88(2).

criteria set out in the NGR.[9] We must also take into account the NGO and the revenue and pricing principles.[10]

Our discretion under the depreciation criteria is limited.[11] The depreciation criteria state that the depreciation schedule should be designed:

- so that reference tariffs will vary, over time, in a way that promotes efficient growth in the market for reference services[12]
- so that each asset or group of assets is depreciated over the economic life of that asset or group of assets[13]
- so as to allow, as far as reasonably practicable, for adjustment reflecting changes in the expected economic life of a particular asset, or a particular group of assets[14]
- so that (subject to the rules about capital redundancy), an asset is depreciated only once[15]
- so as to allow for the service provider's reasonable needs for cash flow to meet financing, non-capital and other costs[16]

The depreciation criteria also state that to comply with the rule regarding efficient growth in the market for reference services, a substantial amount of depreciation may be deferred.[17]

The regulatory depreciation allowance is the net total of the real straight-line depreciation (negative) and the annual inflation indexation (positive) on the projected capital base. Our standard approach is to employ a straight-line method for calculating depreciation. We consider that the straight-line method satisfies the NGR's depreciation criteria.[18] This is because the straight-line method smooths changes in the reference tariffs, promotes efficient growth of the market, allows assets to be depreciated only once and over its economic life, and allows for a service provider's reasonable needs for cash flow.

In assessing JGN's proposed regulatory depreciation allowance, we have analysed JGN's proposed inputs to its revenue model for calculating depreciation. These inputs include:

- the opening capital base as at 1 July 2015
- the forecast net capex in the 2015–20 access arrangement period
- the forecast inflation rate for the 2015–20 access arrangement period

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9 NGR, r. 89.

10 NGL, s 28; NGR r. 100(1). The NGO is set out in NGL, s. 23. The revenue and pricing principles are set out in NGL, s. 24.

11 NGR, rr. 89(3) and 40(2). The example provided in r. 40(2) states: The AER has limited discretion under r. 89. Rule 89 governs the design of a depreciation schedule. In dealing with a full access arrangement submitted for its approval, the AER cannot, in its draft decision, insist on change to an aspect of a depreciation schedule governed by r. 89 unless the AER considers the change is necessary to correct non-compliance with a provision of the Law or an inconsistency between the depreciation schedule and the applicable criteria. Even though the AER might consider change desirable to achieve more complete conformity between the depreciation schedule and the principles and objectives of the Law, it would not be entitled to give effect to that view in the decision making process.

12 NGR, r. 89(1)(a).

13 NGR, r. 89(1)(b).

14 NGR, r. 89(1)(c).

15 NGR, r. 89(1)(d).

16 NGR, r. 89(1)(e).

17 NGR, r. 89(2).

18 NGR, r. 89.

- the standard asset life for each asset class—used for calculating the depreciation of new assets associated with forecast net capex in the 2015–20 access arrangement period
- the remaining asset life for each asset class—used for calculating the depreciation of existing assets associated with the opening capital base as at 1 July 2015.

Our determinations affecting the first three inputs in the above list are discussed elsewhere: opening capital base (attachment 2), forecast net capex (attachment 6) and forecast inflation (attachment 3). Our decision on the required amendments to JGN's proposed regulatory depreciation allowance reflects our determinations on these building block components. Our assessment approach on the remaining two inputs in the above list is set out below.

In general, we consider that consistency in the standard asset life for each asset class across access arrangement periods will allow reference tariffs to vary smoothly over time. This will promote efficient growth in the market for reference services.[19] Our standard method for determining the remaining asset lives is the weighted average method.[20] The weighted average method rolls forward the remaining asset life for an asset class from the beginning of the earlier access arrangement period. This approach reflects the mix of assets within that asset class, when they were acquired over that period (or if they were existing assets at the beginning), and the remaining value of those assets (used as a weight) at the end of the period.[21] We will assess the outcomes of other approaches against the outcomes of this standard approach.

5.3.1 Interrelationships

The regulatory depreciation allowance is a building block component of the annual building block revenue requirement.[22] Higher (or quicker) depreciation leads to higher revenues over the regulatory control period. It also causes the capital base to reduce more quickly (assuming no further capex). This reduces the return on capital allowance, although this impact is usually secondary to the increased depreciation allowance.

Ultimately, however, a service provider can only recover the capex it has incurred on assets once. The depreciation allowance therefore reflects how quickly the capital base is being recovered and is based on the remaining and standard asset lives used in the depreciation calculation.

The depreciation allowance also depends on the level of the opening capital base and the forecast capex. Any increase in these factors also increases the depreciation allowance.

To prevent double counting of inflation through the rate of return and capital base, the regulatory depreciation allowance also has an offsetting reduction for indexation of the capital base.[23] Factors that affect forecast inflation and/or the size of the capital base will therefore affect the size of this indexation adjustment.

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19 NGR, r. 89(1)(a).

20 We consider this depreciation method to be a generally superior approach. The reasons are outlined in our decision on the roll forward model for electricity transmission network service providers. See AER, *Explanatory statement, Proposed amendment, Electricity transmission network service providers, Roll forward model*, August 2010, pp. 5–6.

21 See AER, *Final decision - amended transmission roll forward model*, December 2010, pp. 5–6 for further explanation.

22 Under our standard approach, the distinction is made between straight-line depreciation and regulatory depreciation. The difference being that regulatory depreciation is the straight-line depreciation minus the indexation adjustment.

23 If the economic lives are extremely long, such that the straight-line depreciation rate is lower than the inflation rate, then negative regulatory depreciation can emerge. The indexation adjustment is greater than the straight-line depreciation in such circumstances.

The relative size of the inflation and straight-line depreciation and their impact on the capital base using JGN's proposal is shown in attachment 2. A ten per cent increase in the straight-line depreciation causes revenues to increase by about 1.5 per cent.

5.4 Reasons for draft decision

We do not approve JGN's proposed regulatory depreciation allowance of $437.5 million ($nominal) for the 2015–20 access arrangement period.[24] Our draft decision on JGN's regulatory depreciation allowance is $424.9 million ($nominal) over the 2015–20 access arrangement period, a reduction of $12.6 million ($nominal) or 2.9 per cent compared to the proposed amount. This is mainly due to:

- Reduction of JGN's forecast net capex by $211.4 million ($real 2015) or 18.7 per cent. Our detailed assessment of the proposed forecast capex allowance is set out in attachment 6.
- Reduction of the opening capital base as of 1 July 2015 by $1.6 million ($nominal). Our detailed assessment of the proposed opening capital base is set out in attachment 2.
- Update to the forecast inflation proposed by for the 2015–20 access arrangement period. Our assessment of JGN's proposed forecast inflation is set out in attachment 3.

With the exception of the 'Vehicles' asset class, we approve JGN's proposed standard asset lives assigned to each of its asset classes for the 2015–20 access arrangement period.[25] For the 'Vehicles' asset class, we do not approve JGN's proposed standard asset life of four years, and instead require that this be set to six years.

We approve the remaining asset lives (as at 1 July 2015) calculated using JGN's approach, noting that there have been minor updates to these values reflecting other aspects of our draft decision.[26]

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[24] JGN's proposed regulatory depreciation allowance is set out in its total revenue chapter (table 12–1, $404.2 million in $real 2014–15, which converts to $437.5 million in nominal terms). In JGN's capital base chapter, JGN presents 'forecast depreciation' of $882.0 million ($nominal). This is the proposed straight–line depreciation before inflation indexation, as per the top line of Table 5-2 in this attachment. JGN, *Access arrangement information*, June 2014, pp. 86, 103.

[25] We have accepted JGN's proposed standard asset life for the 'Equity raising costs' asset class because there is no forecast capex allocated to this asset class and so it has no impact on total revenue. However, if this were to change in the final decision we would update the standard asset life using the same underlying method - the weighted average standard asset life of the opening capital base.

[26] For the final decision we will recalculate JGN's remaining asset lives as at 1 July 2015 based on JGN's method and any updated inputs. In particular, for this draft decision the roll forward of JGN's capital base includes estimated capex amounts for 2013–14 and 2014–5. For the final decision, we will update these values to reflect 2013–14 actual conforming capex and any revisions (reflecting newly available information) to 2014–15 estimated capex. These capex amounts are used to calculate the closing capital base as at 30 June 2015, which affects the calculation of remaining asset lives under JGN's approach.

Table 5-4 sets out our draft decision on the standard and remaining asset lives as at 1 July 2015 for JGN.

Table 5-4 AER's draft decision on JGN's standard and remaining asset lives as at 1 July 2015 (years)

	Standard asset life	Remaining asset life
Trunk Wilton-Sydney	80.0	38.5
Trunk Sydney-Newcastle	80.0	45.3
Transmission pipeline (Wilton-Wollongong)	80.0	37.9
Contract meters	20.0	8.4
Fixed Plant - distribution	50.0	50.0
HP mains	80.0	59.8
HP services	50.0	50.0
MP mains	50.0	26.3
MP services	50.0	37.1
Meter reading devices	20.0	20.0
Country POTS	50.0	33.0
Tariff meters	20.0	9.1
Building	48.0	48.0
Computers	5.0	5.0
Software	5.0	4.1
Fixed plant	10.0	9.3
Furniture	10.0	10.0
Land	n/a	n/a
Leasehold improvements	10.0	10.0
Low value assets	10.0	10.0
Mobile plant	10.0	8.4
Vehicles	6.0	3.3
Stock[a]	1.0	1.0
Equity raising costs	53.7[b]	49.9

Source: AER analysis.
n/a: not applicable (since land does not depreciate).
a The 'Stock' asset class is included in order to handle legacy residual assets in this class. There is no forecast capex allocated to this asset class during the 2015–20 access arrangement period.
b There is no forecast capex allocated to the 'Equity raising costs' asset class during the 2015–20 access arrangement, so the standard asset life does not affect total revenue.

5.4.1 Standard asset lives

With the exception of the 'Vehicles' asset class, we accept JGN's proposed standard asset lives for its existing asset classes, because they are:

- consistent with our approved standard asset lives for the 2010–15 regulatory control period[27]
- comparable with the standard asset lives approved in our recent determinations for other gas distribution service providers.[28]

However, when we compared JGN's proposed standard asset life for the 'Vehicles' asset class against the equivalent asset class used in other AER regulatory determinations, the proposed life differs from the observed benchmark. Outside of JGN, the average standard asset life is eight years, with a range from six years to ten years.[29] This assessment included all recent decisions for electricity and gas network service providers, and so was a broad comparison only. Accordingly, we asked JGN for further reasons on its proposed four year standard asset life.[30]

In response, JGN submitted that while there was evidence supporting a range between four and six years for its 'Vehicles' asset class, a standard asset life of five years should be applied (an increase from its proposal of four years).[31] This is because five years aligned with the design life of the most common vehicle type in the asset class—light commercial vehicles—and there were corresponding five-yearly peaks in its 'Vehicles' forecast capex. However, JGN also disclosed that the weighted average standard life for the 'Vehicles' asset class was approximately 6.08 years.[32]

JGN's 'Vehicles' asset class includes five different vehicle types—heavy commercial vehicles, light commercial vehicles, passenger vehicles, plant(forklifts) and trailers. The design life varies by type, between four years (passenger vehicles) and 15 years (trailers), although usage is also relevant (for instance, kilometres travelled). We do not agree with JGN's submission that the 'most common' design life (that is, the median calculated on a per-unit basis) should be used to establish the average life for that class. We consider that this approach ignores the rest of the vehicle types and their relative values. The relevant life is the weighted average design life (weighted by value) across the entire asset class, which is approximately six years.[33]

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27 For the 'Equity raising costs' asset class, JGN's proposed standard asset life reflects the weighted average standard asset life of the opening capital base at the time of the 2010 access arrangement decision. Since there is no forecast capex allocated to this asset class, the standard asset life has no impact on total revenue and so we have accepted the JGN proposal. The forecast of equity raising costs is dependent on complex interactions between many other aspects of the decision, and JGN adopts the standard AER approach to modelling the requirement for equity raising costs (if any). If the final decision did include forecast equity raising costs in this asset class, we would update the standard asset life using the same methodology – the weighted average standard life of the opening capital base.

28 AER, *Draft decision: Envestra (Victoria) access arrangement proposal 2013–17 Part2: Attachments*, September 2012, p. 158; AER, *Draft decision: AusNet (SP AusNet) arrangement proposal 2013–17 Part2: Attachments*, September 2012, p. 134; AER, *Draft decision: Multinet Gas arrangement proposal 2013–17*, September 2012, p. 126.

29 Not all service providers use such an asset breakdown. The observed standard economic lives for the 'Vehicles' or 'Motor Vehicles' asset class is 6 years (Aurora), 7 years (ActewAGL, Powerlink), 8 years (Endeavour Energy, Essential Energy), 9 years (Energex), and 10 years (Ausgrid, Ergon Energy).

30 AER, *Email re: AER JGN 037 Information request - Standard asset life of Vehicles asset class*, 8 October 2014.

31 JGN, *Email re: RE: AER JGN 037 Information request - Standard asset life of Vehicles asset class*, 10 October 2014.

32 JGN, *Email re: RE: AER JGN 037 Information request - Standard asset life of Vehicles asset class*, 10 October 2014.

33 This weighted average is above five years primarily because the heavy commercial vehicles have a relatively long design life (9-10 years) and a high per-unit value.

Further, JGN's forecast capex program (based on its fleet management strategy) already reflects the design life of each different type of vehicles.[34] Hence, setting a standard asset life of five years (or four years) would not be consistent with JGN's forecast capex program.[35]

Accordingly, we require that the standard asset life for the 'Vehicles' asset class be set at six years to ensure that the asset class is depreciated over the economic life of the asset.[36] We note the six year standard asset life also brings JGN into the observed range for comparable asset classes across other electricity and gas service providers.

With the change to the 'Vehicles' asset class, we are satisfied the proposed standard asset lives reflect the requirements of rule 89(1) of the NGR. Table 5-4 sets out our draft decision on the standard asset lives for JGN.

5.4.2 Remaining asset lives

We approve the remaining asset lives calculated using JGN's proposed approach. We have concerns about several aspects of JGN's calculation method. However, with regard to the overall effect on total revenue, we do not consider there is a material difference between JGN's method and an approach that adjusted all the contentious aspects (as per the AER's standard approach). In view of this immaterial difference, we have applied JGN's proposed approach, noting that there have been minor updates to these values reflecting other aspects of our draft decision.

The method proposed by JGN to establish the remaining asset lives differs from the method used in JGN's previous access arrangement. It also differs from the AER's standard (and preferred) method. To assess the materiality of these differences, we considered how each method of calculating the remaining asset lives would affect total revenue (unsmoothed) across the 2015–20 access arrangement period, and the closing capital base at 30 June 2020. This assessment is complicated because, in general, changing the remaining asset lives results in opposite effects on revenue in the current period and revenue in subsequent periods.[37] For example, an increase in the remaining asset lives at 1 July 2015 will decrease the depreciation allowance and so decrease revenue in the 2015–20 access arrangement period.[38] However, the 2020 closing capital base will increase (since there has been less depreciation) and therefore all else being equal there will be an increase in revenue in the 2020–25 access arrangement period (and later periods too). With that background, the effects of changing the method for determining remaining asset lives are as follows:[39]

- Applying the method used in JGN's 2010–15 access arrangement would (all else equal) decrease revenue across the 2015–20 access arrangement period by $16.1 million ($real 2015), a reduction of 0.6 per cent. However, the closing capital base at 30 June 2020 would increase by $10.2 million ($real 2015) or 0.3 per cent.
- Applying the AER's standard method would (all else equal) decrease revenue across the 2015–20 access arrangement by $51.1 million (real $2015), a reduction of 1.9 per cent. However, the closing capital base at 30 June 2020 would increase by $42.7 million (real $2015) or 1.3 per cent.

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34 That is, the five yearly replacement capex cycle referenced by JGN for light commercial vehicles does not reflect the capex cycle for the entire asset class. JGN, *2015–20 Access arrangement information, Appendix 06.07—Forecast capital expenditure report*, 30 June 2014, pp. 41–42 (paragraphs 154, 158).

35 The forecast capex program also includes consideration of disposals, which occur at the end of the design life and are minimal in any case (proposed at five per cent of outgoings).

36 NGR, r. 89(1)(b).

37 This statement does not imply that the effects will be equal; but simply that they act in offsetting directions.

38 There are other, secondary effects. For instance, the decrease in 2015–20 depreciation will cause a (smaller) increase in the return on capital building block during the 2015–20 access arrangement period.

39 These calculations are based on JGN's original proposal, not the AER's draft decision position.

On balance, we do not consider that these are material differences. For the purposes of this draft decision, in applying JGN's method to calculate the remaining asset lives, we have updated the remaining asset lives as at 1 July 2015 to reflect our adjustment to the opening capital base (detailed in attachment 2). This is because the capital base values are inputs for calculating the remaining asset lives in JGN's roll forward model. Similarly, for the final decision we will recalculate JGN's remaining asset lives as at 1 July 2015 based on JGN's method and any other updated inputs. In particular, this will include replacing the estimated 2013–14 capex estimate with actual conforming capex, and revisions to the estimate of 2014–15 capex.

Table 5-4 sets out our draft decision on the remaining asset lives as at 1 July 2015 for JGN.

Approaches to estimating remaining asset lives

The only way to calculate remaining asset lives without any error is to track every single asset individually. However, this would entail a large administrative overhead (including for the regulator) and is impractical. Hence, similar assets (including similar assets commissioned in different years) are grouped into asset classes.

However, no approach to calculating the remaining asset life of an asset class is perfect. Some information is necessarily lost when assets are combined into a single asset class or when new assets are added to that asset class over time. Hence, we focus on the materiality of distortions arising from methods used to calculate remaining asset lives, relative to the 'true' remaining asset lives had the aggregation not occurred.

The core of JGN's method is the 'accounting approximation' of the remaining asset life for each asset class, which can be expressed as:

$$Asset\ value \div Yearly\ depreciation = Remaining\ life$$

For example, if the asset value was $10 million, and the yearly depreciation was $2 million, the calculated remaining life is five years (10 ÷ 2). In JGN's implementation, the asset value is the closing capital base at 30 June 2015 for each asset class. The yearly depreciation is the regulatory depreciation allowance for 2014–15 for each asset class, which itself is based on the approved forecast depreciation from the 2010 access arrangement decision.[40] After this 'accounting approximation', JGN then performs a number of additional adjustments.[41] However, these are not the primary source of our concern as they do not have significant impact on the final values and so are not discussed in further detail.

This proposed approach differs from that used in JGN's 2010–15 access arrangement. The key difference is that the measure of yearly depreciation used in the accounting approximation in the access arrangement was (implied) actual depreciation, not forecast depreciation.

This proposed approach also differs from the AER's standard weighted average approach, as included in our RFM template for electricity transmission networks. Under this approach, the AER calculates the remaining asset life for existing assets (which will be the remaining asset life as at the start of the access arrangement period less five years) and new capex by year of expenditure (which

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[40] The choice between using forecast or actual capex for calculating depreciation is locked in at the preceding access arrangement decision. See NGR r. 90.

[41] Briefly, JGN adjusts (i) for new capex added to the capital base at the end of 2014–15; (ii) for the difference between estimated and actual net capex in 2009–10, which is also added to the capital base at the end of 2014–15; and (iii) to constrain the final estimate to be less than or equal to the standard asset life.

will be the standard life less the number of years since the capex was incurred). It then takes a weighted average of these remaining lives, where the weight is the closing value of each asset category.

Concerns with JGN's approach

Our major concern with JGN's method is the use of accounting approximation instead of the AER's weighted average approach.[42] Our secondary concern relates to JGN's use of forecast depreciation within the accounting approximation method.[43]

Broadly speaking, if there are both existing assets and new capex in an asset class during the access arrangement period, the accounting approximation approach will systematically underestimate the remaining asset life. This applies to JGN's 2010 approach as well as the proposal for the 2015–20 access arrangement.

To understand the cause of this underestimation, note that the final year depreciation (used to divide the asset value) will include depreciation arising from both the older asset and the newer asset. At some point in the future, the older asset will be completely depreciated; but the newer asset will not. If the remaining asset lives for the individual assets were preserved, at this point yearly depreciation would decrease to reflect only the depreciation arising from the newer asset. However, the accounting approximation assumes that depreciation continues at the same level as the final year until all assets are completely depreciated. Hence, the overall remaining asset life will be underestimated—that is, it will be closer to the remaining life of the older asset than would be reasonable based on their relative asset values.[44]

In contrast, our weighted average approach will produce an overall remaining asset life that lies between the remaining asset life of the older and newer assets, in proportion to their relative values.

Applying just this part of the AER's standard method would (all else equal) decrease revenue across the 2015–20 access arrangement by $50.5 million (real $2015), a reduction of 1.8 per cent. However, the closing capital base at 30 June 2020 would increase by $42.5 million (real $2015) or 1.3 per cent.

Our secondary concern relates to JGN's use of forecast depreciation within the accounting approximation. We consider that if the accounting approximation approach is to be used, implied actual depreciation should be used (as in JGN's 2010 access arrangement proposal) instead of JGN's current approach. Use of forecast depreciation may result in either overestimation or underestimation of the remaining asset life for a given asset class, depending on the difference between forecast capex and actual capex for that particular class incurred during the access arrangement period.

To understand the cause of this difference, consider that the asset value (the numerator) under the accounting approximation approach is the closing capital base, which reflects actual capex as per the capital base roll forward approach. If yearly depreciation (the denominator) is set using forecast depreciation, this value reflects forecast capex not actual capex. This inconsistency means that where there is a difference between forecast capex and actual capex, the accounting approximation will produce an estimate that does not reflect the economic life of the asset class. If forecast capex is

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42 This concern mirrors our concern with ActewAGL's 'real depreciation' approach to estimating remaining lives, which shares the same key method as JGN's 'accounting approximation' approach.

43 Our final concern relates to the adjustment of remaining asset lives for the difference between 2009–10 estimated and actual capex.

44 That is, the accounting approximation approach is effectively a weighted average of the older asset remaining life and the newer asset remaining life, where the weights reflect the depreciation amounts in the final year. In contrast, under our standard approach, the weights reflect the closing values of the older and newer assets.

above actual capex, the approach will underestimate the remaining asset life. Conversely, if actual capex is above forecast capex, the approach will overestimate the remaining asset life.

This concern remains even where the decision has been made to use depreciation based on forecast capex (not actual capex) to roll forward the capital base, as is the case for JGN. Here, the closing capital base will reflected forecast depreciation and actual capex; but the effect of actual capex predominates over the indirect effect of forecast capex (through forecast depreciation). The use of forecast depreciation in the roll forward provides a capex incentive within the access arrangement period. It is not intended to affect the estimate of remaining lives for future depreciation purposes so that they no longer reflect the economic lives of the underlying assets—but this is the direct effect if forecast depreciation is used under the accounting approximation approach. In contrast, using implied actual deprecation will adjust the rate of yearly depreciation for the asset so that it depreciates fully over its original economic life. Accordingly, we do not consider that the decision to use depreciation based on forecast capex to roll forward the capital base also entails a requirement to use forecast depreciation under the accounting approximation approach.

Applying just this adjustment to JGN's accounting approximation approach would (all else equal) decrease revenue across the 2015–20 access arrangement by $14.8 million (real $2015), a reduction of 0.5 per cent. However, the closing capital base at 30 June 2020 would increase by $9.6 million (real $2015) or 0.3 per cent.

5.5 Revisions

The AER requires the following revisions to make the access arrangement proposal acceptable:

Revision 5.1 Make all necessary amendments to reflect the AER's draft decision on the proposed forecast regulatory depreciation allowance for the 2015–20 access arrangement period, as set out in table 5-1.

Revision 5.2 Make all necessary amendments to reflect the AER's draft decision on the standard and remaining asset lives as at 1 July 2015, as set out in table 5-4.