Proposed amendment

Electricity distribution network service providers

Roll forward model handbook

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Handbook version	Model version	Date	Pages
1	1	June 2008	21
2	2	December 2016	32
3	3	December 2019	77

Contents

Shortened forms

Shortened form	Extended form
AER	Australian Energy Regulator
capex	capital expenditure
CPI	consumer price index
DMS	data management system
DV	diminishing value
DNSP	distribution network service provider
NEL	National Electricity Law
NER	National Electricity Rules
PTRM	post-tax revenue model
RAB	regulatory asset base
RIN	regulatory information notice
RFM	roll forward model
SL	straight-line
TAB	tax asset base
tracking module	depreciation tracking module
WACC	weighted average cost of capital
WARL	weighted average remaining life
year t–1	final year of the previous regulatory control period
year t–2	second last year of the previous regulatory control period

1 Introduction

This handbook sets out the Australian Energy Regulator's (AER) roll forward model (RFM) for electricity distribution network service providers (DNSPs). The RFM is a set of two Microsoft Excel workbooks (each a series of Microsoft Excel spreadsheets) developed in accordance with the requirements of clause 6.5.1 of the National Electricity Rules (NER). The main workbook—commonly referred to as 'the RFM'—is where the majority of the calculations for rolling forward the asset base are performed. The second workbook, which is an attachment to the main RFM workbook—referred to as 'the depreciation tracking module'—is used to calculate depreciation schedules for a DNSP where relevant.[1] We prepare and publish the RFM in accordance with the distribution consultation procedures set out in the NER.[2]

1.1 Role of the model

DNSPs are required to submit a completed RFM to us as part of their regulatory proposals.

We use the RFM to determine the closing regulatory asset base (RAB) and tax asset base (TAB) for a regulatory control period. The closing RAB (and TAB) value for a regulatory control period becomes the opening RAB (and TAB) to be used for the purposes of making a building block determination for the next regulatory control period.[3] The roll forward of the opening RAB (and TAB) for the next regulatory control period, on a forecast indicative basis, is undertaken in our post-tax revenue model (PTRM) in accordance with the requirements of the NER.

1.2 Confidentiality

Our obligations regarding confidentiality and the disclosure of information provided to us by a DNSP are governed by the *Competition and consumer Act 2010 (Cth)*, the National Electricity Law (NEL) and the NER.

1.3 Process for revision

We may amend or replace the RFM from time to time in accordance with clause 6.5.1(c) of the NER and the distribution consultation procedures. We will publish a revised version of this handbook to accompany each version of the RFM we amend or replace in the future.

A version number and an effective date of issue will identify each version of this handbook.

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[1] The depreciation tracking module uses the year-by-year tracking approach, which tracks the asset classes on a yearly basis, in addition to grouping assets by type via asset classes.

[2] NER, cl. 6.16.

[3] Specifically, the RAB is used to calculate the return on and of capital building blocks. The TAB is used to calculate the corporate income tax building block.

2 The model

2.1 Overview of the RFM

The RFM is used to calculate the total value of assets for a DNSP across a regulatory control period. Specifically, the RFM is a set of Microsoft Excel spreadsheets (sheets) combined into one file that perform calculations to derive a closing RAB for the current regulatory control period from a given set of inputs.[4] The RFM has a depreciation tracking module as an attachment, which comprises of a separate set of Microsoft Excel sheets in one file. The RFM allows the user to vary the inputs in order to assess their impact on the output data and other derived parameters. Figure 1 provides an overview of this process.

Figure 1 Overview of the RFM sheets

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[4] The set of Microsoft Excel sheets which constitute the RFM were created in Microsoft Excel 2016. We recommend this or a later version of Microsoft Excel be used in applying these spreadsheets.

In Figure 1, each box represents a sheet within the RFM. Sheets are classified as primarily about inputs (left column), calculations (centre column) or outputs (right column). The flow of data is therefore from left to right, and simplified links between the sheets are shown with blue arrows.

To operate the RFM, the user enters all the required data on the **RFM input** sheet—for example, the opening RAB and TAB values, actual capital expenditure (capex) across the regulatory control period, or the actual consumer price index (CPI) rate. These inputs often require reconciliation with previous models (RFM or PTRM) approved for the building block determination applying to the current regulatory control period, depreciation tracking module for the upcoming reset, or annual information reported by the DNSPs. In this sense, the majority of inputs to the RFM will be the output from other parts the previous final decision.

The RFM then uses this data to undertake the RAB (and TAB) roll forward, consistent with the requirements of the NER. Under this approach, the RAB is rolled forward during each year of the current regulatory control period by adding capex (net of disposals and customer contributions[5]), subtracting depreciation and indexing for actual CPI in the **RAB roll forward** sheet. The required true-up for RAB adjustments (such as for using an estimate of capex) in the final year of the previous regulatory control period is calculated in the **Adjustment for previous period** sheet. The **Total RAB roll forward** sheet then draws the data from the **RAB roll forward** and **Adjustment for previous period** sheets to bring together the closing RAB for the current regulatory control period.

The roll forward of the TAB is undertaken in a similar, but simpler manner in the **TAB roll forward** sheet. Unlike the RAB, the TAB is not used to derive revenues explicitly and so the final year capex estimate true-up can be accommodated by replacing with actual capex in the relevant year of incurrence.[6]

The **RAB remaining lives** and **TAB remaining lives** sheets roll forward the weighted average remaining life (WARL) of each asset class based on actual depreciation of the opening asset value and net capex incurred in each regulatory control period. The weighted average method is one of two approaches in depreciating the opening RAB and TAB, and is the default position in the RFM for calculating the remaining asset lives for input to the PTRM. Some DNSPs adopt the alternative year-by-year tracking approach to calculating depreciation of the PTRM opening RAB and/or opening TAB values, and so they may use the accompanying depreciation tracking module for this purpose.

Finally, because the outputs of the RFM become inputs to the PTRM, there is a presentation sheet which provides a summary of output data in the format required for feeding into the PTRM.

The user should not alter the names of any sheets or defined name ranges within the RFM. These RFM components are used when automatically importing into our data management system (DMS). If these elements are changed, errors may occur.

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[5]   Customer contributions are also referred to as capital contributions.

[6]   Consistent with tax law, the TAB is rolled forward in nominal dollar terms and so there is no indexation required.

2.2 DMS input sheet

The **DMS input** sheet captures business specific, non-financial information that is required for us to import the RFM into its DMS. To allow this automatic import to take place, this sheet has been locked (using the Excel 'Protect sheet' command) so that the layout of this sheet cannot be changed.

Contact details for those responsible for preparing and submitting the RFM are recorded in rows 14 to 31. These will be stored in the DMS. These inputs also control the headings displayed at the top of other sheets in the RFM.

Context details for the RFM are recorded in the lower section. Many of these details (such as the dates of the regulatory control period) are automatically populated from the **RFM input** sheet and so the cells here are hidden. The stage of the regulatory process is set in cell C36 using a drop down menu.[7] If this is not enough description to uniquely identify the RFM submission, a description should be placed in cell C37 (for example, a resubmission of the regulatory proposal RFM with revised data values after an error was corrected).

Figure 2 provides an example of the **DMS input** sheet.

Figure 2 DMS input sheet

2.3 RFM input sheet

The **RFM input** sheet provides for key input variables to be entered in the RFM. They are automatically linked to corresponding cells in other relevant sheets. Values should be entered into each cell with light blue shading. This sheet comprises of the following sections:

- opening RAB and opening TAB

- actual nominal capex—as incurred

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[7] For example, whether the RFM relates to the regulatory proposal, draft decision, revised regulatory proposal or final decision.

- actual nominal asset disposals—as incurred

- actual nominal customer contributions—as incurred

- actual real net capex—as incurred

- lagged inflation option

- inflation and rate of return

- real straight-line RAB depreciation option

- forecast/actual year-by-year tracking real straight-line RAB depreciation

- actual tax depreciation option

- year-by-year tracking actual tax depreciation

- forecast nominal final year asset adjustments

- ex-post review options

- ex-post review inputs.

The input data to be recorded in the RFM must be in a consistent format as the data collected from the DNSP in accordance with our regulatory information notice (RIN).

The RFM can accommodate input data for up to 11-year period. This includes the final year of the previous regulatory control period, as well as up to 10 years of the current regulatory control period. Input cells outside of the relevant regulatory control period should be left blank.

The RFM is configured as follows:

- Uses straight-line (SL) depreciation as the default method for calculating depreciation for regulatory purposes—If DNSPs intend to propose other depreciation profiles, it is recommended that they raise this as part of pre-lodgement discussions.[8] For example, this could take place during the framework and approach process for a determination.[9]

- Uses either the SL method or diminishing value (DV) method for tax depreciation— Where DV depreciation applies to the regulatory control period, tax depreciation is calculated in the depreciation tracking module and entered as an input to the RFM. Where DV depreciation does not apply to the regulatory control period, tax depreciation can be calculated using the WARL approach within the RFM or using the year-by-year approach in the depreciation tracking module and then entered as an input to the RFM.

- Recognises capex on a full as incurred approach—This method for recognising capex calculates the return on capital and return of capital (regulatory depreciation) based on as incurred capex; that is, when expenditure is incurred.

Figure 3 and Figure 4 provide an example of the **RFM input** sheet.

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[8] The depreciation profiles would be subject to satisfying the requirements of clauses 6.5.3 and 6.5.5(b) of the NER.
[9] Clause 6.8.1 of the NER sets out the requirements of the framework and approach applying to a determination.

Figure 3 RFM input sheet–first screenshot

Figure 4 RFM input sheet–second screenshot

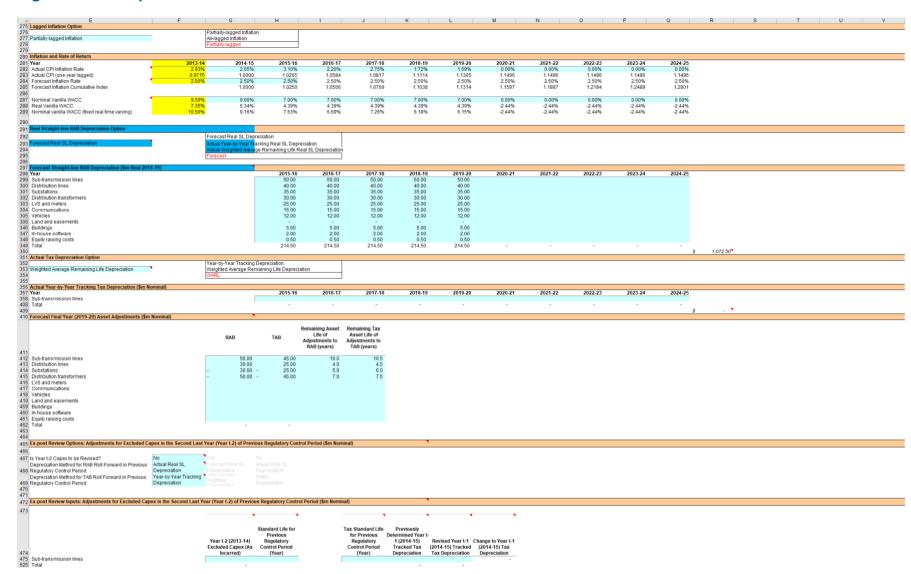**275 Lagged Inflation Option**

277 Partially-lagged Inflation	Partially-lagged Inflation
	All-lagged Inflation
278	Partially-lagged

280 Inflation and Rate of Return

281 Year	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
282 Actual CPI Inflation Rate	2.93%	2.65%	3.10%	2.20%	2.75%	1.72%	1.69%	0.00%	0.00%	0.00%	0.00%	0.00%
283 Actual CPI (one year lagged)	0.9715	1.0000	1.0265	1.0584	1.0817	1.1114	1.1305	1.1496	1.1496	1.1496	1.1496	1.1496
284 Forecast Inflation Rate	2.00%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
285 Forecast Inflation Cumulative Index		1.0000	1.0250	1.0506	1.0769	1.1038	1.1314	1.1597	1.1887	1.2184	1.2489	1.2801
287 Nominal Vanilla WACC	9.50%	9.00%	7.00%	7.00%	7.00%	7.00%	7.00%	0.00%	0.00%	0.00%	0.00%	0.00%
288 Real Vanilla WACC	7.35%	6.34%	4.39%	4.39%	4.39%	4.39%	4.39%	-2.44%	-2.44%	-2.44%	-2.44%	-2.44%
289 Nominal vanilla WACC (fixed real time varying)	10.50%	9.16%	7.63%	6.69%	7.26%	6.18%	6.15%	-2.44%	-2.44%	-2.44%	-2.44%	-2.44%

291 Real Straight-line RAB Depreciation Option

293 Forecast Real SL Depreciation	Forecast Real SL Depreciation
	Actual Year-by-Year Tracking Real SL Depreciation
	Actual Weighted Average Remaining Life Real SL Depreciation
295	Forecast

297 Forecast Straight-line RAB Depreciation ($m Real 2014-15)

298 Year	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
299 Sub-transmission lines	50.00	50.00	50.00	50.00	50.00					
300 Distribution lines	40.00	40.00	40.00	40.00	40.00					
301 Substations	35.00	35.00	35.00	35.00	35.00					
302 Distribution transformers	30.00	30.00	30.00	30.00	30.00					
303 LVS and meters	25.00	25.00	25.00	25.00	25.00					
304 Communications	15.00	15.00	15.00	15.00	15.00					
305 Vehicles	12.00	12.00	12.00	12.00	12.00					
306 Land and easements	-	-	-	-	-					
346 Buildings	5.00	5.00	5.00	5.00	5.00					
347 In-house software	2.00	2.00	2.00	2.00	2.00					
348 Equity raising costs	0.50	0.50	0.50	0.50	0.50					
349 Total	214.50	214.50	214.50	214.50	214.50	-	-	-	-	-

$ 1,072.50

351 Actual Tax Depreciation Option

353 Weighted Average Remaining Life Depreciation	Year-by-Year Tracking Depreciation
	Weighted Average Remaining Life Depreciation
354	WARL

356 Actual Year-by-Year Tracking Tax Depreciation ($m Nominal)

357 Year	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
358 Sub-transmission lines	-	-	-	-	-	-	-	-	-	-
408 Total										

$ -

410 Forecast Final Year (2019-20) Asset Adjustments ($m Nominal)

	RAB	TAB	Remaining Asset Life of Adjustments to RAB (years)	Remaining Tax Asset Life of Adjustments to TAB (years)
412 Sub-transmission lines	50.00	45.00	10.0	10.5
413 Distribution lines	30.00	25.00	4.0	4.5
414 Substations	30.00	25.00	5.0	6.0
415 Distribution transformers	50.00	45.00	7.0	7.5
416 LVS and meters				
417 Communications				
418 Vehicles				
419 Land and easements				
459 Buildings				
460 In-house software				
461 Equity raising costs				
462 Total	-	-		

465 Ex-post Review Options: Adjustments for Excluded Capex in the Second Last Year (Year t-2) of Previous Regulatory Control Period ($m Nominal)

467 Is Year t-2 Capex to be Revised?	No	Yes	No
468 Depreciation Method for RAB Roll Forward in Previous Regulatory Control Period	Actual Real SL Depreciation	Forecast Real SL Depreciation	Actual Real SL Depreciation
469 Depreciation Method for TAB Roll Forward in Previous Regulatory Control Period	Year-by-Year Tracking Depreciation	Year-by-Year Tracking Depreciation	WARL Depreciation

472 Ex-post Review Inputs: Adjustments for Excluded Capex in the Second Last Year (Year t-2) of Previous Regulatory Control Period ($m Nominal)

	Year t-2 (2013-14) Excluded Capex (As Incurred)	Standard Life for Previous Regulatory Control Period (Year)	Tax Standard Life for Previous Regulatory Control Period (Year)	Previously Determined Year t-1 (2014-15) Tracked Tax Depreciation	Revised Year t-1 (2014-15) Tracked Tax Depreciation	Change to Year t-1 (2014-15) Tax Depreciation
475 Sub-transmission lines	-		-	-	-	-
525 Total						

2.3.1 Opening regulatory asset base and tax asset base

The opening RAB is the value of assets on which a return will be earned. The opening TAB is used to calculate the depreciation for tax purposes. The **RFM input** sheet requires values for the opening RAB (broken into asset classes in rows 7 to 56) at the start of the final year of the previous regulatory control period. The values for the opening TAB, also broken into asset classes, are required at the start of the first year of the current regulatory control period.[10] The RAB and TAB will differ each year to reflect actual capex, asset disposals, customer contributions (for the RAB), and regulatory depreciation (for the RAB) or tax depreciation (for the TAB).

The recorded input values are linked to subsequent sheets which calculate an annual balance of the RAB and TAB for the current regulatory control period. Notes have been included for various cells with specific comments and explanations about the relevance of the inputs.

Asset class name

The asset classes/names are recorded in column F. It is important that the number of asset classes recorded in the RAB section matches the number of asset classes identified in the capex section. This allows the RFM to model consistent depreciation across the asset classes.

The RFM is configured to accommodate up to 50 asset classes. The number of asset classes used in the RFM will vary between businesses.[11] However, for each business, the number of asset classes used in the RFM must be consistent with that used in our PTRM to allow the closing RAB values determined in the RFM to be used as inputs to the opening RAB values in the PTRM.

RAB values by asset class derived from the RFM may be aggregated or disaggregated into different classes when forming inputs for the PTRM for the subsequent regulatory control period where this meaningfully improves the accuracy or administrative convenience of asset calculations.

Opening asset value

The opening asset values for each asset class are recorded in column I. These values should be as at the start of the final year of the previous regulatory control period and would be contained in the RFM used for the current building block determination for the DNSP. They are linked to the **RAB roll forward** sheet.

Average remaining life

The remaining lives of each asset class are recorded in column J, based on the economic lives of the assets as at the start of the current regulatory control period. These values

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[10] The button at the left of row 53 may be pressed to display/hide rows 37 to 52 (asset classes 31 to 46).

[11] Asset classes 47 to 49 in the RFM are designed to be used for assets related to 'In-house software' and 'Buildings' while asset class 50 is designed to be used for 'Equity raising costs', consistent with the PTRM.

should be consistent with those contained in the PTRM used in the current building block determination for the DNSP. They are linked to the **RAB roll forward** and **RAB remaining lives** sheets. <mark>These inputs would not be required if the option for depreciating the opening capital base selected in section 2.3.8 is set to year-by-year tracking, in which case 'n/a' is to be recorded into these cells.</mark>

Standard life

The standard lives of each asset class are recorded in column K and measure how long the infrastructure would physically last if it had just been built. These values should be consistent with those contained in the PTRM used in the current building block determination for the DNSP. They are linked to the **RAB roll forward** and **RAB remaining lives** sheets.

Forecast net capex

The forecast net capex values for each asset class are recorded in column L. They are based on the estimates made in the final year of the previous regulatory control period. These values would be contained in the RFM used for the current building block determination for the DNSP. They are linked to the **Adjustment for previous period** and **RAB roll forward** sheets.

Forecast regulatory depreciation

The forecast regulatory depreciation values for each asset class are recorded in column M. They are based on the estimates made for the final year of the previous regulatory control period. These values would be contained in the RFM used for the current building block determination for the DNSP. They are linked to the **RAB roll forward** sheet.

Forecast customer contributions

The forecast customer contribution values for each asset class are recorded in column N. They are based on the estimates made in the final year of the previous regulatory control period. These values would be contained in the RFM used for the current building block determination for the DNSP. They are linked to the **TAB roll forward** sheet.

Difference in final year capex

The difference in final year capex values for each asset class are recorded in column O. They are based on the capex 'true-up' adjustment made to the closing RAB for the previous regulatory control period. These values would be contained in the RFM used for the current building block determination for the DNSP. These values are linked to the **RAB roll forward** sheet.

Return on difference in final year capex

The return on difference in final year capex values for each asset class are recorded in column P. They are based on the accumulated return associated with the final year capex 'true-up' adjustment made to the closing RAB for the previous regulatory control period. These values would be contained in the RFM used for the current building block determination for the DNSP. These values are linked to the **RAB roll forward** sheet.

Other final year adjustments

The other final year adjustment values for each asset class are recorded in column Q. This data may be required for DNSPs which adjusted their closing RAB by removing or adding assets (such as a change in service classification) in the final year of the previous regulatory control period.[12]

The amount of other final year adjustments (if any) would be contained in the RFM used for the current building block determination for the DNSP. These values are linked to the **RAB roll forward** sheet.

Tax asset values—opening tax asset value, average tax remaining life, tax standard life

The RFM includes a mechanism to roll forward tax asset values between regulatory control periods. The **RFM input** sheet requires the tax asset values comprising of the opening tax values, average tax remaining lives and tax standard lives for each asset class. The RFM is configured to calculate tax asset values using actual as incurred capex, including the value of contributed assets, asset disposals and tax depreciation.

For each asset class, the opening tax values at the start of the first year of the current regulatory control period are recorded in column R, the average tax remaining lives are recorded in column S and the tax standard lives are recorded in column T. These values are linked to the **TAB roll forward** sheet to calculate a running balance of the tax asset values for the current regulatory control period.

Tax remaining lives are not required if the option for depreciating the opening TAB selected in section 2.3.10 is set to year-by-year tracking, in which case 'n/a' is to be recorded into these cells.

Base regulatory year

The regulatory year for the start of the current regulatory control period is recorded in cell U7.

Length of the current regulatory control period

The number of years in the current regulatory control period is recorded in cell V7.

2.3.2 Actual nominal capital expenditure—as incurred[13]

The actual capex values for the current regulatory control period (including the final year for the previous regulatory control period) are recorded for each year in rows 61 to 110 (by asset class). Generally, capex falls into three broad categories:

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[12] Final year adjustments also include any adjustments from an ex-post review of capex.

[13] Actual capex, asset disposals and customer contributions are assumed to be undertaken evenly over a year and therefore the reported capex values are assumed to be in middle of the year terms. All other input values are assumed to be in end of the year terms. At the time of the final decision, these inputs for the final year of the regulatory control period will remain as estimates. These final year estimates will be updated with actuals at the next reset. At the time of the draft decision, typically these inputs for the last two years of the regulatory control period will remain as estimates.

- asset augmentation (e.g. works to enlarge a network or to increase the capability of a network)

- asset replacement (e.g. replacing assets that have passed their useful lives)

- non-network asset (e.g. support the business expenditure).

These inputs are assumed to be in middle of the year terms based on nominal dollar terms.

In the case where an ex-post review determines that a portion of capex is to be excluded from the RAB, for those years, the actual gross capex inputs in this sheet should reflect the efficient capex determined in that review.

2.3.3 Actual nominal asset disposals—as incurred

The actual asset disposal values for each year are recorded in rows 115 to 164. These inputs are assumed to be in middle of the year terms based on nominal dollar terms.

2.3.4 Actual nominal net customer contributions—as incurred

The values of actual assets contributed by other parties over the regulatory control period for each year are recorded in rows 169 to 218. These inputs are assumed to be in middle of the year terms based on nominal dollar terms.

2.3.5 Actual real net capital expenditure—as incurred

This section on actual real net capex does not require inputs to be recorded. For each asset class, actual real net capex values are calculated based on the recorded actual nominal capex values less asset disposal values and contributed assets, and adjusted for actual inflation. The real net capex values are displayed in rows 223 to 272 and form part of the roll forward of the RAB in the **Adjustment for previous period** and **RAB roll forward** sheets and the TAB in the **TAB roll forward** sheet. These values are assumed to be in middle of the year terms, based on the final year of the previous regulatory control period real dollar terms.

2.3.6 Lagged inflation option

The RFM provides the user an option at cell E277 (drop down function) to select the RAB roll forward to be undertaken using partially-lagged or all-lagged actual inflation, so that either approach can be applied to particular DNSPs where it aligns with their previous historical treatment. In practice, this will allow the Victorian DNSPs to remain on the all-lagged approach, while all other DNSPs use the partially-lagged approach.[14]

2.3.7 Inflation and rate of return

This section records the actual annual inflation rates (based on CPI) over the current regulatory control period and in the previous regulatory control period (rows 282 to 283). If

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14   For the reasons on why particular DNSPs are to apply certain approaches, see AER, *Final decision, Amendment: Electricity distribution network service providers, Roll forward model (version 2)*, 15 December 2016, pp. 11–13.

the partially-lagged approach is selected, actual annual inflation (unlagged) rates are to be recorded at row 282. If the all-lagged approach is selected, actual annual (one-year lagged) inflation rates are to be recorded at row 282. Row 283 uses the actual annual inflation rates at row 282 to calculate the actual inflation (one-year lagged) index.

This section also records the forecast inflation and weighted average cost of capital (WACC) rates used in the building block determinations (annually updated where relevant) corresponding to the two regulatory control periods (rows 284 to 289). These parameters are linked to the **Adjustment for previous period** and **RAB roll forward** sheets.

2.3.8 Real straight-line RAB depreciation option

The RFM provides the user an option at cell E293 (drop down function) to select the RAB roll forward to be undertaken using forecast straight-line depreciation, actual year-by-year tracking depreciation or actual WARL straight-line depreciation. If forecast depreciation or actual year-by-year tracking depreciation is selected, the RAB roll forward calculations will use the depreciation inputs at section 2.3.9 which reflect the approved forecasts for the current regulatory control period. If actual WARL depreciation is selected, the RAB roll forward calculations will use the RAB lives and actual capex to calculate depreciation.

2.3.9 Forecast/actual year-by-year tracking real straight-line RAB depreciation

When the forecast depreciation option is selected, the approved forecast real straight-line depreciation values for each year are recorded at rows 299 to 348.[15] The approved forecast depreciation values would be contained in the PTRM used for the current building block determination for the DNSP. These values are linked to the **RAB roll forward** sheet.

When the actual year-by-year tracking depreciation option is selected, real straight-line depreciation values from the depreciation tracking module for each year are recorded at rows 299 to 348.[16] Where actual WARL straight-line depreciation is selected, there is no need to record any inputs in this section as the RFM will calculate the values in the **RAB roll forward** sheet.

2.3.10 Actual tax depreciation option

The RFM provides the user an option at cell E353 (drop down function) to select the TAB roll forward to be undertaken using year-by-year tracking approach or WARL approach for actual tax depreciation purposes.

If actual year-by-year tracking depreciation option is selected, the TAB roll forward calculations will use the depreciation inputs at section 2.3.11 which are calculated in the depreciation tracking module. This will be the case where capex in the regulatory control period is subject to the DV method.

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15 This applies regardless of whether the WARL approach or year-by-year tracking approach is used by the DNSP.
16 The actual depreciation values in the depreciation tracking module may need to be converted to the correct dollar terms before entering into the RFM.

If actual WARL depreciation is selected, the TAB roll forward calculations will use the tax lives and actual capex inputs entered in the RFM to calculate tax depreciation using the SL method.

2.3.11 Year-by-year tracking actual tax depreciation

When the actual year-by-year tracking depreciation option is selected, the calculated actual tax depreciation values from the depreciation tracking module are recorded in rows 358 to 407. These values are linked to the **TAB roll forward** sheet. If actual WARL depreciation is selected, there is no need to record any inputs in this section as the RFM will calculate the values in the **TAB roll forward** sheet. This option is only valid for those DNSPs where their capex incurred in the regulatory control period has not yet been subjected to using the DV depreciation method arising from the 2018 tax review changes.

2.3.12 Forecast nominal final year asset adjustments

Some DNSPs may need to adjust their closing RAB and TAB at the end of the current regulatory control period for asset movements (such as a change in service classification). The values for these asset adjustments and associated remaining asset lives are recorded in rows 412 to 461, and are linked to the **Total RAB roll forward** and **TAB roll forward** sheets. These values are assumed to be in nominal end of the year terms in the final year of the current regulatory control period.

2.3.13 Ex-post review options: Adjustments for capex in second last year (year t–2) of previous regulatory control period

The RFM is configured to allow adjustments to the RAB and TAB in the case where an ex-post review determines that a portion of year t–2 actual capex is to be excluded from the roll forward process. It provides the user with 3 input cells (F467 to F469) containing options (drop down functions). The options selected determine which, if any, ex-post review inputs (section 2.3.14) are required and the impact the inputs have on the RAB roll forward and TAB roll forward.

In the case where there is no revision to year t–2 capex from an ex-post review, the user simply selects 'no' in the first drop down option (cell F467) and is not required to enter any further inputs in cells F468 and F469, or the inputs in rows 475 to 524 (section 2.3.14).

Is year t–2 capex to be revised?

This drop down function (in cell F467) allows the user to select whether or not year t–2 capex has been revised as a result of an ex-post review. If the user selects 'yes', then further selections are required in rows 468 and 469, and the user is to enter inputs into the ex-post review inputs section (section 2.3.14).If the user selects 'no' at cell F467, then no further selections are required in rows 468 and 469, and no input are required for the ex-post review inputs section (section 2.3.14).

Cell F467 is also referenced in the **Adjustment for previous period** and **TAB roll forward** sheets. The selection determines whether any changes are made to the RAB and TAB for the ex-post review inputs entered in section 2.3.14.

Depreciation method for RAB roll forward in previous regulatory control period

This drop down function (in cell F468) allows the user to select the depreciation method used to roll forward the RAB in the previous regulatory control period (actual or forecast depreciation).

If actual real SL depreciation is selected—and 'yes' is selected in cell F467—then the user is required to enter the standard lives applicable to the previous regulatory control period for each asset class in the ex-post review inputs section (section 2.3.14). If forecast real SL depreciation is selected, there is no need to record any inputs in the ex-post review inputs section.

Depreciation method for TAB roll forward in previous regulatory control period

This drop down function (in cell F469) allows the user to select the depreciation method used to roll forward the TAB in the previous period (year-by-year tracking depreciation or WARL depreciation).

If year-by-year tracking is selected—and 'yes' is selected in cell F467—then the user is required to enter the allowed year t–1 tracked tax depreciation and revised year t–1 tax depreciation in the ex-post review inputs section (section 2.3.14).

If WARL depreciation is selected—and 'yes' is selected in cell F467—then the user is required to enter the tax standard lives applicable to the previous period for each asset class in the ex-post review inputs section (section 2.3.14).

2.3.14   Ex-post review inputs: Adjustments for capex in second last year (year t–2) of previous regulatory control period

This section for ex-post review inputs in rows 475 to 524 is only required to be completed if an ex-post review has determined that the capex in year t–2 is to be revised. Where 'no' is selected in F467 indicating that there is no revision to year t–2 capex, these ex-post review inputs in rows 475 to 524 are not required.

Year t–2 excluded capex (as incurred)

If the user selects 'yes' at cell F467, then the amount of capex to be excluded is required to be recorded in column G for each asset class.

The excluded capex values are equal to the efficient capex (determined during the ex-post review) less the actual capex (as applied in the RFM used for the current building block determination for the DNSP).These inputs are assumed to be in middle of the year terms based on nominal dollar terms. They are referenced in calculating the change to year t–1 tax depreciation in column M and also in the **Adjustment for previous period** and the **TAB roll forward** sheets.

Standard life for previous regulatory control period

If actual real SL depreciation is selected in cell F468—and 'yes' is selected in cell F467—then the standard lives from the previous period are required to be recorded in column H for each asset class.

These inputs can be sourced from the RFM used for the current building block determination for the DNSP. They are referenced in the **Adjustment for previous period** sheet.[17]

Tax standard life for previous regulatory control period

If WARL depreciation is selected in cell F469—and 'yes' is selected in cell F467—then the tax standard lives from the previous period are required to be recorded in column J for each asset class.

These inputs can be sourced from the RFM used for the current building block determination for the DNSP. They are referenced in the calculation of the change to year t−1 tax depreciation in column M.

Previously determined year t−1 tracked tax depreciation

If year-by-year tracking depreciation is selected in cell F469—and 'yes' is selected in cell F467—then the previously determined year t−1 tracked tax depreciation values are required in column K for each asset class.

These inputs can be sourced from the RFM used for the current building block determination for the DNSP. They are referenced in the calculation of the change to year t−1 tax depreciation in column M.

Revised year t−1 tracked tax depreciation

If year-by-year tracking depreciation is selected in cell F469—and 'yes' is selected in cell F467—then the revised year t−1 tax depreciation values are required in column L for each asset class.

These inputs can be sourced from the depreciation tracking module.[18] They are referenced in the calculation of the change to year t−1 tax depreciation in column M.

Change to year t−1 tax depreciation

The change to year t−1 tax depreciation is calculated for each asset class in column M. These values reference the input selections in cells F467 and F469 and values in columns G, J, K and L.

Where 'no' is selected in cell F467 there will be no change to year t−1 tax depreciation.

Where 'yes' is selected in cell F467, the change to year t−1 tax depreciation will depend on the selection in F469 for the type of depreciation used to roll forward the TAB in the previous regulatory control period:

- if year-by-year tracking was used: the change to year t−1 tax depreciation equals revised year t−1 tax depreciation (recorded in column L) less previously determined year t−1 tax depreciation (recorded in column K).

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17 They are used to calculate the adjustment to actual nominal depreciation in the final year of the previous regulatory control period (year t−1) resulting from the adjustment to capex in the second final year (year t−2)

18 The depreciation tracking module must therefore reflect the revision to capex in year t−2 (and other years where relevant) to reflect efficient capex.

- if WARL was used: the change to year t–1 tax depreciation equals year t–2 excluded capex (recorded in column G) divided by the tax standard life for the previous regulatory control period (recorded in column J)

These values are referenced in the **TAB roll forward** sheet.

2.4 Adjustment for previous period sheet

The **Adjustment for previous period** sheet calculates the required true-up of RAB adjustments to be made for the final year of the previous regulatory control period for forecast and actual net capex values.

This adjustment is consistent with the requirements of clause S6.2.1(e)(3) of the NER, which specifies that a reconciliation would include adjustments that remove any benefit or penalty on the returns associated with any difference between the actual and forecast capex values for the final year of the previous regulatory control period.

This sheet calculates the difference between actual and forecast net capex for the final regulatory year of the previous regulatory control period (year t–1), as well as the aggregate compounded return on that difference (rows 13 to 270). This adjustment is made to the closing RAB at the end of the current regulatory control period in the **Total RAB roll forward** sheet. This two-step process is outlined in Box 1.

Box 1 Adjusting for actual capex in the final year of the previous regulatory control period (year t–1)

1) **Calculating the difference between actual and forecast net capex**

   Nominal actual net capex (including a half-year nominal vanilla WACC allowance) –

   Nominal forecast net capex (including a half-year nominal vanilla WACC allowance) =

   Nominal difference between actual and forecast net capex.

2) **Calculating the nominal return on the difference and compounding it for each year of the current regulatory control period**

   Nominal difference between actual and forecast net capex × nominal vanilla WACC per annum (compounded)

Notes:

- Nominal forecast net capex = estimated net capex allowed in the final year of the previous regulatory control period.

- Nominal actual net capex = actual net capex incurred during the final year of the previous regulatory control period.

- The nominal return on the difference between actual and forecast net capex is calculated by applying the nominal vanilla WACC (adjusted for actual inflation) applicable to the current regulatory control period (as determined in the current building block determination).

- Each of these adjustments is made to the final closing RAB for the current regulatory control period in the **Total RAB roll forward** sheet.

This sheet also calculates the RAB adjustment where an ex-post review determines that an amount of year t–2 capex will be excluded from the RAB as well as the aggregate

compounded return on that excluded capex (rows 274 to 531). This adjustment is made to the closing RAB at the end of the current regulatory control period in the **Total RAB roll forward** sheet. This two-step process is outlined in Box 2.

Box 2 Ex-post review: Adjusting for excluded capex in the second last year of the previous regulatory control period (year t–2)

1) Calculating the difference between efficient and actual net capex

Nominal year t–2 capex excluded from RAB (including a half-year nominal vanilla WACC allowance and indexed one year) +

Nominal adjustment to year t–1 straight-line depreciation =

Nominal RAB adjustment for excluded year t–2 capex.

2) Calculating the nominal return on the adjustment and compounding it for each year of the current regulatory control period

Nominal RAB adjustment for excluded year t–2 capex ×   nominal vanilla WACC per annum (compounded)

Notes:

- Nominal year t–2 capex excluded from RAB (as entered in the **RFM input** sheet) = efficient gross capex minus the actual gross capex in the second last year of the previous regulatory control period.

- The nominal adjustment to year t–1 straight-line depreciation only applies where the RAB was rolled forward in the previous regulatory control period using actual depreciation. It is the year t–2 excluded capex indexed one year (by lagged CPI) divided by the standard asset life from the previous regulatory control period. Where the RAB was rolled forward in the previous regulatory control period using forecast depreciation, there is no adjustment to year t–1 straight-line depreciation.

- The nominal return on the difference between efficient and actual net capex is calculated by applying the nominal vanilla WACC (adjusted for actual inflation) applicable to the current regulatory control period (as determined in the current building block determination).

- Each of these adjustments is made to the final closing RAB for the current regulatory control period in the **Total RAB roll forward** sheet.

Figure 5 provides an example of the **Adjustment for previous period** sheet.

Figure 5 Adjustment for previous period sheet

Aus Elec - Adjustment For Previous Period - DNSP RFM - version 3

Year	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Actual CPI Inflation Rate	2.93%	2.65%	3.10%	2.20%	2.75%	1.72%	1.69%	0.00%	0.00%	0.00%	0.00%	0.00%
Actual CPI (one year lagged)	0.97	1.00	1.03	1.06	1.08	1.11	1.13	1.15	1.15	1.15	1.15	1.15
Nominal Vanilla WACC (fixed real time varying)	10.50%	9.16%	7.63%	6.69%	7.26%	6.18%	6.15%	-2.44%	-2.44%	-2.44%	-2.44%	-2.44%

Nominal Adjustments for Difference Between Forecast and Actual Net Capex in Final Year (t-1)

	2014-15
Nominal Forecast Net Capex (previous regulatory control period)	110.00
Sub-transmission lines	40.00
Distribution lines	20.00
Substations	10.00
Distribution transformers	5.00
LVS and meters	5.00
Communications	5.00
Vehicles	5.00
Land and easements	5.00
Nominal Actual Net Capex	110.75
Sub-transmission lines	42.84
Distribution lines	22.99
Substations	10.45
Distribution transformers	9.40
LVS and meters	6.27
Communications	7.31
Vehicles	1.04
Land and easements	4.18
Buildings	4.18
In-house software	2.09
Equity raising costs	-
Nominal Difference Between Actual and Forecast Net Capex	0.75
Sub-transmission lines	2.84
Distribution lines	2.99
Substations	0.45
Distribution transformers	4.40
LVS and meters	1.27
Communications	2.31
Vehicles	- 3.96
Land and easements	- 0.82

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Compounded Nominal Return on Difference - Net Capex	0.06	0.05	0.06	0.06	0.06	-	-	-	-	-
Sub-transmission lines	0.22	0.20	0.24	0.22	0.23	-	-	-	-	-
Sub-total	-	-	-	-	1.10	-	-	-	-	-
Distribution lines	0.23	0.22	0.25	0.23	0.24	-	-	-	-	-
Sub-total	-	-	-	-	1.16	-	-	-	-	-
Substations	0.03	0.03	0.04	0.03	0.04	-	-	-	-	-
Sub-total	-	-	-	-	0.17	-	-	-	-	-
Distribution transformers	0.34	0.32	0.37	0.34	0.35	-	-	-	-	-
Sub-total	-	-	-	-	1.71	-	-	-	-	-
LVS and meters	0.10	0.09	0.11	0.10	0.10	-	-	-	-	-
Sub-total	-	-	-	-	0.49	-	-	-	-	-
Communications	0.18	0.17	0.19	0.18	0.19	-	-	-	-	-
Sub-total	-	-	-	-	0.90	-	-	-	-	-
Vehicles	- 0.30	0.28 -	0.33 -	0.30 -	0.32	-	-	-	-	-
Sub-total	-	-	-	-	1.54	-	-	-	-	-
Land and easements	- 0.06	0.06 -	0.07 -	0.06 -	0.07	-	-	-	-	-
Sub-total	-	-	-	-	0.32	-	-	-	-	-
Total Return at End of Regulatory Period	-	-	-	0.29						

Ex-post Review: Nominal Adjustments for Excluded Capex in Second Last Year (t-2)

	2013-14	2014-15
Nominal Adjustment for Year t-2 Capex Excluded from RAB (Indexed 1 Year)	-	-
Sub-transmission lines	-	-
Distribution lines	-	-
Substations	-	-
Distribution transformers	-	-
LVS and meters	-	-
Communications	-	-
Vehicles	-	-
Land and easements	-	-
Nominal Adjustment to Year t-1 Straight-line Depreciation		-
Sub-transmission lines		-
Distribution lines		-
Substations		-
Distribution transformers		-
LVS and meters		-
Communications		-
Vehicles		-
Land and easements		-
Nominal RAB Adjustment for Year t-2 Net capex and Year t-1 Straight-line Depreciation		-
Sub-transmission lines		-
Distribution lines		-
Substations		-
Distribution transformers		-
LVS and meters		-
Communications		-
Vehicles		-
Land and easements		-

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Compounded Nominal Return on Adjustment	-	-	-	-	-	-	-	-	-	-
Sub-transmission lines	-	-	-	-	-	-	-	-	-	-
Sub-total	-	-	-	-	-	-	-	-	-	-
Distribution lines	-	-	-	-	-	-	-	-	-	-
Sub-total	-	-	-	-	-	-	-	-	-	-
Substations	-	-	-	-	-	-	-	-	-	-
Sub-total	-	-	-	-	-	-	-	-	-	-
Distribution transformers	-	-	-	-	-	-	-	-	-	-
Sub-total	-	-	-	-	-	-	-	-	-	-
LVS and meters	-	-	-	-	-	-	-	-	-	-
Sub-total	-	-	-	-	-	-	-	-	-	-
Communications	-	-	-	-	-	-	-	-	-	-
Sub-total	-	-	-	-	-	-	-	-	-	-
Vehicles	-	-	-	-	-	-	-	-	-	-
Sub-total	-	-	-	-	-	-	-	-	-	-
Land and easements	-	-	-	-	-	-	-	-	-	-
Sub-total	-	-	-	-	-	-	-	-	-	-
Total Return at End of Regulatory Period	-	-	-	-	-	-	-	-	-	-

2.4.1 Nominal adjustments for difference between actual and forecast net capex <mark>in final year (year t–1)</mark>

This section calculates the difference between actual and forecast net capex for the final year of the previous regulatory control period and determines the compounded return on that difference. The process involved is based on that depicted in Box 1.

The nominal forecast net capex values for each asset class in the final year of the previous regulatory control period are displayed in rows 13 to 63. The values are sourced from the **RFM input** sheet. Row 13 displays the sum of each asset class values for rows 14 to 63.

The nominal actual net capex values (including a half-year WACC allowance) for each asset class in the final year of the previous regulatory control period are calculated in rows 65 to 115. Given the timing assumption that capex on average takes place halfway through the year, a half-year nominal vanilla WACC is applied to the actual net capex for each asset class to 'gross-up' the actual values.[19] Row 65 displays the sum of each asset class calculations for rows 66 to 115.

The differences between the actual and forecast net capex values are calculated in rows 117 to 167. Row 117 displays the sum of each asset class calculations for those rows. These values are linked to the **Total RAB roll forward** sheet.

Finally, in rows 169 to 269 a nominal vanilla WACC (row 6) is applied to calculate the nominal return on the difference, which is compounded to the end of the current regulatory control period.[20] The total compounded nominal return at the end of the current regulatory control period is displayed in row 270. These values are linked to the **Total RAB roll forward** sheet.

2.4.2 <mark>Ex-post review: Nominal adjustments for excluded capex in second last tear (t–2)</mark>

This section only applies if there is an ex-post review that determines an amount of year t–2 capex will be excluded from the RAB. It calculates the difference between actual and efficient capex for the second last year of the previous regulatory control period (year t–2) and determines the compounded return on that difference. The year t–2 adjustment process involved is based on that depicted in Box 2.

The nominal values of year t–2 capex excluded from the RAB for each asset class in the second last year of the previous regulatory control period are calculated in rows 274 to 324. The values in column F are the inputs from the **RFM input** sheet including a half-year WACC allowance to bring them to end of year terms. Row 274 displays the sum of each asset class values for rows 275 to 324.

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[19] AER, TNSP r*oll forward model: Final decision*, September 2007. See section 4.3.1 which discusses the need for the application of a half-year nominal WACC allowance.

[20] The nominal vanilla WACC is based on a fixed real time varying WACC—that is, a fixed real vanilla WACC adjusted for actual inflation.

The nominal adjustment to year t−1 straight-line depreciation values are calculated in rows 326 to 376. If forecast depreciation was used in the previous regulatory control period and selected on the **RFM input** sheet (section 2.3.13) then this adjustment is not required and will be zero. Where actual depreciation was used in the previous regulatory control period, this value is calculated as the excluded year t−2 capex divided by the standard asset life from the previous period. Row 326 displays the sum of each asset class calculations for rows 327 to 376.

The sum of the t−2 excluded capex and t−1 depreciation adjustment are calculated in rows 378 to 428. Row 379 displays the sum of each asset class calculations for rows 379 to 428. These values are linked to the **Total RAB roll forward** sheet.

Finally, in rows 430 to 530 a nominal vanilla WACC (row 6) is applied to calculate the nominal return on the total adjustment, which is compounded to the end of the current regulatory control period.[21] The total compounded nominal return at the end of the current regulatory control period is displayed in row 531. These values are linked to the **Total RAB roll forward** sheet.

2.5 RAB roll forward sheet

The **RAB roll forward** sheet calculates the nominal closing RAB (which becomes the opening RAB for the following year) for each year of the current regulatory control period. Under clauses 6.5.1(e) and S6.2.1 of the NER, in rolling forward the RAB each year during the current regulatory control period, we must have regard to actual data such as capex and inflation outcomes. Accordingly, the opening RAB for the first year of the current regulatory control period is rolled forward for:

- actual net capex (as incurred)

- regulatory depreciation values (adjusted for actual inflation).[22]

Depending on which option for depreciation has been selected in the **RFM input** sheet, the RAB roll forward calculations will use either forecast straight-line depreciation, actual year-by-year straight-line depreciation or actual WARL straight-line depreciation. The choice of forecast or actual depreciation must be consistent with that determined in the current building block determination for the DNSP. Forecast straight-line depreciation refers to the amounts approved for the current regulatory control period, reflecting forecast capex used for the current building block determination. Actual straight-line depreciation uses the amounts that are calculated based on actual capex incurred during the current regulatory control period.

The process for rolling forward the RAB from year to year over the current regulatory control period, under the full as incurred approach for recognising capex, is set out in Box 3.[23]

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[21]   The nominal vanilla WACC is based on a fixed real time varying WACC—that is, a fixed real vanilla WACC adjusted for actual inflation.

[22]   Regulatory depreciation is based on the nominal straight-line depreciation less the inflation applied to the opening RAB.

[23]   For illustrative purposes this is based on a standard five-year regulatory control period.

Box 3 Rolling forward the RAB in the current regulatory control period

Rolling forward actual net capex and depreciation amounts into the RAB

Opening RAB for year 1 of the current regulatory control period +

Nominal actual net capex for year 1 −

Nominal regulatory depreciation for year 1 =

Closing RAB for year 1 of the current regulatory control period. This becomes:

Opening RAB for year 2 of the current regulatory control period +

Nominal actual net capex for year 2 −

Nominal regulatory depreciation for year 2 =

Closing RAB for year 2 of the current regulatory control period. This becomes:

Opening RAB for year 3 of the current regulatory control period

… =

Closing RAB for year 5 of the current regulatory control period =

Interim closing RAB for the current regulatory control period.

Where:

- Opening RAB for year 1 of the current regulatory control period = closing RAB for the final year of the previous regulatory control period.

- Nominal actual net capex = real actual net capex (including half-year nominal vanilla WACC allowance) adjusted for actual inflation.

- Nominal regulatory depreciation = Nominal straight-line depreciation − actual inflation adjustment on the opening RAB.

Notes:

- The interim closing RAB for the current regulatory period plus the final adjustments for the final year of the current regulatory control period (these adjustments are made in the **Total RAB roll forward** sheet—see Box 4 Box 4 for a description) becomes the opening RAB for the next regulatory control period.

Figure 6 provides an example of the **RAB roll forward** sheet.

Figure 6 RAB roll forward sheet

2.5.1 Real asset values

Real asset values are displayed in rows 11 to 713. This comprises:

- real actual net capex
- real straight-line depreciation.

The real actual net capex values (including a half-year nominal vanilla WACC allowance) are displayed in rows 11 to 61.[24] Row 11 displays the sum of each asset class values for rows 12 to 61.

These capex values for the current regulatory control period (sourced from the **RFM input** sheet) are those provided by the DNSP to us for the purpose of rolling forward its RAB to the end of the current regulatory control period.

The real straight-line depreciation values are set out at rows 63 to 713. Row 63 displays the sum of each asset class calculations for rows. If the forecast depreciation option or the actual year-by-year tracking depreciation option was selected in section 2.3.8, then the depreciation inputs are sourced from the **RFM input** sheet. If the actual WARL depreciation option was selected, then the depreciation values are calculated in the **RAB roll forward** sheet based on the opening RAB, actual net capex values and asset lives from the **RFM input** sheet.

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24   The half-year nominal vanilla WACC is based on a fixed real time varying WACC—that is, a fixed real vanilla WACC adjusted for actual inflation.

2.5.2 Nominal asset values

Nominal asset values are displayed in rows 717 to 1133. The nominal opening RAB values for each year are displayed in row 717, based on the sum of each asset class calculations for rows 718 to 767. The nominal opening RAB for the first year of the current regulatory control period (cell H717) is calculated by taking the opening RAB value for the final year of the previous regulatory control period (cell G717), adding forecast net capex value for that year (G769), adding (typically negative) regulatory depreciation value for that year (G821) and adding other capex/asset adjustment values where relevant (cells G873, G925 and G977). These values are all sourced from the **RFM input** sheet.

The nominal opening RAB values for the remaining years of the current regulatory control period are calculated in accordance with Box 3. The nominal actual net capex values for each year (row 769) are equal to the real actual net capex values (row 11) indexed by actual inflation (row 7). The nominal regulatory depreciation values (row 821) are calculated as the net total of the nominal straight-line depreciation (row 1031) and the actual inflation applied to the opening RAB (row 1083).

2.6 Total RAB roll forward sheet

The **Total RAB roll forward** sheet brings together the relevant data from the **Adjustment for previous period** and **RAB roll forward** sheets to calculate the final closing RAB for the current regulatory control period in nominal terms.[25]

In this sheet, row 7 displays the opening RAB values for each year of the current regulatory control period, based on the sum of each asset class calculations for rows 8 to 57. These rows are in turn based on the interim closing RAB in row 321. The calculations at rows 8 to 57 reflect the opening RAB values in the **RAB roll forward** sheet. The nominal actual net capex (row 59), regulatory depreciation (row 111) values and other as incurred capex/asset adjustments that may be required—e.g. difference in final year capex (row 163), return on difference in final year capex (row 215) and other final year adjustments (row 267) are sourced from the **RAB roll forward** sheet.

Rows 373 to 631 represent the required adjustments to be made for the final year (t–1) and second last year (t–2) of the current regulatory control period, and are sourced from the **Adjustment for previous period** and **RFM input** sheets. These adjustments include:

- the difference between actual and forecast net capex for the final year of the previous regulatory control period (and a compounded return on that difference)
- an adjustment for any excluded year t–2 capex (and a compounded return on that adjustment)
- other asset adjustments for the final year of the current regulatory control period.

The process for calculating the final closing RAB for the current regulatory control period is set out in Box 4.

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[25]   This sheet has been configured to display the RAB roll forward for a regulatory control period of 2 to 10 years.

Box 4   Calculating the final closing RAB for the current regulatory control period

Adjustments to be made for the final year of the current regulatory control period to calculate final closing RAB

Interim closing RAB for the current regulatory control period +

==For year t–1==, the difference between nominal actual net capex and forecast net capex +

Compounded nominal return on that difference for net capex +

==For year t–2, an adjustment for any excluded capex (as determined by an ex-post review) +==

==Compounded nominal return on that adjustment +==

Final year asset adjustments (where applicable) =

Closing RAB for the current regulatory control period =

Opening RAB for the first year of the next regulatory control period.

Note:

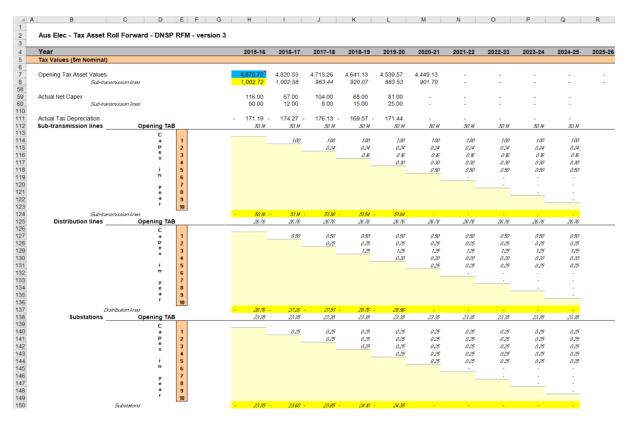- The opening RAB for the first year of the next regulatory control period becomes an input into the PTRM for the purposes of determining the return on capital and return of capital (depreciation) for the next regulatory control period.

The closing RAB for the current regulatory control period is shown in row 633. This value becomes the opening RAB for the next regulatory control period and is used as an input into the PTRM for calculating the allowed return on capital and the return of capital (depreciation) in the next building block determination. A breakdown of the closing RAB values by asset classes are displayed in rows 634 to 683.

Figure 7 provides an example of the **Total RAB roll forward** sheet.

Figure 7 Total RAB roll forward sheet

2.7 TAB roll forward sheet

The **TAB roll forward** sheet calculates the nominal opening TAB values for each year of the current regulatory control period by taking the opening TAB value for the start of the current regulatory control period and adjusting for forecast net capex, which was included in the final year of the previous regulatory control period, with actual net capex for that year. [26] Where an ex-post review determines a revision to year t–2 capex then the opening TAB is adjusted for the amount of year t–2 excluded capex and the change to year t–1 depreciation.

The opening TAB value is then rolled forward for actual net capex and tax depreciation values for each year of the current regulatory control period. Since the calculations are based on actual nominal data the roll forward of the TAB values does not require any adjustments for inflation. Any required adjustments to be made to the TAB for the final year of the current regulatory control period are also applied in this sheet.

The process for rolling forward the TAB for year to year over the current regulatory control period is set out in Box 5.[27]

Box 5   Rolling forward the TAB in the current regulatory control period

Rolling forward actual net capex and depreciation amounts into the TAB

Opening TAB for the first year of the current regulatory control period –

Nominal forecast net capex for the final year of the previous period (year t–1) +

Nominal actual net capex for the final year of the period (year t–1) +

Any excluded year t–2 capex (as a negative value) from an ex-post review +

The change to year t–1 depreciation from the change to year t–2 capex =

Adjusted opening TAB for year 1 of the current regulatory control period.

Adjusted opening TAB for year 1 of the current regulatory control period +

Nominal actual net capex for year 1 –

Nominal actual tax depreciation for year 1 =

Closing TAB for year 1 of the current regulatory control period. This becomes:

Opening TAB for year 2 of the current regulatory control period +

Nominal actual net capex for year 2 –

Nominal actual tax depreciation for year 2 =

Closing TAB for year 2 of the current regulatory control period. This becomes:

Opening TAB for year 3 of the current regulatory control period

… =

Closing TAB for year 4 of the current regulatory control period. This becomes:

Opening TAB for year 5 of the current regulatory control period +

---

26 For TAB purposes net capex is inclusive of customer contributions (net of disposals).
27 For illustrative purposes this is based on a standard five-year regulatory control period.

Nominal actual net capex for year 5 –

Nominal actual tax depreciation for year 5 +

Final year asset adjustments (where applicable) =

Closing TAB for year 5 of the current regulatory control period =

Opening TAB for the first year of the next regulatory control period.

> Where:
>
> - Nominal actual net capex = nominal actual gross capex – nominal actual asset disposals.
>
> Note:
>
> - The closing TAB for the current regulatory control period becomes the opening TAB for the next regulatory control period.

Figure 8 provides an example of the **TAB roll forward** sheet.

Figure 8 TAB roll forward sheet

2.7.1 Opening tax asset values

The opening tax asset value (cells H7 to H57) at the start of the first year of the current regulatory control period is adjusted by removing forecast net capex for the final year of the previous regulatory control period so that actual net capex for that year is included in the TAB.

Where an ex-post review determines that a portion of year t–2 actual capex is to be excluded from the RAB, the opening TAB will also be adjusted by the amount of year t–2 capex to be excluded and the change to depreciation in year t–1.

Rows 8 to 57 roll forward the opening TAB values for each asset class by taking the previous year's nominal opening TAB value, then adding nominal actual net capex for the year and subtracting nominal actual tax depreciation for the year.

Based on the sum of each asset class calculations for those rows, the opening TAB value for each year of the current regulatory control period is displayed in row 7. These values are calculated in accordance with Box 5. For a 5 year regulatory control period, the opening TAB value for the next regulatory control period is shown in cell M7. This value is used as an input into the PTRM for calculating the tax depreciation in the next building block determination. A breakdown of the closing TAB values by asset classes are displayed in cells M8 to M57.

2.7.2 Actual net capex

The actual net capex values for each asset class (rows 60 to 109) and each year of the current regulatory control period are calculated by taking nominal actual capex from the **RFM input** sheet (rows 61 to 110) and subtracting nominal actual disposals from the same sheet (rows 115 to 164). Note that the resulting capex used for tax purposes includes the value of customer contributions. Row 59 displays the sum of each asset class calculations for rows 60 to 109.

2.7.3 Actual tax depreciation

The actual tax depreciation values for each asset class and each year of the current regulatory control period are presented in rows 112 to 761. Depending on which option for tax depreciation has been selected in the **RFM input** sheet, the tax depreciation values will either be calculated based on the nominal opening TAB values, nominal actual net capex values and tax asset lives, in accordance with the straight-line method, or adopt the actual year-by-year tracking depreciation values from the tracking module. Row 111 displays the sum of each asset class calculations for those rows.

2.8 RAB remaining lives sheet

The **RAB remaining lives** sheet calculates the average RAB remaining lives of each asset class using a weighted average method. If the actual WARL depreciation option is selected in section 2.3.8, the weighted average remaining lives at the end of the current regulatory control period for the RAB are used as inputs to the PTRM for the next regulatory control period to calculate the depreciation schedules in the building block determination. The sheet is set up to accommodate asset life tracking over four five-year periods, however the calculations can be expanded to cover more if required.[28]

For the years in the current regulatory control period, the input cells include formula references to the appropriate cells from the **RFM input** sheet.[29] For previous regulatory control periods, the **RAB remaining lives** sheet will also require inputs obtained from the

---

[28] The 'Add extra year to calculation' button included on this sheet runs a macro to extend the RAB and TAB remaining life calculations for each asset class for a further year.

[29] This method was first included in version 2 of the distribution RFM to accommodate the impact of forecast depreciation being used to roll forward the RAB.

RFMs for decisions relating to previous periods.[30] The process for updating this data is set out in 6.

As a first step, the first regulatory year in cell C8 is entered. This input will be the same as the year entered in the same cell in the **RAB remaining lives** sheet of the previous RFM. Once the year is entered, the input cells for the current regulatory control period will reference the inputs from the **RFM input** sheet. These values include:

- CPI

- nominal vanilla WACC (fixed real time varying)

- value of net addition (capex)

- standard asset life

- value of final year asset adjustments

- remaining life of final year asset adjustments.

The input cells for the earlier regulatory control periods must be replaced with the actual values approved in the RFMs for those decisions.[31]

These values can be copied from the previous decision RFM's **RAB remaining lives** sheet for each year of the preceding periods.

The process for calculating the weighted average remaining lives for the RAB is set out in Box 7.[32] A similar process applies for calculating the weighted average remaining lives for the TAB.

Calculating the RAB weighted average remaining asset lives by asset class

Opening RAB for start year –

Total real actual depreciation on opening RAB

= Closing capital value of opening RAB.

Real actual net capex for year 1 –

Total real actual depreciation on net capex for year 1

= Closing capital value of net capex for year 1.

... *For each year of actual capex…*

Value of final year RAB adjustments –

---

[30] The input cells for the previous regulatory control periods will display an 'enter input' prompt.

[31] The exception is in the case where an ex-post review determines that a portion of year t−2 actual capex is to be excluded from the RAB. In that case the update for the 'Value of net addition' for year t−2 should reflect efficient capex.

[32] For assets that do not depreciate, there is no remaining life, and the user should input the remaining life as "n/a". Note that although it is possible to enter "n/a" for some years of capex and a numerical value for others, this is conceptually invalid and should not be done.

Total real actual depreciation on RAB adjustments

= Closing capital value of RAB adjustments

Sum of closing capital values

= Total closing capital value for the asset class.

Opening RAB average remaining life – number of years of depreciation applied to opening RAB

= Closing average remaining life of opening RAB

Asset class RAB standard life – number of years of depreciation applied to capex for year 1

= Closing average RAB remaining life of capex for year 1

… *For each year of actual capex…*

RAB adjustments average remaining life – number of years of depreciation applied to RAB adjustments

= Closing average remaining life of RAB adjustments.

Closing capital value of opening RAB ÷ Total closing capital value for the asset class × Closing average remaining life of opening RAB +

Closing capital value of net capex for year 1 ÷ Total closing capital value for the asset class × Closing average RAB remaining life of capex for year 1 +

… *For each year of actual capex … +*

Closing capital value of RAB adjustments ÷ Total closing capital value for the asset class × Closing average remaining life of RAB adjustments

= **Weighted average remaining life for the RAB asset class.**

Where:

- Opening RAB for start year = closing RAB for the final year of the regulatory control period preceding first use of version 2 of the RFM.

- Total real actual depreciation on opening RAB = the sum of the real actual depreciation on opening RAB calculated for the regulatory control period.

- Real actual net capex = real actual net capex (including half-year nominal vanilla WACC allowance)

- Total real actual depreciation on net capex = the sum of the real actual depreciation on net capex calculated for the regulatory control period

- The opening RAB average remaining life is that used for the building block determination where version 2 of the RFM is first used.

- The asset class RAB standard life is that used for the current building block determination.

Note: The calculation of the TAB weighted average remaining lives by asset class follows the same process, with:

- opening TAB replacing opening RAB

- total actual depreciation on opening TAB replacing total real actual depreciation on opening RAB

- actual net capex (excluding half-year nominal vanilla WACC) replacing real actual net capex

- final year TAB adjustments replacing final year RAB adjustments

- total actual depreciation on net capex replacing total real actual depreciation on net capex

- opening TAB average remaining life replacing opening TAB average remaining life and

- asset class TAB standard life replacing asset class RAB standard life, and

- TAB adjustments average remaining life replacing RAB adjustments average remaining life.

In calculating the weighted average remaining lives for each asset class, first the actual depreciated capital (or asset) value and remaining life of each capital stream is calculated for each year.[33] For asset class 1 these calculations in real dollar terms are set out in rows 18 to 39 and 42 to 63 respectively. For each year, the remaining life of each capital stream is then weighted by its associated closing capital value as a proportion of the total closing capital value of the asset class. The result is the weighted average remaining life for the asset class as a whole. For asset class 1, this value is shown in row 65. The weighted average remaining lives for the other asset classes in the RAB are calculated and shown at rows 119 to 2711.

Figure 9 provides an example of the **RAB remaining lives** sheet.

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[33] A capital stream represents the opening asset value, each individual year of capex, and each asset adjustment for each asset class.

Figure 9 RAB remaining lives sheet

Aus Elec - Asset Lives Roll Forward - DNSP RFM - version 3   [Add extra year]

Weighted Average Remaining Asset Life - based on year-by-year tracked capex

	Start value	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
First regulatory year	2015-16																				
Actual CPI Inflation Rate	2.65%	3.10%	2.20%	2.75%	1.72%	1.69%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Actual CPI (one year lagged)	1.00	1.027	1.058	1.082	1.111	1.131	1.150	1.150	1.150	1.150	1.150	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Nominal Vanilla WACC (fixed real time varying)	9.16%	7.63%	6.69%	7.26%	6.18%	6.15%	-2.44%	-2.44%	-2.44%	-2.44%	-2.44%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Asset Class 1   Sub-transmission lines

	Start value	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Value of net addition ($nominal)	1,018.68	50.00	12.00	8.00	15.00	25.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asset life	20.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	-	-	-	-	-	-	-	-	-	-
Value of RAB adjustment ($nominal)	-	-	-	-	-	50.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Remaining life of RAB adjustment	-	-	-	-	-	10.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-1 Depreciated RAB adjustments	-	-	-	-	-	44.23	39.80	35.38	30.96	26.54	22.11	17.69	13.27	8.85	4.42	-	-	-	-	-	-
0 Depreciated starting RAB	1,018.68	967.75	916.81	865.88	814.94	764.01	713.08	662.14	611.21	560.27	509.34	458.41	407.47	356.54	305.60	254.67	203.74	152.80	101.87	50.93	0.00
1 Depreciated Net Capex 2015-16		50.53	49.52	48.51	47.50	46.49	45.48	44.47	43.46	42.45	41.44	40.42	39.41	38.40	37.39	36.38	35.37	34.36	33.35	32.34	31.33
2 Depreciated Net Capex 2016-17			11.71	11.48	11.24	11.01	10.77	10.54	10.31	10.07	9.84	9.60	9.37	9.13	8.90	8.67	8.43	8.20	7.96	7.73	7.50
3 Depreciated Net Capex 2017-18				7.66	7.51	7.35	7.20	7.05	6.89	6.74	6.59	6.43	6.28	6.13	5.97	5.82	5.67	5.51	5.36	5.21	5.06
4 Depreciated Net Capex 2018-19					13.91	13.63	13.35	13.07	12.79	12.52	12.24	11.96	11.68	11.40	11.13	10.85	10.57	10.29	10.01	9.73	9.46
5 Depreciated Net Capex 2019-20						22.78	22.33	21.87	21.42	20.96	20.51	20.05	19.59	19.14	18.68	18.23	17.77	17.32	16.86	16.40	15.95
RL RAB adjustments		-	-	-	-	10.00	9.00	8.00	7.00	6.00	5.00	4.00	3.00	2.00	1.00	-	-	-	-	-	-
RL Start RAB	20.00	19.00	18.00	17.00	16.00	15.00	14.00	13.00	12.00	11.00	10.00	9.00	8.00	7.00	6.00	5.00	4.00	3.00	2.00	1.00	-
RL Capex 2015-16		50.00	49.00	48.00	47.00	46.00	45.00	44.00	43.00	42.00	41.00	40.00	39.00	38.00	37.00	36.00	35.00	34.00	33.00	32.00	31.00
RL Capex 2016-17			50.00	49.00	48.00	47.00	46.00	45.00	44.00	43.00	42.00	41.00	40.00	39.00	38.00	37.00	36.00	35.00	34.00	33.00	32.00
RL Capex 2017-18				50.00	49.00	48.00	47.00	46.00	45.00	44.00	43.00	42.00	41.00	40.00	39.00	38.00	37.00	36.00	35.00	34.00	33.00
RL Capex 2018-19					50.00	49.00	48.00	47.00	46.00	45.00	44.00	43.00	42.00	41.00	40.00	39.00	38.00	37.00	36.00	35.00	34.00
RL Capex 2019-20						50.00	49.00	48.00	47.00	46.00	45.00	44.00	43.00	42.00	41.00	40.00	39.00	38.00	37.00	36.00	35.00
WARL	20.00	20.54	19.95	19.28	18.85	18.38	17.55	16.75	15.98	15.25	14.57	13.95	13.41	13.00	12.76	12.78	13.00	13.79	15.66	20.02	32.58

Asset Class 2   distribution lines

	Start value	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Value of net addition ($nominal)	808.42	20.00	10.00	50.00	8.00	10.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asset life	30.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	-	-	-	-	-	-	-	-	-	-
Value of RAB adjustment ($nominal)	-	-	-	-	-	30.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Remaining life of RAB adjustment	-	-	-	-	-	4.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-1 Depreciated RAB adjustments	-	-	-	-	-	26.54	19.90	13.27	6.63	-	-	-	-	-	-	-	-	-	-	-	-
0 Depreciated starting RAB	808.42	781.47	754.52	727.57	700.63	673.68	646.73	619.79	592.84	565.89	538.94	512.00	485.05	458.10	431.16	404.21	377.26	350.31	323.37	296.42	269.47
1 Depreciated Net Capex 2015-16		20.21	19.81	19.40	19.00	18.60	18.19	17.79	17.38	16.98	16.57	16.17	15.77	15.36	14.96	14.55	14.15	13.74	13.34	12.94	12.53
2 Depreciated Net Capex 2016-17			9.76	9.56	9.37	9.17	8.98	8.78	8.59	8.39	8.20	8.00	7.81	7.61	7.42	7.22	7.03	6.83	6.64	6.44	6.25
3 Depreciated Net Capex 2017-18				47.87	46.91	45.95	45.00	44.04	43.08	42.13	41.17	40.21	39.25	38.30	37.34	36.38	35.42	34.47	33.51	32.55	31.59
4 Depreciated Net Capex 2018-19					7.42	7.27	7.12	6.97	6.82	6.68	6.53	6.38	6.23	6.08	5.93	5.79	5.64	5.49	5.34	5.19	5.04
5 Depreciated Net Capex 2019-20						9.11	8.93	8.75	8.57	8.38	8.20	8.02	7.84	7.66	7.47	7.29	7.11	6.93	6.74	6.56	6.38
RL RAB adjustments		-	-	-	-	4.00	3.00	2.00	1.00	-	-	-	-	-	-	-	-	-	-	-	-
RL Start RAB	30.00	29.00	28.00	27.00	26.00	25.00	24.00	23.00	22.00	21.00	20.00	19.00	18.00	17.00	16.00	15.00	14.00	13.00	12.00	11.00	10.00
RL Capex 2015-16		50.00	49.00	48.00	47.00	46.00	45.00	44.00	43.00	42.00	41.00	40.00	39.00	38.00	37.00	36.00	35.00	34.00	33.00	32.00	31.00
RL Capex 2016-17			50.00	49.00	48.00	47.00	46.00	45.00	44.00	43.00	42.00	41.00	40.00	39.00	38.00	37.00	36.00	35.00	34.00	33.00	32.00
RL Capex 2017-18				50.00	49.00	48.00	47.00	46.00	45.00	44.00	43.00	42.00	41.00	40.00	39.00	38.00	37.00	36.00	35.00	34.00	33.00
RL Capex 2018-19					50.00	49.00	48.00	47.00	46.00	45.00	44.00	43.00	42.00	41.00	40.00	39.00	38.00	37.00	36.00	35.00	34.00
RL Capex 2019-20						50.00	49.00	48.00	47.00	46.00	45.00	44.00	43.00	42.00	41.00	40.00	39.00	38.00	37.00	36.00	35.00
WARL	30.00	29.53	28.80	29.14	28.38	26.89	26.11	25.35	24.61	23.90	22.96	22.04	21.12	20.20	19.30	18.41	17.54	16.68	15.84	15.03	14.25

Asset Class 3   substations

	Start value	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
Value of net addition ($nominal)	703.15	10.00	10.00	10.00	10.00	10.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asset life	30.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	-	-	-	-	-	-	-	-	-	-
Value of RAB adjustment ($nominal)	-	-	-	-	-	30.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Remaining life of RAB adjustment	-	-	-	-	-	5.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WARL	30.00	29.16	28.33	27.52	26.72	26.85	25.71	24.55	23.38	22.20	21.01	20.03	19.05	18.07	17.10	16.13	15.16	14.20	13.25	12.30	11.37

2.9 TAB remaining lives sheet

The **TAB remaining lives** sheet calculates the average TAB remaining lives of each asset class using a weighted average method. The process for calculating the remaining asset lives for the TAB is broadly the same as described in Box 7. However, all calculations are performed in nominal dollar terms, and actual net capex is gross capex less disposals (but including customer contributions) and does not include the half-year nominal vanilla WACC allowance. If the actual WARL depreciation option is selected in section 2.3.10, the weighted average remaining lives at the end of the current regulatory control period for the TAB are used as inputs to the PTRM for the next regulatory control period to calculate the tax depreciation schedules for the purposes of tax analysis in the building block determination.

For the years in the current regulatory control period, the input cells include formula references to the appropriate cells from the **RFM input** sheet. For previous regulatory control periods the same update process as described in Box 7 is required for the **TAB remaining lives** sheet.[34] However, only the opening TAB value, tax asset lives, TAB adjustments and the remaining tax asset lives of TAB adjustments are required inputs for this sheet. All other TAB inputs are common with the RAB and therefore sourced from the **RAB remaining lives** sheet. The weighted average remaining lives for the asset classes in the TAB are calculated and shown at rows 60 to 2706.

Figure 10 provides an example of the **TAB remaining lives** sheet.

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34   The input cells for the previous regulatory control periods will display an 'enter input' prompt.

Figure 10   TAB remaining lives sheet

Aus Elec - Tax Asset Lives Roll Forward - DNSP RFM - version 3

Weighted Average Remaining Tax Asset Life - based on year-by-year tracked capex

Asset Class 1 — Sub-transmission lines

		Start value	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
	Value of net addition ($nominal)	1,002.72	50.00	12.00	8.00	15.00	25.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tax asset life	20.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	-	-	-	-	-	-	-	-	-	-
	Value of TAB adjustment ($nominal)	-	-	-	-	-	45.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Remaining life of TAB adjustment	-	-	-	-	-	10.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-1	Depreciated TAB adjustments		-	-	-	-	45.00	40.71	36.43	32.14	27.86	23.57	19.29	15.00	10.71	6.43	2.14	-	-	-	-	-
0	Depreciated starting TAB	1,002.72	952.58	902.44	852.31	802.17	752.04	701.90	651.77	601.63	551.49	501.36	451.22	401.09	350.95	300.81	250.68	200.54	150.41	100.27	50.14	0.00
1	Depreciated Net Capex 2015-16		50.00	49.00	48.00	47.00	46.00	45.00	44.00	43.00	42.00	41.00	40.00	39.00	38.00	37.00	36.00	35.00	34.00	33.00	32.00	31.00
2	Depreciated Net Capex 2016-17			12.00	11.76	11.52	11.28	11.04	10.80	10.56	10.32	10.08	9.84	9.60	9.36	9.12	8.88	8.64	8.40	8.16	7.92	7.68
3	Depreciated Net Capex 2017-18				8.00	7.84	7.68	7.52	7.36	7.20	7.04	6.88	6.72	6.56	6.40	6.24	6.08	5.92	5.76	5.60	5.44	5.28
4	Depreciated Net Capex 2018-19					15.00	14.70	14.40	14.10	13.80	13.50	13.20	12.90	12.60	12.30	12.00	11.70	11.40	11.10	10.80	10.50	10.20
5	Depreciated Net Capex 2019-20						25.00	24.50	24.00	23.50	23.00	22.50	22.00	21.50	21.00	20.50	20.00	19.50	19.00	18.50	18.00	17.50
	RL TAB adjustments		-	-	-	-	10.50	9.50	8.50	7.50	6.50	5.50	4.50	3.50	2.50	1.50	0.50	-	-	-	-	-
	RL Start TAB	20.00	19.00	18.00	17.00	16.00	15.00	14.00	13.00	12.00	11.00	10.00	9.00	8.00	7.00	6.00	5.00	4.00	3.00	2.00	1.00	-
	RL Capex 2015-16		50.00	49.00	48.00	47.00	46.00	45.00	44.00	43.00	42.00	41.00	40.00	39.00	38.00	37.00	36.00	35.00	34.00	33.00	32.00	31.00
	RL Capex 2016-17			50.00	49.00	48.00	47.00	46.00	45.00	44.00	43.00	42.00	41.00	40.00	39.00	38.00	37.00	36.00	35.00	34.00	33.00	32.00
	RL Capex 2017-18				50.00	49.00	48.00	47.00	46.00	45.00	44.00	43.00	42.00	41.00	40.00	39.00	38.00	37.00	36.00	35.00	34.00	33.00
	RL Capex 2018-19					50.00	49.00	48.00	47.00	46.00	45.00	44.00	43.00	42.00	41.00	40.00	39.00	38.00	37.00	36.00	35.00	34.00
	RL Capex 2019-20						50.00	49.00	48.00	47.00	46.00	45.00	44.00	43.00	42.00	41.00	40.00	39.00	38.00	37.00	36.00	35.00
	WARL	20.00	20.55	19.98	19.31	18.94	18.56	17.74	16.94	16.18	15.45	14.77	14.16	13.63	13.23	12.99	13.02	13.35	14.17	16.08	20.45	32.66

Asset Class 2 — distribution lines

		Start value	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
	Value of net addition ($nominal)	802.86	20.00	10.00	50.00	8.00	10.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tax asset life	30.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	-	-	-	-	-	-	-	-	-	-
	Value of TAB adjustment ($nominal)	-	-	-	-	-	25.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Remaining life of TAB adjustment	-	-	-	-	-	4.50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-1	Depreciated TAB adjustments		-	-	-	-	25.00	19.44	13.89	8.33	2.78	-	-	-	-	-	-	-	-	-	-	-
0	Depreciated starting TAB	802.86	776.10	749.33	722.57	695.81	669.05	642.29	615.52	588.76	562.00	535.24	508.48	481.71	454.95	428.19	401.43	374.67	347.91	321.14	294.38	267.62
1	Depreciated Net Capex 2015-16		20.00	19.50	19.00	18.50	18.00	17.50	17.00	16.50	16.00	15.50	15.00	14.50	14.00	13.50	13.00	12.50	12.00	11.50	11.00	10.50
2	Depreciated Net Capex 2016-17			10.00	9.75	9.50	9.25	9.00	8.75	8.50	8.25	8.00	7.75	7.50	7.25	7.00	6.75	6.50	6.25	6.00	5.75	5.50
3	Depreciated Net Capex 2017-18				50.00	48.75	47.50	46.25	45.00	43.75	42.50	41.25	40.00	38.75	37.50	36.25	35.00	33.75	32.50	31.25	30.00	28.75
4	Depreciated Net Capex 2018-19					8.00	7.80	7.60	7.40	7.20	7.00	6.80	6.60	6.40	6.20	6.00	5.80	5.60	5.40	5.20	5.00	4.80
5	Depreciated Net Capex 2019-20						10.00	9.75	9.50	9.25	9.00	8.75	8.50	8.25	8.00	7.75	7.50	7.25	7.00	6.75	6.50	6.25
	RL TAB adjustments		-	-	-	-	4.50	3.50	2.50	1.50	0.50	-	-	-	-	-	-	-	-	-	-	-
	RL Start TAB	30.00	29.00	28.00	27.00	26.00	25.00	24.00	23.00	22.00	21.00	20.00	19.00	18.00	17.00	16.00	15.00	14.00	13.00	12.00	11.00	10.00
	RL Capex 2015-16		40.00	39.00	38.00	37.00	36.00	35.00	34.00	33.00	32.00	31.00	30.00	29.00	28.00	27.00	26.00	25.00	24.00	23.00	22.00	21.00
	RL Capex 2016-17			40.00	39.00	38.00	37.00	36.00	35.00	34.00	33.00	32.00	31.00	30.00	29.00	28.00	27.00	26.00	25.00	24.00	23.00	22.00
	RL Capex 2017-18				40.00	39.00	38.00	37.00	36.00	35.00	34.00	33.00	32.00	31.00	30.00	29.00	28.00	27.00	26.00	25.00	24.00	23.00
	RL Capex 2018-19					40.00	39.00	38.00	37.00	36.00	35.00	34.00	33.00	32.00	31.00	30.00	29.00	28.00	27.00	26.00	25.00	24.00
	RL Capex 2019-20						40.00	39.00	38.00	37.00	36.00	35.00	34.00	33.00	32.00	31.00	30.00	29.00	28.00	27.00	26.00	25.00
	WARL	30.00	29.28	28.43	28.22	27.36	25.86	25.01	24.17	23.35	22.55	21.67	20.70	19.74	18.77	17.81	16.86	15.91	14.97	14.04	13.12	12.21

Asset Class 3 — substations

		Start value	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35
	Value of net addition ($nominal)	700.43	10.00	10.00	10.00	10.00	10.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Tax asset life	30.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	-	-	-	-	-	-	-	-	-	-
	Value of TAB adjustment ($nominal)	-	-	-	-	-	25.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Remaining life of TAB adjustment	-	-	-	-	-	6.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	WARL	30.00	29.16	28.34	27.53	26.75	26.81	25.71	24.60	23.48	22.36	21.23	20.08	19.10	18.13	17.16	16.19	15.22	14.26	13.31	12.37	11.43

2.10 PTRM input summary sheet

The **PTRM input summary** sheet outlines the opening RAB values (column J) and the opening TAB values (column N) for the next regulatory control period. These values are set out by asset classes in rows 7 to 56, based on the closing RAB and TAB values as calculated in the RFM. The average remaining lives for regulatory and tax purposes, and the base regulatory year for the start of the next regulatory control period are also displayed in columns L, O and Q respectively. All values are outputs from the RFM that need to be entered into the **PTRM input** sheet of the PTRM for the next regulatory control period. The information from the **PTRM input summary** sheet is sourced from the **RFM input**, **Total RAB roll forward**, **TAB roll forward**, **RAB remaining lives** and **TAB remaining lives** sheets.[35]

Figure 11 provides an example of the **PTRM input summary** sheet.

Figure 11   PTRM input summary sheet

2.11 Inputs working sheet

The **Inputs working** sheet allows the user to show the worked calculations for some of the inputs in the **RFM input** sheet.

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[35]   Where the RAB value is negative, the remaining life will be set to the lower of the standard asset life for the asset class and the regulatory period length. Similarly, where the RAB value is positive but the calculated remaining life is zero, the remaining life will be set to the lower of the standard life for the asset class and the regulatory control period length.

A common adjustment made by DNSPs is the adjustment to gross capex for movements in capitalised provisions. Therefore, we have set up the **Inputs working** sheet to show this adjustment to gross capex for capitalised provisions. In the case where a DNSP requires making this adjustment to its gross capex, it can be done so in the **Inputs working** sheet and links the adjusted gross capex in this sheet to the input section for gross capex in the **RFM input** sheet.

The user can also use the **Inputs working** sheet to show calculations for other inputs in the **RFM input** sheet—for example the worked calculations for the final year adjustments section inputs. The user can add this below the section for the adjustments for capitalised provisions.

Alternatively, if the user does not require any adjustments for capitalised provisions and/or wants to add other workings more prominently it can remove the capitalised provisions adjustment calculations from this sheet. We have included a 'Clear Sheet' button at the top of the sheet allowing the user to initiate a macro which deletes the calculations provided. Figure 12 provides an example of the **Inputs working** sheet.

Figure 12   Inputs working sheet

A   The depreciation tracking module

A.1   Overview of the depreciation tracking module

The depreciation tracking module (tracking module) is used to calculate depreciation schedules of the RAB and TAB for each asset class across the relevant lives of the assets. Specifically, the tracking module is a set of Microsoft Excel sheets combined into one file and is an attachment to the RFM—comprising a separate set of Microsoft Excel sheets in one file—that performs calculations to derive:[36]

- forecast RAB and TAB depreciation schedules for the next regulatory control period

- actual RAB and TAB depreciation schedules for the current regulatory control period.

The tracking module allows the user to vary the inputs to assess their impact on the output data and other derived parameters. Figure 1 provides an overview of this process.

In this figure, each box with a dark blue header represents a sheet within the tracking module. Sheets are classified as primarily about inputs (left column), calculations (centre column) or outputs (right column). The flow of data is therefore from left to right, and simplified links between the sheets are shown with blue arrows. The figure also shows the RFM and PTRM in light blue headers and the outputs from the tracking module that serve as inputs to the RFM and PTRM.

The user should not alter the names of any sheets or defined name ranges within the tracking module. These components are used in the macros included in the module. If these elements are changed, errors may occur.

A.1.1   RAB depreciation tracking

To operate the tracking module for RAB depreciation, enter the inputs in the **RAB input** sheet (section B.1)—for example, the starting RAB[37], actual capex, RAB adjustments, RAB asset lives, or actual CPI rate. These inputs can be sourced from the accompanying RFM for the current regulatory control period.

The tracking module then uses this data to calculate the depreciation schedules for each asset class—disaggregated by the starting RAB, each year of capex, RAB adjustments, and t–1 and t–2 capex true-ups. Under this approach, these asset values are converted into the base dollar terms of the tracking module to determine the depreciation profiles of each disaggregated component in the **RAB tracking** sheet (section B.2).[38]

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[36]   The set of Microsoft Excel sheets which constitute the tracking module were created in Microsoft Excel 2016. We recommend this or a later version of Microsoft Excel be used in applying these spreadsheets.

[37]   This input is only required for the first period that a business begins year-by-year tracking.

[38]   The base dollar terms of the tracking module are the end of year dollar terms for the year before the first year of tracked capex. For example, if a DNSP begins tracking capex from 2014–15, these dollar terms will be 2013–14 dollar terms.

The **RAB tracking summary** (section B.3) sheet converts the total depreciation for each asset class from the **RAB tracking** sheet to PTRM base dollar terms.[39]

Figure 13   Overview of the tracking module sheets

1. In the case of reopeners, the adjustment will align to the adjusted closing RAB.
2. By default, some of the input sections in the **TAB input** sheet will reference the corresponding sections in the **RAB input** sheet. These inputs comprise Business and tracking period inputs, gross capex and disposals and RAB standard lives and RAB adjustment remaining lives. Where only TAB depreciation tracking is required—or where RAB and TAB depreciation tracking start in different years—the default formulae in input cells of the **TAB input** sheet should be overwritten with the correct values.

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[39] The PTRM base dollar terms refers to the input terms of the PTRM for which the tracking module will provide the forecast RAB depreciation. It is therefore at end of year dollar terms of the current regulatory control period (in relation to RFM), or at the start of the next regulatory control period1 (in relation to PTRM).

Finally, because the RAB depreciation outputs of the tracking module become inputs to the PTRM, the **Tracking output** sheet (section B.4) calculates the forecast RAB depreciation for each asset class in respect of the next regulatory control period. This sheet provides the data that serve as inputs to the PTRM in the required format.[40]

A.1.2   TAB depreciation tracking

To operate the tracking module for TAB depreciation, enter the inputs in the **TAB input** sheet (section C.1)—for example, the starting TAB, actual capex, immediate expensing, TAB adjustments, tax asset lives, or depreciation approach (SL/DV). These inputs can be sourced from the accompanying RFM.[41]

The tracking module then uses this data to calculate the TAB depreciation schedules for each asset class—broken down further by the starting TAB, each year of capex (adjusted for immediate expensing), and TAB adjustments. The depreciation schedule of each disaggregated component is then calculated in the **TAB tracking** sheet (section C.2).[42]

Finally, because the outputs of the tracking module become inputs to the PTRM and RFM, the **Tracking output** sheet (section C.3) summarises the calculated TAB depreciation by asset class in the format required for feeding into the models. For each asset class it provides:

- total forecast tax depreciation for the next regulatory control period which serves as an input to the PTRM

- total actual tax depreciation for the current regulatory control period, which serves as an input to the RFM.

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[40]   The tracking module can also be used to derive actual RAB depreciation to be used as an input to the RFM.

[41]   By default, some of the input sections in the **TAB input** sheet will reference the corresponding sections in the **RAB input** sheet. These inputs comprise business and regulatory control period data, gross capex, disposals, RAB standard lives and asset adjustment remaining lives. Where the tracking module is used for both RAB and TAB depreciation and commence from the same starting year, the default formulae in the **TAB input** sheet will reference the correct values in the **RAB input** sheet and can be retained. Where only TAB depreciation tracking is required—or where RAB and TAB depreciation tracking start in different years—the default formulae in the input cells of the **TAB input** sheet should be overwritten with the correct values.

[42]   For each asset class, the total calculated depreciation includes the impact of immediate expensing.

B   RAB depreciation tracking

B.1   RAB input sheet

The **RAB input** sheet provides for key input variables for RAB tracking to be entered in the tracking module. They are automatically linked to corresponding cells in other relevant sheets. Values should be entered into each cell with light blue shading. This sheet comprises the following sections:

- general information

- starting RAB and actual gross capex

- actual asset disposals

- actual customer contributions

- RAB lives

- asset adjustments – RAB

- asset adjustment remaining life – RAB

- adjustment for year t–1 capex

- adjustment for year t–2 capex

- RFM closing RAB

- RFM closing RAB – adjusted for mid-period reopeners.[43]

Unlike the RFM and the PTRM, the tracking module retains inputs and calculations across multiple regulatory control periods. For the first regulatory control period when tracking commences, the user enters the required inputs for that period. For each subsequent reset the user updates the tracking module by adding the inputs relevant to the new regulatory control period.

This sheet also contains two buttons that initiate macros that are used to expand the calculations of the tracking module—inserting additional regulatory control periods for continuing the tracking calculations, and extending the number of years for calculating depreciation. Details of these macros are discussed in sections B.5 and B.6.

Figure 14 provides an example of the **RAB input** sheet.

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[43]   Reopeners includes contingent projects and cost pass throughs.

Figure 14   RAB input sheet

B.1.1   General information

The **RAB input** sheet captures some general information required to set up the tracking module, and calculate values consistently. The recorded input values are linked to subsequent sheets which calculate depreciation in consistent dollar terms and apply the correct return where relevant. Notes have been included for various cells with specific comments and explanations about the relevance/source of the inputs.

Business and tracking period inputs

The business name and applicable depreciation tracking for a regulatory control period (including start and length) are recorded in rows 8 to 11. This allows the tracking module to begin tracking at the correct point in time—first regulatory year for tracking—and applies capex true-ups and adjustments in the correct year—based on the length of a regulatory control period.

The tracking module template is configured to initially accommodate RAB depreciation tracking for a single period of 5 years in length.[44] This can be expanded using the macro buttons (discussed below). For subsequent periods of RAB depreciation tracking, the user initiates the macro to expand the calculations (section B.5), and enters the regulatory control period inputs—years and length—in the relevant column.[45]

Inflation and rate of return

Actual annual inflation rates—based on CPI—over the relevant years of RAB depreciation tracking are recorded in rows 14 to 15. It also provides the user an option at cell F113 (drop down function) to select whether the RAB roll forward is undertaken using the partially-lagged or all-lagged approach to actual inflation.[46] The selected approach has to align with the approach applied in the accompanying RFM.

This section also records the WACC rates used in the building block determinations corresponding to the relevant years of RAB depreciation tracking in rows 17 to 20. These parameters are linked to the **RAB tracking** and **RAB tracking summary** sheets.

B.1.2   Starting RAB and actual gross capex

The starting RAB comprises of the values as at the first year of RAB tracking. It is the regulatory value of the historical assets at the start of RAB depreciation tracking that will be depreciated as one group. The actual gross capex is adjusted for asset disposals and customer contributions to calculate the net capex to be depreciated. The **RAB input** sheet requires values for the starting RAB (disaggregated by asset classes in rows 25 to 74) at the start of depreciation tracking. The values for the actual gross capex—also disaggregated by asset classes—are required for each year of RAB depreciation tracking.

The recorded input values are linked to the **RAB tracking** sheet which calculates net capex and tracks the depreciation of the starting RAB and net capex. Notes have been included for various cells with specific comments and explanations about the relevance of the inputs.

Asset class name

The asset classes/names are recorded in column E. It is important that the asset classes recorded in the tracking module match the asset classes identified in the accompanying RFM. This allows the tracking module to link with the RFM and output depreciation profiles in a consistent format for input to the RFM and PTRM, where relevant.

Consistent with the RFM and PTRM, the tracking module is configured to accommodate up to 50 asset classes.[47] The number of asset classes used in the tracking module will vary

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44   Where the first regulatory control period of RAB depreciation tracking is longer than 5 years, the in-built macros (section B.5) can also be used to add the required number of additional years to the first period.

45   For example, where a regulatory control period is for 2020–25, details of this period should be entered in the column for 2020–21. The tracking module has been configured to provide a prompt (row 9) to assist with entering the relevant years and length for future regulatory control periods in the correct column.

46   See section 2.3.6.

47   The asset class names are also referenced in the **TAB input** sheet by default. Asset classes 47 to 50 are listed as those

between businesses. However, for each business, the number of asset classes used in the tracking module must be consistent with that used in the RFM and PTRM to allow the depreciation schedules determined in the tracking module to be used as inputs to the RFM and PTRM, where relevant.

Starting RAB

The starting RAB values for each asset class are recorded in column G. The starting RAB is the closing value of the final year for the previous regulatory control period. This is the same value as the opening RAB at the start of the current regulatory control period where RAB depreciation tracking commences. These asset values can be sourced from the **Total RAB roll forward** sheet of the accompanying RFM or the **PTRM input** sheet of the relevant PTRM. These values are linked to the depreciation calculations in the **RAB tracking** sheet.

Actual gross capex – as incurred

The actual gross capex values for each year of RAB depreciation tracking are recorded in column H and beyond. Actual gross capex inputs can be sourced from the **RFM input** sheet of the accompanying RFM. These inputs (by asset class in rows 25 to 74) are recognised on an as incurred basis and are assumed to be in middle of the year terms based on nominal dollar terms. These values are linked to the depreciation calculations in the **RAB tracking** sheet.

Consistent with the RFM, at the time the final decision is made these inputs for the final year of the current regulatory control period will typically remain as estimates.[48] These final year estimates will be updated with actuals at the next reset.[49]

B.1.3   Actual asset disposals – as incurred

The actual asset disposals (recorded in rows 79 to 128) are assumed to be in middle of the year terms based on nominal dollar terms. Actual asset disposals can be sourced from the **RFM input** sheet of the accompanying RFM.[50] These values are linked to the depreciation calculations in the **RAB tracking** sheet.

B.1.4   Actual customer contributions – as incurred

The values of actual assets contributed by other parties over the regulatory control period for each year are recorded in rows 133 to 182.These inputs are assumed to be in middle of the year terms based on nominal dollar terms. Actual customer contributions can be sourced

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for which the straight-line (SL) method of tax depreciation will apply in the regulatory control periods subsequent to the 2018 tax review. These are for assets related to 'In-house software', 'Buildings' and 'Equity raising costs'.

[48]   At the draft decision stage, typically the last two years of the current regulatory control period will remain as estimates. This is also consistent with the RFM.

[49]   In the case where an ex-post review determines that some capex should be excluded from the RAB, for those years, the actual gross capex inputs in this sheet should reflect the efficient capex included in the RFM.

[50]   Consistent with the RFM, at the time the final decision is made these inputs for the final year of the regulatory control period will typically remain as estimates. These final year estimates will be updated with actuals at the next reset.

from the **RFM input** sheet of the accompanying RFM.[51] These values are linked to the depreciation calculations in the **RAB tracking** sheet.

B.1.5   RAB lives

The RAB standard lives and remaining lives are recorded in rows 187 to 236. These inputs can be sourced from the **RFM input** sheet of the accompanying RFM. They are linked to the depreciation calculations in the **RAB tracking** sheet.

RAB remaining lives

The RAB remaining lives of each asset class are recorded in column G and reflect the economic lives of the tracking module's starting RAB (section B.1.2). These values should be consistent with those contained in the RFM for the relevant period of depreciation tracking. These inputs are referenced in the **RAB tracking** sheet to calculate the depreciation of the starting RAB values.

RAB standard lives

The RAB standard lives measure how long the infrastructure would physically last if it had just been built. The RAB standard lives for each asset class are recorded in rows 187 to 236 for each regulatory control period tracked in the relevant column.[52]

The standard lives recorded in column F relate to those for the period preceding the first regulatory control period when tracking commenced. These standard lives are used to calculate the depreciation of any true-ups for capex prior to the first regulatory control period for tracking (sections B.1.8 and B.1.9).

The standard lives recorded in column H relate to the standard lives for the first regulatory control period when tracking commenced. Standard lives for subsequent regulatory control periods of RAB depreciation tracking are recorded in the relevant column for those periods (section B.5.1).

These values should be consistent with those contained in the PTRM used in the relevant building block determination for the DNSP. They are referenced in the **RAB tracking** sheet to calculate the depreciation of each year of net capex, and any adjustments for the true-up of capex in year t–1 and year t–2 of the previous regulatory control period.

B.1.6   Asset adjustments

The input section for asset adjustments is primarily for recording final year asset adjustments at the end of the current regulatory control period. This data may be required where the

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[51]   Consistent with the RFM, at the time the final decision is made these inputs for the final year of the regulatory control period will typically remain as estimates. These final year estimates will be updated with actuals at the next reset.

[52]   For example, where a regulatory control period is for 2020–25, the RAB standard lives applicable to this period should be entered in the column for 2020–21. The tracking module has been configured to provide a heading prompt (row 131) to assist with entering the relevant inputs for future regulatory control periods in the correct column.

DNSP has adjusted its closing RAB by removing or adding assets (such as for a change in service classification) in the final year of the regulatory control period.

The final year asset adjustments are recorded in rows 240 to 289, and these inputs can be sourced from the **RFM input** sheet of the accompanying RFM.

The user can also record RAB asset adjustments in one or more years within a regulatory control period for depreciation tracking rather than at the end of the period.[53] Where inputs are recorded for within period asset adjustments (i.e. reflecting mid-period reopeners such as contingent projects or pass throughs that affect the RAB), these values are referenced in the **RAB input** sheet for RFM closing RAB – adjusted for mid-period reopeners (section B.1.11). The asset adjustments are referenced and used for calculating depreciation in the **RAB tracking** sheet.

B.1.7   Asset adjustments – remaining lives

The asset adjustment remaining lives reflect the economic lives of the asset adjustments (section B.1.6). The remaining lives are recorded in rows 294 to 343 in the same columns as the associated asset adjustments, and these inputs can be sourced from the **RFM input** sheet of the accompanying RFM. The asset adjustments remaining lives are referenced in the **RAB tracking** sheet.

B.1.8   Adjustment for difference in t–1 capex

The adjustment for the difference in year t–1 capex is recorded in cells G347 to G396. These refer to the difference between actual and estimated net capex for the year prior to the first year where RAB tracking applied. These inputs are not required in future regulatory control periods for which capital base tracking applies.[54]

Adjustment for the difference in year t–1 capex can be sourced from the 'Nominal difference between actual and forecast net capex' section in the **Adjustment for previous period** sheet of the accompanying RFM. These inputs are assumed to be in end of year terms based on nominal dollar terms.

The adjustment for year t–1 capex is referenced and used for calculating depreciation in the **RAB tracking** sheet.

B.1.9   Adjustment for excluded t–2 capex

The input section is only relevant for recording any excluded year t–2 capex adjustments following an ex-post review.[55] The adjustments for excluded year t–2 capex are recorded in

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53   We consider that these within-period adjustments would be allowed in the case of reopeners such as a contingent project determination where RAB adjustments occur within the period. The tracking module has been configured to provide a heading prompt (row 291) to assist with entering the relevant inputs for future regulatory control periods in the correct column.

54   This is because for future regulatory control periods, the user is to update the estimated capex inputs in sections B.1.2 and B.1.3 with the actual as incurred inputs, negating the need to perform a t–1 true-up for as incurred capex.

55   An ex-post review can be undertaken to determine if inefficient capex is to be excluded. Here, 'inefficient' past capex refers

rows 401 to 450 in the relevant column for year t–2.[56] The inputs refer to the amount of actual year t–2 capex excluded from the RAB as a result of an ex-post review adjustment applied in a regulatory determination.

These inputs can be sourced from the 'Nominal adjustment for year t–2 capex excluded from RAB' section in the **Adjustment for previous period** sheet of the accompanying RFM. They are assumed to be in end of the year terms based on nominal dollar terms.

The adjustments to year t–2 capex are referenced and depreciated in the **RAB tracking** sheet.

B.1.10 RFM closing RAB

The RFM closing RAB values are recorded in rows 456 to 505 in the relevant column for the final year of the current regulatory control period.[57] The inputs refer to the closing RAB values calculated in the accompanying RFM for the final year of the current regulatory control period.

These inputs can be sourced from the **PTRM input** sheet of the RFM and are linked to the RFM closing RAB adjusted values (section B.1.11). They are used to calculate the RAB depreciation schedules for each asset class in the **Tracking output** sheet.[58]

The input cells in column F each contain a 'yes/no' switch for each asset class to indicate whether or the asset class is depreciable. These inputs are referenced in the **Tracking output** sheet.

B.1.11 RFM closing RAB (adjusted for mid-period reopeners)

This section on RFM closing RAB adjusted values does not require inputs to be recorded. For each asset class, the adjusted closing RAB is calculated where RAB adjustments (section B.1.6) are recorded in one or more years within a period rather than at the end of the period. The RFM closing RAB values (adjusted for mid-period reopeners) are displayed in rows 511 to 560.

If no mid-period asset adjustments are recorded, the values in the RFM closing RAB adjusted section will be equal to the RFM closing RAB values (section B.1.10).

Where mid-period asset adjustments are recorded, the RFM closing RAB adjusted values are required to correctly align the forecast RAB depreciation schedule with the asset values

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to three specific assessments (labelled the overspending, margin and capitalisation requirements) detailed in NER, cll. S6.2.2A and S6A.2.2A. The details of our assessment approach for an ex-post review are set out in the Capital expenditure incentive guideline AER, *Capital expenditure incentive guideline*, November 2013, pp. 13–17.

[56] For example, where a regulatory control period is for 2020–25, the adjustment to t–2 capex applicable to this period should be entered in the column for 2019–20.

[57] For example, where a regulatory control period is for 2020–25, the RFM closing RAB should be entered in the column for 2024–25.

[58] The RFM closing RAB is equivalent to the PTRM opening RAB. Clause 6.5.5(b)(2) of the NER requires that the sum of the real value of the depreciation that is attributable to any asset or category of assets must be equivalent to the value at which that asset or category of assets was first included in the RAB for the relevant distribution system.

included in the RAB. This is consistent with the requirements of clause 6.5.5(b)(2) of the NER.

Figure 15 shows the recorded mid-period asset adjustments and Figure 16 shows the resulting RFM closing RAB adjusted values.

Figure 15   RAB input sheet—RAB adjustments made within the regulatory control period

Figure 16   RAB input sheet—RFM closing RAB adjusted values

B.2   RAB tracking sheet

The **RAB tracking** sheet calculates the real straight-line depreciation schedules for each asset class (in tracking module base dollar terms).[59] For each asset class the depreciation schedule is disaggregated into separate RAB tracking components for:

- the starting RAB
- each year of tracked capex
- adjustments to t–1 capex, and where relevant t–2 capex
- other RAB adjustments.

Figure 17 provides an example of the **RAB tracking** sheet.

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[59]   The base dollar terms of the tracking module are the end of year dollar terms for the year before the first year of tracked capex. For example, if a DNSP begins tracking capex from 2014–15, these dollar terms will be 2013–14 dollar terms.

Figure 17   RAB tracking sheet

ABCD	E	F	G	H	I	J	K	L	M	N	O	P	Q
1													
2		DNSP - RAB tracking - DNSP RFM - Depreciation tracking module - version 1											
3													
4		Year ($m, real 2014-15)	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
5													
6	Asset class 1	Sub-transmission lines											
7		Value of starting RAB and net capex addition	1,018.68	50.53	11.71	7.66	13.91	22.78	-	-	-	-	-
8		Initial remaining life and standard lives (years)	20.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
9		Adjustment for difference in t-1 capex	3.48	-	-	-	-	-	-	-	-	-	-
10		Remaining life of adjustment for t-1 capex (years)	45.00	-	-	-	-	-	-	-	-	-	-
11		Adjustment for excluded t-2 capex	-	-	-	-	-	-	-	-	-	-	-
12		Remaining life of adjustment for t-2 capex (years)	-	-	-	-	-	-	-	-	-	-	-
13		Asset adjustment - RAB		-	-	-	-	44.23	-	-	-	-	-
14		Remaining life of asset adjustment - RAB (years)		-	-	-	-	10.00	-	-	-	-	-
15													
16		Year-by-year tracking											
17	0	*Depreciation of starting RAB*		50.93	50.93	50.93	50.93	50.93	50.93	50.93	50.93	50.93	50.93
18	1	*Depreciation of net capex 2015-16*			1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
19	2	*Depreciation of net capex 2016-17*				0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
20	3	*Depreciation of net capex 2017-18*					0.15	0.15	0.15	0.15	0.15	0.15	0.15
21	4	*Depreciation of net capex 2018-19*						0.28	0.28	0.28	0.28	0.28	0.28
22	5	*Depreciation of net capex 2019-20*							0.46	0.46	0.46	0.46	0.46
23													
24													
25	5	Depreciation of t-1 and t-2 adjustment 2014-15							0.08	0.08	0.08	0.08	0.08
26													
27													
28		Depreciation of asset adjustments - RAB 2015-16			-	-	-	-	-	-	-	-	-
29		Depreciation of asset adjustments - RAB 2016-17				-	-	-	-	-	-	-	-
30		Depreciation of asset adjustments - RAB 2017-18					-	-	-	-	-	-	-
31		Depreciation of asset adjustments - RAB 2018-19						-	-	-	-	-	-
32		Depreciation of asset adjustments - RAB 2019-20							4.42	4.42	4.42	4.42	4.42
33													
34		Sub-transmission lines - depreciation		50.93	51.94	52.18	52.33	52.61	57.57	57.57	57.57	57.57	57.57
35													
36	Asset class 2	distribution lines											
37		Value of starting RAB and net capex addition	808.42	20.21	9.76	47.87	7.42	9.11	-	-	-	-	-
38		Initial remaining life and standard lives (years)	30.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
39		Adjustment for difference in t-1 capex	3.67	-	-	-	-	-	-	-	-	-	-
40		Remaining life of adjustment for t-1 capex (years)	45.00	-	-	-	-	-	-	-	-	-	-
41		Adjustment for excluded t-2 capex	-	-	-	-	-	-	-	-	-	-	-
42		Remaining life of adjustment for t-2 capex (years)	-	-	-	-	-	-	-	-	-	-	-
43		Asset adjustment - RAB		-	-	-	-	26.54	-	-	-	-	-
44		Remaining life of asset adjustment - RAB (years)		-	-	-	-	4.00	-	-	-	-	-
45													
46		Year-by-year tracking											
64		distribution lines - depreciation		26.95	27.35	27.55	28.50	28.65	35.55	35.55	35.55	35.55	28.92
65													
66	Asset class 3	substations											
67		Value of starting RAB and net capex addition	703.15	10.11	9.76	9.57	9.27	9.11	-	-	-	-	-
68		Initial remaining life and standard lives (years)	30.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
69		Adjustment for difference in t-1 capex	0.55	-	-	-	-	-	-	-	-	-	-
70		Remaining life of adjustment for t-1 capex (years)	35.00	-	-	-	-	-	-	-	-	-	-
71		Adjustment for excluded t-2 capex	-	-	-	-	-	-	-	-	-	-	-
72		Remaining life of adjustment for t-2 capex (years)	-	-	-	-	-	-	-	-	-	-	-
73		Asset adjustment - RAB		-	-	-	-	26.54	-	-	-	-	-
74		Remaining life of asset adjustment - RAB (years)		-	-	-	-	5.00	-	-	-	-	-
75													
76		Year-by-year tracking											
94		substations - depreciation		23.44	23.69	23.94	24.17	24.41	19.34	19.34	19.34	19.34	19.34
95													
1416	Asset class 48	Buildings											
1417		Value of starting RAB and net capex addition	48.00	4.04	3.90	3.83	3.71	3.65	-	-	-	-	-
1418		Initial remaining life and standard lives (years)	18.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
1419		Adjustment for difference in t-1 capex	- 7.15	-	-	-	-	-	-	-	-	-	-
1420		Remaining life of adjustment for t-1 capex (years)	35.00	-	-	-	-	-	-	-	-	-	-
1421		Adjustment for excluded t-2 capex	-	-	-	-	-	-	-	-	-	-	-
1422		Remaining life of adjustment for t-2 capex (years)	-	-	-	-	-	-	-	-	-	-	-
1423		Asset adjustment - RAB		-	-	-	-	-	-	-	-	-	-
1424		Remaining life of asset adjustment - RAB (years)		-	-	-	-	-	-	-	-	-	-
1425													
1426		Year-by-year tracking											
1444		Buildings - depreciation		2.67	2.77	2.87	2.96	3.05	2.94	2.94	2.94	2.94	2.94
1445													
1446	Asset class 49	In-house software											
1447		Value of starting RAB and net capex addition	34.00	3.03	1.95	2.87	1.85	2.73	-	-	-	-	-
1448		Initial remaining life and standard lives (years)	3.50	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
1449		Adjustment for difference in t-1 capex	- 7.26	-	-	-	-	-	-	-	-	-	-
1450		Remaining life of adjustment for t-1 capex (years)	-	-	-	-	-	-	-	-	-	-	-
1451		Adjustment for excluded t-2 capex	-	-	-	-	-	-	-	-	-	-	-
1452		Remaining life of adjustment for t-2 capex (years)	-	-	-	-	-	-	-	-	-	-	-
1453		Asset adjustment - RAB		-	-	-	-	-	-	-	-	-	-
1454		Remaining life of asset adjustment - RAB (years)		-	-	-	-	-	-	-	-	-	-
1455													
1456		Year-by-year tracking											
1474		In-house software - depreciation		9.71	10.32	10.71	6.43	1.94 -	4.77	1.88	1.49	0.92	0.55
1475													
1476	Asset class 50	Equity raising costs											
1477		Value of starting RAB and net capex addition	3.50	-	-	-	-	-	-	-	-	-	-
1478		Initial remaining life and standard lives (years)	13.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
1479		Adjustment for difference in t-1 capex	- 1.84	-	-	-	-	-	-	-	-	-	-
1480		Remaining life of adjustment for t-1 capex (years)	10.00	-	-	-	-	-	-	-	-	-	-
1481		Adjustment for excluded t-2 capex	-	-	-	-	-	-	-	-	-	-	-
1482		Remaining life of adjustment for t-2 capex (years)	-	-	-	-	-	-	-	-	-	-	-
1483		Asset adjustment - RAB		-	-	-	-	-	-	-	-	-	-
1484		Remaining life of asset adjustment - RAB (years)		-	-	-	-	-	-	-	-	-	-
1485													
1486		Year-by-year tracking											
1504		Equity raising costs - depreciation		0.27	0.27	0.27	0.27	0.27	0.09	0.09	0.09	0.09	0.09

The **RAB tracking** sheet comprises 50 sections—one for each asset class. The data for Asset class 1 is shown in Figure 18 and comprises:

- data derived from the **RAB input** sheet in rows 7 to 14 (cells with light blue shading)

- calculations for year-by-year real straight-line depreciation of RAB tracking components in rows 17 to 34 (cells with white shading).[60]

Figure 18   RAB tracking sheet—Asset class 1

			2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
		DNSP - RAB tracking - DNSP RFM - Depreciation tracking module - version 1												
		Year ($m, real 2014-15)	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
	Asset class 1	Sub-transmission lines												
		Value of starting RAB and net capex addition	1,018.68	50.53	11.71	7.66	13.91	22.78	-	-	-	-	-	
		Initial remaining life and standard lives (years)	20.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	
		Adjustment for difference in t-1 capex	3.48	-	-	-	-	-	-	-	-	-	-	
		Remaining life of adjustment for t-1 capex (years)	45.00	-	-	-	-	-	-	-	-	-	-	
		Adjustment for excluded t-2 capex	-	-	-	-	-	-	-	-	-	-	-	
		Remaining life of adjustment for t-2 capex (years)	-	-	-	-	-	-	-	-	-	-	-	
		Asset adjustment - RAB		-	-	-	-	44.23	-	-	-	-	-	
		Remaining life of asset adjustment - RAB (years)		-	-	-	-	10.00	-	-	-	-	-	
		Year-by-year tracking												
	0	*Depreciation of starting RAB*		50.93	50.93	50.93	50.93	50.93	50.93	50.93	50.93	50.93	50.93	50.93
	1	*Depreciation of net capex 2015-16*			1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
	2	*Depreciation of net capex 2016-17*				0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
	3	*Depreciation of net capex 2017-18*					0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
	4	*Depreciation of net capex 2018-19*						0.28	0.28	0.28	0.28	0.28	0.28	0.28
	5	*Depreciation of net capex 2019-20*							0.46	0.46	0.46	0.46	0.46	0.46
	5	Depreciation of t-1 and t-2 adjustment 2014-15							0.08	0.08	0.08	0.08	0.08	0.08
		Depreciation of asset adjustments - RAB 2015-16			-	-	-	-	-	-	-	-	-	-
		Depreciation of asset adjustments - RAB 2016-17				-	-	-	-	-	-	-	-	-
		Depreciation of asset adjustments - RAB 2017-18					-	-	-	-	-	-	-	-
		Depreciation of asset adjustments - RAB 2018-19						-	-	-	-	-	-	-
		Depreciation of asset adjustments - RAB 2019-20							4.42	4.42	4.42	4.42	4.42	4.42
		Sub-transmission lines - depreciation		50.93	51.94	52.18	52.33	52.61	57.57	57.57	57.57	57.57	57.57	57.57

B.2.1   Data derived from RAB input sheet

For each asset class, the section with light blue shaded cells contains data derived from the inputs entered in the **RAB input** sheet. This section references the starting RAB, and calculates the net capex, asset adjustment and capex true-up values in end of year terms in real base dollar terms (dollar terms are listed in cell F4) for the tracking module.[61] It also references and calculates the relevant standard and remaining lives for each component from the **RAB input** sheet.

For Asset class 1, the starting RAB value and associated remaining life are displayed in cells G7 and G8 respectively. Net capex and associated standard lives are displayed in rows 7 and 8 in columns H and beyond. Adjustments to t–1 and t–2 capex and their remaining lives are displayed in rows 9 to 12. Asset adjustments and the relevant remaining lives are displayed in rows 13 and 14. For each asset class presented, the relative order and location of these values are the same.

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60   By default, the **RAB tracking** sheet accommodates a single regulatory control period of depreciation tracking. This can be expanded to include additional periods as required (section B.5.2).

61   The tracking module base dollar terms are listed in cell F4. They are the end of year dollar terms for the year before the first year of tracked capex. For example, if a DNSP begins tracking capex from 2015–16, the **RAB tracking** sheet will display the depreciation calculations in real 2014–15 dollar terms. The **RAB tracking** sheet then continues displaying the data in real 2014–15 dollar terms even when subsequent regulatory control periods capex are added to the tracking module.

Starting RAB and remaining life

The starting RAB asset value is in end of year terms in real base dollar terms for the tracking module. This should be consistent with the nominal value entered in the **RAB input** sheet. The remaining life displayed is the life which applies to the starting RAB.

Net capex and standard lives

The net capex values are calculated based on the recorded actual nominal capex less asset disposals and customer contributions. The net capex values are converted to display in end of year terms in real base dollar terms for the tracking module.[62] The standard lives are listed for each year of capex and are the same for each year within a regulatory control period.

Adjustments for the difference in t–1 capex and remaining life

The adjustments for the difference in year t–1 capex are converted to display in end of year terms in real base dollar terms for the tracking module.[63] For the initial regulatory control period when tracking commences, this value comprises the difference between actual and estimated year t–1 capex and a return on that difference. For subsequent regulatory control periods of depreciation tracking it comprises only the return on difference.[64]

The remaining life displayed is the life which applies to the adjustment when the value enters the RAB.[65]

Adjustments for excluded t–2 capex and remaining life

Where an ex-post review determines that a portion of year t–2 actual capex is to be excluded from the RAB, these adjustments to t–2 capex are converted to display in end of year terms in real base dollar terms for the tracking module. For the initial regulatory control period when tracking commences, this value comprises an adjustment for excluded year t–2 capex—the difference between efficient and actual year t–2 capex—and a return on that adjustment. For subsequent regulatory control periods of depreciation tracking it comprises only the return on the adjustment.[66]

The remaining life displayed is the life which applies to the adjustment when the value enters the RAB.[67]

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[62] The net capex in the **RAB tracking** sheet is converted by applying CPI and a half year WACC to the nominal mid-year inputs in the **RAB input** sheet.

[63] The adjustment for the difference in year t–1 capex in the **RAB tracking** sheet is converted by applying CPI to the nominal end-of-year inputs in the **RAB input** sheet.

[64] This is because for the subsequent regulatory control periods of depreciation tracking the difference in t–1 capex is already captured by the inputs on the **RFM input** sheet when updating the previous estimate of gross capex with actual capex incurred.

[65] It is equal to the standard life for the relevant year of capex less the time taken for the adjustment to enter the RAB. For a typical five year regulatory control period this equates to the standard life less 5 years for a t–1 adjustment.

[66] This is because for the subsequent regulatory control periods of depreciation tracking the difference in capex is already allowed captured by the inputs on the **RFM input** sheet when updating the previous actual gross capex with the actual (efficient) capex determined.

[67] It is equal to the standard life for the relevant year of capex less the time taken for the adjustment to enter the RAB.

Asset adjustment and remaining life

Where a DNSP has other asset adjustments (for example, end of period movements due to a change in service classification) these values are converted to display in end of year terms in real base dollar terms for the tracking module. The remaining life displayed is the life which applies to the asset adjustment.

B.2.2 RAB depreciation schedules

For each asset class, the depreciation schedules—disaggregated by RAB components—are calculated in real base dollar terms for the tracking module. These values are displayed in the white shaded cells below the data derived from the **RAB input** sheet.

For Asset class 1, the values are displayed in rows 17 to 34 (Figure 18). The depreciation schedules relate to:

- the starting RAB (row 17)
- actual net capex (rows 18 to 22)
- adjustments to years t–1 and t–2 capex (row 25)
- other asset adjustments (rows 28 to 32)
- total asset class depreciation (row 34).

For each asset class presented, the relative order and location of these values are the same. The depreciation is calculated on a straight-line basis and begins in the year after the asset enters the RAB.

Details on adding the depreciation rows required for an additional period of RAB tracking are discussed in section B.5.

The calculated total depreciation amounts in the **RAB tracking** sheet are referenced in the **RAB tracking summary** sheet and the **Tracking output** sheet.

B.3 RAB tracking summary sheet

The **RAB tracking summary** sheet converts the total forecast depreciation for the next regulatory control period (by asset class) from tracking module base dollar terms to PTRM base dollar terms.[68] The forecast depreciation schedules are contained in columns H and onwards[69] for each asset class.

The **RAB tracking summary** sheet also calculates an adjustment to ensure the depreciation schedules are in accordance with the requirements of the NER.[70] For each asset class, the

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[68]   The PTRM base dollar terms refers to the start of year 1 for the next regulatory control period real dollar terms for input to the PTRM for which the tracking module will provide the forecast RAB depreciation. It is therefore equivalent to end of year real dollar terms for the final year of the current regulatory control period.

[69]   For the default tracking module, this ends at column BP, however this may be extended depending on the requirements of the user. See section B.6 for more information.

[70]   Clause 6.5.5(b)(2) of the NER requires that the sum of the real value of the depreciation that is attributable to any asset or category of assets must be equivalent to the value at which that asset or category of assets was first included in the RAB

adjustment is displayed in percentage terms in column E and is equal to the RFM closing RAB (column D) divided by total forecast depreciation (column G). This adjustment is referenced in the **Tracking output** sheet.

Figure 19 provides an example of the **RAB tracking summary** sheet.

Figure 19   RAB tracking summary sheet

B.4   Tracking output sheet – RAB

The **Tracking output** sheet outlines the RAB (and TAB) depreciation outputs from the tracking module in the format required to be used as inputs to the PTRM and RFM, where relevant.

For RAB depreciation tracking, the **Tracking output** sheet displays the RAB aligned forecast depreciation values for the next regulatory control period for each asset class in

for the relevant distribution system.

rows 8 to 57. The values for the RAB aligned forecast depreciation are displayed in PTRM base dollar terms and reference the values in the **RAB tracking summary** sheet.[71]

For each asset class, the total forecast RAB depreciation for each year displayed in the **RAB tracking summary** sheet is multiplied by the adjustment calculated in column E of that same sheet. This adjustment ensures that for each asset class the sum of the forecast depreciation equals the RFM closing RAB value consistent with the requirements of the NER.[72] A check on this adjustment is performed in column F.

Figure 20 provides an example of the **Tracking output** sheet. Details of the TAB tracking depreciation outputs are discussed in section C.3.

Figure 20 Tracking output sheet

DNSP - Tracking output - DNSP RFM - Depreciation tracking module - version 1

PTRM forecast depreciation output

			2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Forecast RAB depreciation - Aligned ($m, 2019-20)	Check	4,172.74	189.54	196.34	196.60	192.97	183.72	185.03	184.10	189.59	189.68	188.96
Asset Class 1 Sub-transmission lines	TRUE	1,033.33	65.15	65.15	65.15	65.15	65.15	65.15	65.15	65.15	65.15	65.15
Asset Class 2 distribution lines	TRUE	820.46	36.74	36.74	36.74	36.74	29.88	29.88	29.88	29.88	29.88	29.88
Asset Class 3 substations	TRUE	615.13	19.66	19.66	19.66	19.66	19.66	25.05	25.05	25.05	25.05	25.05
Asset Class 4 distribution transformers	TRUE	507.70	15.08	15.08	15.08	15.08	15.08	15.08	15.08	21.47	21.47	21.47
Asset Class 5 LVS and meters	TRUE	453.04	18.01	18.01	18.01	18.01	18.01	18.01	18.01	18.01	18.01	18.01
Asset Class 6 communications	TRUE	403.77	19.20	19.20	19.20	19.20	19.20	18.57	17.78	17.02	16.27	15.55
Asset Class 7 vehicles	TRUE	267.40	8.88	8.88	11.50	11.34	11.19	11.04	10.90	10.76	10.76	10.76
Asset Class 8 land and easements	TRUE	-	-	-	-	-	-	-	-	-	-	-
Asset Class 4 Buildings	TRUE	39.07	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52
Asset Class 4 In-house software	TRUE	33.82	4.57	11.38	9.02	5.55	3.30	-	-	-	-	-
Asset Class 5 Equity raising costs	TRUE	0.97	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	-0.27	0.27	0.57	0.57
Forecast TAB depreciation ($m, nominal)		3,880.81	169.79	169.19	171.19	172.19	168.41	166.63	167.80	170.80	173.80	173.80
Asset Class 1 Sub-transmission lines		877.70	56.12	56.12	56.12	56.12	56.12	56.12	56.12	56.12	56.12	56.12
Asset Class 2 distribution lines		772.35	34.39	34.39	34.39	34.39	31.61	28.84	28.84	28.84	28.84	28.84
Asset Class 3 substations		596.69	20.18	20.18	20.18	20.18	20.18	20.18	24.35	24.35	24.35	24.35
Asset Class 4 distribution transformers		496.51	15.14	15.14	15.14	15.14	15.14	15.14	15.14	18.14	21.14	21.14
Asset Class 5 LVS and meters		457.35	17.77	17.77	17.77	17.77	17.77	17.77	17.77	17.77	17.77	17.77
Asset Class 6 communications		368.43	14.28	14.28	14.28	14.28	14.28	14.28	14.28	14.28	14.28	14.28
Asset Class 7 vehicles		251.60	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Asset Class 8 land and easements		-	-	-	-	-	-	-	-	-	-	-
Asset Class 4 Buildings		48.29	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Asset Class 4 In-house software		10.60	0.60	-	2.00	3.00	2.00	3.00	-	-	-	-
Asset Class 5 Equity raising costs		1.30	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05

RFM actual TAB depreciation output

Year	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Actual TAB depreciation ($m, nominal)	-	182.19	185.02	186.13	178.62	179.74	-	-	-	-	-
Sub-transmission lines	-	55.14	56.04	56.18	56.24	56.44	-	-	-	-	-
distribution lines	-	29.76	30.19	30.36	31.54	31.66	-	-	-	-	-
substations	-	25.35	25.55	25.75	25.95	26.15	-	-	-	-	-
distribution transformers	-	21.14	21.34	21.54	21.74	21.94	-	-	-	-	-
LVS and meters	-	16.77	16.97	17.17	17.37	17.57	-	-	-	-	-
communications	-	13.41	13.58	13.76	13.93	14.11	-	-	-	-	-
vehicles	-	9.87	9.90	9.92	9.95	9.97	-	-	-	-	-
land and easements	-	-	-	-	-	-	-	-	-	-	-
Buildings	-	1.15	1.25	1.25	1.25	1.25	-	-	-	-	-
In-house software	-	9.55	10.15	10.15	0.60	0.60	-	-	-	-	-
Equity raising costs	-	0.05	0.05	0.05	0.05	0.05	-	-	-	-	-

B.5   Adding RAB tracking periods to module

The tracking module template is set up by default to accommodate a single five year regulatory control period of RAB depreciation tracking. For subsequent resets, the tracking

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[71] The PTRM base dollar terms refers to the start of year 1 for the next regulatory control period real dollar terms for input to the PTRM for which the tracking module will provide the forecast RAB depreciation. It is therefore equivalent to end of year real dollar terms for the final year of the current regulatory control period.

[72] Clause 6.5.5(b)(2) of the NER requires that the sum of the real value of the depreciation that is attributable to any asset or category of assets must be equivalent to the value at which that asset or category of assets was first included in the RAB for the relevant distribution system.

module must be expanded to accommodate capex for new regulatory control periods as part of continuing the depreciation tracking approach. In order to include additional periods of RAB depreciation tracking, the user must utilise the in-built macros to expand the calculations in the tracking module.[73]

To include additional periods for RAB tracking, the user is required to:

- update the **RAB input** sheet with the relevant capex, asset adjustments, inflation etc. This includes updating the estimated capex in the final year of the previous regulatory control period (t–1) with actual capex[74]

- initiate the 'Insert additional RAB tracking period' macro—by pressing the button on the **RAB input** sheet. This will add in the required rows into the **RAB tracking** sheet to calculate depreciation for the new period of capex.

This process is then repeated for each new period of RAB depreciation tracking required.

B.5.1 Updating the RAB input sheet for new regulatory control period

To update the **RAB input** sheet for a new regulatory control period of RAB depreciation tracking, the user must add the required inputs for the 'Regulatory period' and 'Years in regulatory period'. These are to be entered in the column relating to the first year of the new period.

A note 'input for next period' appears in row 9 above the required input cells for the new period. This is shown in Figure 21.

Figure 21   RAB input sheet—Update for new regulatory control period

Figure 22 shows how a user must enter the input data in these cells for a new period. In this case the period is 2020–25, and is 5 years after the initial (2015–20) period for which RAB depreciation tracking had commenced. Once the inputs are entered, the labels for the additional years of capex required appear in row 23.

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73   Where the first regulatory control period of RAB depreciation tracking is longer than 5 years, the in-built macros can also be used to add the required number of additional years to the first period.

74   If an ex-post review determines that some year t–2 capex is to be excluded then the user will update t–2 capex with the approved efficient capex

Figure 22   RAB input sheet—Regulatory control period added and labels for capex

The user must then enter all of the required inputs for the years in the new regulatory control period that has been added. Figure 23 highlights the required new inputs for the example above, where the 2020–25 regulatory control period is added to the tracking module. The new inputs required are:

- CPI and WACC for the 5 years (2020–25)

- actual gross capex, disposals and customer contributions for 6 years (2019–25)[75]

- standard lives for the 2020–25 regulatory control period

- any RAB asset adjustments and associated remaining lives for the 2020–25 regulatory control period

- true-up for actual capex incurred in year t–1 (2019–20)

- any true-up for efficient capex adjustment in year t–2 (2018–19)[76]

- the RFM closing RAB for 2024–25.

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[75]   In the event of an adjustment to t–2 capex as the result of an ex-post review of actual capex, 7 years of inputs (2018–25) would be required to be entered, i.e. revising year t–2 (2018–19) with actual efficient capex determined.

[76]   Shown as zero in this example but would contain values in the case where an ex-post review determined changes were required to previously entered year t–2 (2018–19) actual capex.

Figure 23   RAB input sheet—Updated with new inputs for added period

B.5.2 Updating RAB tracking sheet for new regulatory control period

To update the **RAB tracking** sheet for an additional regulatory control period of RAB depreciation tracking, the user must initiate the 'Insert additional RAB tracking period' macro by pressing the button on the **RAB input** sheet (step 1).

After initiating the macro, the user is prompted to enter the number of years in the additional period for tracking—typically 5 years (step 2).

Figure 24 and Figure 25 show the steps for adding an extra five year regulatory control period.

Figure 24   'Insert additional RAB tracking period' macro—step 1

Figure 25   'Insert additional RAB tracking period' macro—step 2

Running the macro may take a few minutes. The progress of the macro is displayed in the status bar (bottom left corner) as it steps through the process of updating the tracking module.

When completed, the **RAB tracking** sheet should include the following calculations (for a typical five year regulatory control period):[77]

- five additional rows of net capex depreciation
- an additional row for the depreciation of t–1 and t–2 capex adjustments
- five additional rows for the depreciation of asset adjustments.

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[77]   The number of rows added for capex and for asset adjustments will be equal to the number of years added.

Figure 26 shows the updated **RAB tracking** sheet layout after the macro has been completed for an extra five year regulatory control period of RAB depreciation tracking.

Figure 26 RAB tracking sheet: macro complete

B.6 Increasing the number of years (columns) in tracking module

By default the tracking module includes 65 years of depreciation calculations. This accommodates 5 years of capex with a maximum standard asset life of 60 years. For the correct depreciation schedules to be calculated in the tracking module, it is important that the value of each asset (or adjustment) is fully depreciated by the end of its standard life in the tracking module.[78]

Figure 27 provides an example where some years of capex have not fully depreciated in the final year of calculation available in the tracking module. In this case additional years of calculation are required.

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[78] The RAB alignment adjustment step adjusts the forecast depreciation profile such that the sum of the depreciation is equal to the RFM closing RAB. Therefore, if an asset class is not showing its full depreciation in the tracking module (i.e. the year columns have not been extended sufficiently), this RAB adjustment (and resulting depreciation schedule) will be inaccurate.

Figure 27   RAB tracking sheet—asset not fully depreciated in final year of calculation

To increase the number of years for calculating depreciation in the tracking module, the user must initiate the 'Add years to calculation' macro using the button in the **RAB input** sheet as shown in Figure 28 (step 1).

Figure 28   'Add years to calculation' macro—step 1

After initiating the macro, the user is prompted to enter the number of additional years of calculation required to be added (step 2). As shown in Figure 29, 10 additional years are being added. The macro increases the number of years (columns) in all sheets within the tracking module by the number input by the user.[79] There is an identical button on the **TAB input** sheet that performs the same function (section C.5). Regardless of whether the user runs the macro from the **RAB input** sheet or the **TAB input** sheet, the outcome will be the same.[80]

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[79] The 'Add years to calculation' macro effectively copies the formulas in the far right column of each sheet within the tracking module across to the right by a number of columns equal to the number entered by the user when prompted by the macro dialogue box (Figure 29). The macro does this quickly but the same outcome can be achieved by copying the formulas across manually.

[80] Note that this is different to the 'Insert additional RAB tracking period' and 'Insert additional TAB tracking period' macros which only modify the sheets for which they are pressed.

Figure 29 'Add years to calculation' macro: step 2

Figure 30 shows the **RAB tracking** sheet after the macro has been completed. The final year column displayed is now 2090–91 (previously 2080–81) and the value of the asset class is now shown to be fully depreciated before this new final year of calculation.

Figure 30   RAB tracking sheet: macro complete

C TAB depreciation tracking

C.1 TAB input sheet

The **TAB input** sheet provides for key input variables for TAB tracking to be entered in the tracking module. They are automatically linked to corresponding cells in other relevant sheets. Values should be entered into each cell with light blue shading. This sheet comprises the following sections:

- general information

- starting TAB and actual gross capex

- actual immediately expensed capex

- Actual asset disposals

- TAB lives

- RAB standard lives

- asset adjustments – TAB

- asset adjustment remaining life – TAB

- asset adjustment remaining life – RAB

- tax depreciation method – straight-line (SL)/diminishing value (DV).

As discussed in section B.1, the tracking module retains inputs and calculations across multiple regulatory control periods. For the first regulatory control period when tracking commences, the user enters the required inputs for that period. For each subsequent reset the user updates the tracking module by adding the inputs relevant to the new regulatory control period for that reset.

This sheet also contains two buttons that initiate macros that are used to expand the calculations of the tracking module—inserting additional regulatory control periods for continuing the tracking calculations, and extending the number of years for calculating depreciation. Details of these macros are discussed in sections C.4 and C.5.

Figure 31 provides an example of the **TAB input** sheet.

Figure 31 TAB input sheet

TAB inputs linked to RAB input sheet

By default, some of the inputs sections in the **TAB input** sheet reference the corresponding sections in the **RAB input** sheet. These inputs comprise of:

- regulatory periods and years

- gross capex and disposals

- RAB standard lives and RAB adjustment remaining lives

Where the tracking module is used for both RAB and TAB depreciation and commence from the same starting year, the default formulae in the **TAB input** sheet will reference the correct values in the **RAB input** sheet and can be retained. Where only TAB depreciation tracking is required—or where RAB and TAB depreciation tracking start in different years—the default formulae in the input cells of the **TAB input** sheet should be overwritten with the correct values.

C.1.1 General Information

The **TAB input** sheet captures some general information required to set up the tracking module, and calculate values consistently. The recorded input values are linked to subsequent sheets which calculate depreciation in nominal dollar terms. Notes have been

included for various cells with specific comments and explanations about the relevance/source of the inputs.

Business and tracking period inputs

The business name and applicable depreciation tracking for a regulatory control period (including start and length) are recorded in rows 8 to 11.[81] This allows the tracking module to begin tracking at the correct point in time—first regulatory year for tracking—and applies adjustments in the correct year—based on the length of a regulatory control period.

The tracking module template is configured to initially accommodate TAB depreciation tracking for a single period of 5 years.[82] This can be expanded using the macro buttons (discussed below). For subsequent periods of TAB depreciation tracking, the user initiates the macro to expand the calculations (section C.4), and enters the regulatory control period inputs—years and length—in the relevant column.[83]

Diminishing value multiplier

The DV multiplier is recorded in row 13 for each year in which the DV method applies. The multiplier is linked to the **TAB tracking** sheet to calculate the rate to depreciate capex incurred in that regulatory year that is subject to the DV method of tax depreciation.[84]

C.1.2   Starting TAB and actual gross capex

The starting TAB comprises of the values as at the first year of TAB tracking. It is the tax value of historical assets at the start of TAB depreciation tracking that will be depreciated as one group. The actual gross capex is adjusted for asset disposals and immediately expensed capex to calculate the net capex to be depreciated. The **TAB input** sheet requires values for the starting TAB (disaggregated by asset classes in rows 18 to 67) at the start of depreciation tracking. The values for the actual gross capex—also disaggregated by asset classes—are required for each year of TAB depreciation tracking.

The recorded input values are linked to the **TAB tracking** sheet which calculates net capex and tracks the depreciation of the starting TAB and net capex. Notes have been included for various cells with specific comments and explanations about the relevance/source of the inputs.

Asset class name

The asset classes/names are recorded in column E. It is important that the asset classes recorded in the tracking module match the asset classes identified in the accompanying

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[81]   By default these inputs reference the **RAB input** sheet. They can be overwritten where RAB and TAB are not tracked from the same starting year or where otherwise appropriate.

[82]   Where the first regulatory control period of RAB depreciation tracking is longer than 5 years, the in-built macros (section C.4) can also be used to add the required number of additional years to the first period.

[83]   For example, where a regulatory control period is for 2020–25, details of this period should be entered in the column for 2020–21.

[84]   The DV multiplier is determined by the Australian Tax Office (ATO). In addition to the depreciation of net capex, the DV multiplier input is also required where DV depreciation is applied to the starting TAB.

RFM. This allows the tracking module to link with the RFM and output depreciation profiles in a consistent format for input to the RFM and PTRM, where relevant.

Consistent with the RFM and PTRM, the tracking module is configured to accommodate up to 50 asset classes. The number of asset classes used in the tracking module will vary between businesses. However, for each business, the number of asset classes used in the tracking module must be consistent with that used in the RFM and PTRM to allow the depreciation schedules determined in the tracking module to be used as inputs to the RFM and PTRM where relevant. Asset classes 47 to 50 are those for which the SL method of tax depreciation will apply in the resets subsequent to the 2018 tax review.[85]

Starting TAB

The starting TAB values for each asset class are recorded in column G. The starting TAB is the opening TAB at the start of the current regulatory control period where TAB depreciation tracking commences adjusted for actual capex in the final year (t–1) of the previous regulatory control period.[86] These asset values can be sourced from the **TAB roll forward** sheet of the accompanying RFM. These values are linked to the calculation of tax depreciation in the **TAB tracking** sheet.

Actual gross capex – as incurred

The actual gross capex values for each year of TAB depreciation tracking are recorded in column H and beyond (by asset class in rows 18 to 67).[87] These values are linked to the depreciation calculations in the **TAB tracking** sheet. Further details for these inputs are set out in section B.1.2.

C.1.3   Actual immediately expensed capex – as incurred

The actual immediately expensed capex values (recorded in rows 72 to 121) are assumed to be in middle of the year terms based on nominal dollar terms. They are recorded for the regulatory year in which the immediate expensing has taken place (or is expected to take place for the final year of the regulatory control period).[88] These values are linked to the calculation of tax depreciation in the **TAB tracking** sheet.

C.1.4   Actual asset disposals– as incurred

Actual asset disposals are recorded in rows 126 to 175.[89] These values are linked to the depreciation calculations in the **TAB tracking** sheet. Further details for these inputs are set out in section B.1.3.

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[85]   These are for assets related to 'In-house software', 'Buildings' and 'Equity raising costs'.

[86]   If an ex-post review determines that some year t–2 capex is to be excluded, the starting TAB would also adjust for the change in year t–2 capex.

[87]   By default these inputs reference the **RAB input** sheet. They can be overwritten where RAB and TAB are not tracked from the same starting year or where otherwise appropriate.

[88]   At the time the final decision is made these inputs for the final year of the regulatory control period will typically remain as estimates. These final year estimates will be updated with actuals at the next reset.

[89]   By default these inputs reference the **RAB input** sheet. They can be overwritten where RAB and TAB are not tracked from

C.1.5 Tax lives

The TAB remaining lives and tax standard lives are recorded in rows 180 to 229. These inputs can be sourced from the **RFM input** sheet of the accompanying RFM. They are linked to the depreciation calculations in the **TAB tracking** sheet.

TAB remaining lives

The TAB remaining lives of each asset class are recorded in column G and reflect the average tax remaining lives of the assets in existence at the start of TAB depreciation tracking. These values should be consistent with those contained in the accompanying RFM. These inputs are referenced in the **TAB tracking** sheet to calculate the depreciation of the starting TAB values.

Tax standard lives

The tax standard lives for the first regulatory control period of commencing TAB depreciation tracking are recorded in column H. Tax standard lives for subsequent regulatory control periods of TAB depreciation tracking are recorded in the relevant column for those periods (section C.4.1). These inputs are referenced in the **TAB tracking** sheet to calculate the depreciation of each year of net capex.

C.1.6 RAB standard lives

The RAB standard lives measure how long the infrastructure would physically last if it had just been built. Where the DV depreciation method is used to calculate tax depreciation of capex, it results in a residual value that does not reduce to zero. The RAB standard lives are referenced in the **TAB tracking** sheet to determine the year in which the residual asset value for each year of capex is written-off.[90]

The RAB standard lives for the first regulatory control period of when TAB depreciation tracking commenced are recorded in column H. For subsequent regulatory control periods of TAB depreciation tracking they are recorded in the relevant column for those periods (section C.4.1).[91]

C.1.7 Asset adjustments

The input section for asset adjustments is primarily for recording final year asset adjustments at the end of the current regulatory control period. This data may be required where the DNSP has adjusted its closing TAB by removing or adding assets (such as for a change in service classification) in the final year of the regulatory control period.

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the same starting year or where otherwise appropriate.

[90] AER, *Final decision amendment - electricity transmission and distribution network service providers post-tax revenue models (version 4)*. April 2019 pp. 13–16.

[91] By default these inputs reference the **RAB input** sheet. They can be overwritten where RAB and TAB are not tracked from the same starting year or where otherwise appropriate.

The final year adjustments are recorded in rows 286 to 334, and these inputs are can be sourced from the **RFM input** sheet of the accompanying RFM.

The user can also record RAB asset adjustments in one or more years within a regulatory control period for depreciation tracking rather than at the end of the period.[92]

The TAB adjustments are referenced and used for calculating depreciation in the **TAB tracking** sheet.

C.1.8   Asset adjustments – TAB remaining lives

The asset adjustment TAB remaining lives are recorded in rows 340 to 389 in the same columns as the associated asset adjustments (section C.1.7).

These inputs can be sourced from the **RFM input** sheet of the accompanying RFM. The asset adjustment TAB remaining lives are referenced in the **TAB tracking** sheet.

C.1.9   Asset adjustments – RAB remaining lives

Where the DV depreciation method is used to calculate tax depreciation of an asset adjustment, it results in a residual value that does not reduce to zero. To determine the year in which the residual value of the asset adjustment is written-off, the associated RAB remaining lives are recorded in rows 393 to 442. The RAB remaining lives are required to be recorded in the same year as the TAB asset adjustment and associated TAB remaining lives. The RAB remaining lives are referenced in the **TAB tracking** sheet.

C.1.10 Tax depreciation method (SL/DV)

The depreciation method used to calculate tax depreciation—SL or DV—is recorded in rows 446 to 495 for each asset class. The method that applies to the starting TAB is recorded in column G.[93] The method that applies to net capex in the first regulatory control period of TAB depreciation tracking is recorded in column H. For subsequent regulatory control periods of TAB depreciation tracking they are recorded in the relevant column for that period (section C.4.1). These inputs are referenced and used for calculating depreciation in the **TAB tracking** sheet.

Consistent with the RFM, asset classes 47 to 50 are listed as those to which the SL method of tax depreciation will apply in regulatory control periods that commence after the 2018 tax review. These are for assets related to 'In-house software', 'Buildings' and 'Equity raising costs'. Asset classes 47 to 50 do not require the tax depreciation method inputs to be recorded as they will be SL.

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[92] We consider that these within-period adjustments would be allowed in the case of reopeners such as a contingent project determination where TAB adjustments occur within the period.

[93] For the starting TAB, in most cases the switch will be set to 'SL'.

C.2   TAB tracking sheet

The **TAB tracking** sheet calculates the TAB depreciation schedules for each asset class (in nominal terms). For each asset class the depreciation schedule is disaggregated into separate TAB tracking components for:

- the starting TAB

- each year of tracked capex

- other TAB adjustments.

Figure 32 provides an example of the **TAB tracking** sheet.

Figure 32 TAB tracking sheet

The **TAB tracking** sheet comprises 50 sections—one for each asset class. The data for Asset class 1 is shown in Figure 33 and comprises:

- data derived from the **TAB input** sheet in rows 7 to 15 (cells with light blue shading)

- calculations for year-by-year depreciation of TAB tracking components in rows 17 to 27 (cells with white shading).[94]

Figure 33   TAB tracking sheet—Asset class 1

		2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
	DNSP - TAB tracking - DNSP RFM - Depreciation tracking module - version 1											
	Year ($m, nominal)	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Asset class 1	**Sub-transmission lines**											
	Value of starting TAB and net capex addition	1,002.72	45.00	7.00	3.00	10.00	20.00	-	-	-	-	-
	Initial remaining life and tax standard lives (years)	20.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
	RAB standard life (years)		50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
	Immediate expensing of capex		5.00	5.00	5.00	5.00	5.00	-	-	-	-	-
	Asset adjustment - TAB		-	-	-	-	45.00	-	-	-	-	-
	Remaining life of asset adjustment - TAB (years)		-	-	-	-	10.50	-	-	-	-	-
	Remaining life of asset adjustment - RAB (years)		-	-	-	-	10.00	-	-	-	-	-
	Diminishing value multiplier	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	Tax depreciation method	SL	SL	SL	SL	SL	SL	SL	SL	SL	SL	SL
0	Depreciation of starting TAB		50.14	50.14	50.14	50.14	50.14	50.14	50.14	50.14	50.14	50.14
1	Depreciation of net capex 2015-16			0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
2	Depreciation of net capex 2016-17				0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
3	Depreciation of net capex 2017-18					0.06	0.06	0.06	0.06	0.06	0.06	0.06
4	Depreciation of net capex 2018-19						0.20	0.20	0.20	0.20	0.20	0.20
5	Depreciation of net capex 2019-20							0.40	0.40	0.40	0.40	0.40
	Depreciation of asset adjustments - TAB 2015-16		-	-	-	-	-	-	-	-	-	-
	Depreciation of asset adjustments - TAB 2016-17			-	-	-	-	-	-	-	-	-
	Depreciation of asset adjustments - TAB 2017-18				-	-	-	-	-	-	-	-
	Depreciation of asset adjustments - TAB 2018-19					-	-	-	-	-	-	-
	Depreciation of asset adjustments - TAB 2019-20						-	4.29	4.29	4.29	4.29	4.29
	Sub-transmission lines - tax depreciation		55.14	56.04	56.18	56.24	56.44	56.12	56.12	56.12	56.12	56.12

C.2.1   Data derived from TAB input sheet

For each asset class, the section with light blue shaded cells contains data derived from the inputs entered in the **TAB input** sheet. This section references the starting TAB, and calculates the net capex and asset adjustments in nominal dollar terms. It also references and calculates the relevant standard and remaining lives from the **TAB input** sheet.

For Asset class 1, the starting TAB value and associated remaining life are displayed in cells G7 and G8 respectively. Net capex and associated tax standard lives are displayed in rows 7 and 8 in columns H and beyond. RAB standard lives are displayed in row 9.[95] Immediate expensing of capex is shown in row 10. Asset adjustments and the relevant TAB remaining lives are displayed in rows 11 and 12, and their RAB remaining lives are in row 13.[96] The DV multiplier is shown in row 14 and the SL/DV switch is shown in row 15. For each asset class presented, the relative order and location of these values are the same.

Unlike RAB depreciation, there is no need to separately track adjustments for year t–1 and year t–2 capex true-ups.[97]

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[94]   By default, the **TAB tracking** sheet accommodates a single regulatory control period of depreciation tracking. This can be expanded to include additional periods as required (section C.4.2).

[95]   In the case where the TAB depreciation approach of DV is applied to each year of net capex, the RAB standard life is used to calculate when the residual TAB value is written down to zero.

[96]   In the case where the TAB depreciation approach of DV is applied to the TAB asset adjustments, the RAB remaining life is used to calculate when the residual TAB value is written down to zero.

[97]   This is because unlike the RAB roll forward, the actual (and efficient) capex for these years enters the TAB as they are incurred.

Starting TAB and remaining life

The starting TAB asset value is in end of year nominal terms, consistent with the nominal values entered in the **TAB input** sheet. The remaining life displayed is the life which applies to the starting TAB.

Net capex, tax standard lives and RAB standard lives

The net capex values are calculated based on the recorded actual nominal capex less asset disposals and immediately expensed capex. The net capex values are displayed in nominal dollar terms. The tax standard lives and the RAB standard lives are listed for each year of capex, and are the same for each year within a regulatory control period.

Immediate expensing of capex

Where a DNSP has immediately expensed some of its capex, these values are displayed in nominal dollar terms.

Asset adjustment, TAB remaining life and, RAB remaining life

Where a DNSP has other asset adjustments (for example, end of period movements due to a change in service classification) these values are displayed in nominal dollar terms.[98]

DV multiplier and SL/DV switch

The DV multiplier and SL/DV switch are listed for each year.

C.2.2   TAB depreciation schedules

For each asset class, the depreciation schedules—disaggregated by TAB components—are calculated in nominal dollar terms. These values are displayed in the white shaded cells below the data derived from the **TAB input** sheet.

For Asset class 1, the values are displayed in rows 17 to 31 (Figure 33). The depreciation schedules relate to:

- the starting TAB (row 17)
- actual net capex[99] (rows 18 to 22)
- asset adjustments (rows 25 to 29)
- total asset class depreciation (row 31).[100]

For each asset class presented, the relative order and location of these values are the same. The depreciation is calculated on either a straight-line or diminishing value basis depending on which method is selected. Depreciation begins in the year after the asset enters the TAB.

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[98]   In the case where the TAB depreciation approach of DV is applied to the final year TAB adjustment, the RAB remaining life is used to calculate when the residual TAB value is written down to zero.

[99]   The net capex amounts are after adjustments for immediately expensed capex.

[100]   The total asset class depreciation includes any amounts for immediate expensing.

Details on adding the depreciation rows required for an extra period of TAB tracking are in section C.4.

The calculated total depreciation amounts in the **TAB tracking** sheet are referenced in the **Tracking output** sheet.

For a DNSP using TAB depreciation tracking for the first time and for which the 2018 tax review changes apply to the RFM, the starting TAB will remain being subject to SL depreciation and net capex[101] will be subject to DV depreciation.[102]

Straight-line method

The formula used to calculate SL tax depreciation for the depreciation of a year of net capex is presented as:[103]

$$D_t = \left(\text{Nominal net capex}_i{}^{104}\right) \div \text{tax standard asset life}^{105}$$

where:

D_t is the tax depreciation in year t

$D_0 = 0$

$t = 1,2,3,\ldots$

$i = \text{year } 0$

Diminishing value method

Where the DV method applies, the depreciation of the starting TAB will typically still be calculated using the SL depreciation method. The formula used to calculate DV tax depreciation for the depreciation of a year of net capex is presented as:[106]

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[101] Net capex allocated to asset classes 47–50 will remain subject to SL depreciation after the tax review findings are implemented, reflecting assets which are exempt from the DV method of tax depreciation.

[102] The 2018 tax review changes would apply to the RFM from the second reset following the tax review. For further details on the tax review's effect on depreciation in the RFM (and tracking module) and the PTRM, see AER, *Explanatory statement – Electricity transmission and distribution network service providers - proposed amendments to the roll forward models (distribution - version 3) (transmission - version 4), Appendix A Implementation of tax review depreciation findings–flow chart,* December 2019, p. 25.

[103] For the depreciation of TAB asset adjustments, the formula is varied such that the value of the adjustment is used instead of the nominal net capex and the remaining tax life of the asset adjustment is used instead of the tax standard asset life.

[104] Net capex is equal to gross capex (section C.1.2) net of disposals (section C.1.4) and immediately expensed capex (section C.1.30).

[105] See section C.1.5.

[106] For the depreciation of TAB asset adjustments, the formula is varied such that the value of the adjustment is used instead of the nominal net capex and the remaining tax life of the asset adjustment is used instead of the tax standard asset life.

$$D_t = \left(\text{Nominal net capex}_i{}^{107} - \sum_{n=0}^{t-1} D_n \right) \times \text{DV multiplier}^{108} \div \text{tax standard asset life}^{109}$$

where:

D_t is the tax depreciation in year t

$D_0 = 0$

$t = 1,2,3,\ldots$

$i = \text{year } 0$

Capex recognised for tax purposes is net of disposals and immediately expensed capex, but includes the value of customer contributions. Immediately expensed capex for each regulatory year (section C.1.3) is added to the total tax depreciation of each asset class for that year.[110]

The individual tax depreciation profiles for each asset class can be viewed by expanding the relevant grouped rows.[111] Tax depreciation is calculated separately because asset values and asset lives for tax purposes generally differ from those for regulatory purposes.

For each asset class the yearly total tax depreciation is calculated by summing the depreciation of the starting TAB, net capex and asset adjustments. The total tax depreciation is summarised in the TAB tracking depreciation tables in the **Tracking output** sheet.

C.3   Tracking output sheet – TAB

The **Tracking output** sheet outlines the TAB (and RAB) depreciation outputs from the tracking module in the format required to be used as inputs to the PTRM and RFM, where relevant.

For TAB depreciation tracking, the **Tracking output** sheet displays the forecast tax depreciation values for the next regulatory control period for each asset class in rows 60 to 109 and the actual tax depreciation values for the current regulatory control period for each asset class in rows 116 to 165. The values for the forecast and actual tax depreciation are displayed in nominal dollar terms and reference the values in the **TAB tracking** sheet.

Figure 34 provides an example of the **Tracking output** sheet. Details of the RAB tracking outputs are discussed in section B.4.

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107   Net capex is equal to gross capex (section C.1.2) net of disposals (section C.1.4) and immediately expensed capex (section C.1.3).

108   See section C.1.1.

109   See section C.1.5.

110   For example, using asset class 1, the immediately expensed capex for the first regulatory year of tracking tax depreciation is added to cell H31 in the **TAB tracking** sheet.

111   The grouped rows for all of the asset classes can be expanded at the same time by pressing the '2' in the top margin to the left of the sheet.

Figure 34   Tracking output sheet

DNSP - Tracking output - DNSP RFM - Depreciation tracking module - version 1

PTRM forecast depreciation output

Year			2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Forecast RAB depreciation - Aligned ($m, 2019-20)	Check	4,172.74	189.54	196.34	196.60	192.97	183.72	185.03	184.10	189.59	189.68	188.96
Asset Class 1 Sub-transmission lines	TRUE	1,033.33	65.15	65.15	65.15	65.15	65.15	65.15	65.15	65.15	65.15	65.15
Asset Class 2 distribution lines	TRUE	820.46	36.74	36.74	36.74	36.74	29.88	29.88	29.88	29.88	29.88	29.88
Asset Class 3 substations	TRUE	615.13	19.66	19.66	19.66	19.66	19.66	25.05	25.05	25.05	25.05	25.05
Asset Class 4 distribution transformers	TRUE	507.70	15.08	15.08	15.08	15.08	15.08	15.08	15.08	21.47	21.47	21.47
Asset Class 5 LVS and meters	TRUE	453.04	18.01	18.01	18.01	18.01	18.01	18.01	18.01	18.01	18.01	18.01
Asset Class 6 communications	TRUE	403.77	19.20	19.20	19.20	19.20	19.20	18.57	17.78	17.02	16.27	15.55
Asset Class 7 vehicles	TRUE	267.40	8.88	8.88	11.50	11.34	11.19	11.04	10.90	10.76	10.76	10.76
Asset Class 8 land and easements	TRUE	-	-	-	-	-	-	-	-	-	-	-
Asset Class 4 Buildings	TRUE	39.07	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52
Asset Class 4 In-house software	TRUE	33.82	4.57	11.38	9.02	5.55	3.30	-	-	-	-	-
Asset Class 5 Equity raising costs	TRUE	0.97	0.27 -	0.27 -	0.27 -	0.27 -	0.27 -	0.27 -	0.27 -	0.27	0.57	0.57
Forecast TAB depreciation ($m, nominal)		3,880.81	169.79	169.19	171.19	172.19	168.41	166.63	167.80	170.80	173.80	173.80
Asset Class 1 Sub-transmission lines		877.70	56.12	56.12	56.12	56.12	56.12	56.12	56.12	56.12	56.12	56.12
Asset Class 2 distribution lines		772.35	34.39	34.39	34.39	34.39	31.61	28.84	28.84	28.84	28.84	28.84
Asset Class 3 substations		596.69	20.18	20.18	20.18	20.18	20.18	20.18	24.35	24.35	24.35	24.35
Asset Class 4 distribution transformers		496.51	15.14	15.14	15.14	15.14	15.14	15.14	15.14	18.14	21.14	21.14
Asset Class 5 LVS and meters		457.35	17.77	17.77	17.77	17.77	17.77	17.77	17.77	17.77	17.77	17.77
Asset Class 6 communications		368.43	14.28	14.28	14.28	14.28	14.28	14.28	14.28	14.28	14.28	14.28
Asset Class 7 vehicles		251.60	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Asset Class 8 land and easements		-	-	-	-	-	-	-	-	-	-	-
Asset Class 4 Buildings		48.29	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Asset Class 4 In-house software		10.60	0.60	-	2.00	3.00	2.00	3.00	-	-	-	-
Asset Class 5 Equity raising costs		1.30	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05

RFM actual TAB depreciation output

Year	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
Actual TAB depreciation ($m, nominal)	-	182.19	185.02	186.13	178.62	179.74	-	-	-	-	-
Sub-transmission lines	-	55.14	56.04	56.18	56.24	56.44	-	-	-	-	-
distribution lines	-	29.76	30.19	30.36	31.54	31.66	-	-	-	-	-
substations	-	25.35	25.55	25.75	25.95	26.15	-	-	-	-	-
distribution transformers	-	21.14	21.34	21.54	21.74	21.94	-	-	-	-	-
LVS and meters	-	16.77	16.97	17.17	17.37	17.57	-	-	-	-	-
communications	-	13.41	13.58	13.76	13.93	14.11	-	-	-	-	-
vehicles	-	9.87	9.90	9.92	9.95	9.97	-	-	-	-	-
land and easements	-	-	-	-	-	-	-	-	-	-	-
Buildings	-	1.15	1.25	1.25	1.25	1.25	-	-	-	-	-
In-house software	-	9.55	10.15	10.15	0.60	0.60	-	-	-	-	-
Equity raising costs	-	0.05	0.05	0.05	0.05	0.05	-	-	-	-	-

C.4   Adding TAB tracking periods to module

The tracking module template is set up by default to accommodate a single five year regulatory control period of TAB depreciation tracking. For subsequent resets, the tracking module must be expanded to accommodate capex for new regulatory control periods as part of continuing the depreciation tracking approach. In order to include additional periods of TAB depreciation tracking, the user must utilise the in-built macros to expand the calculations in the tracking module.[112]

To include additional periods for TAB tracking, the user is required to:

- update the **TAB input** sheet with the relevant capex, asset adjustments etc.[113] This includes updating the estimated capex in the final year of the previous regulatory control period (t−1) with actual capex[114]

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[112] Where the first regulatory control period of TAB depreciation tracking is longer than 5 years, the in-built macros can also be used to add the required number of additional years to the first period.

[113] In the template tracking module, some of the inputs in the **TAB input** sheet reference similar inputs in the **RAB input** sheet. So in cases where both RAB and TAB depreciation is tracked and begin from the same starting year then some of the inputs in the **TAB input** sheet will update automatically update. This applies to inputs for regulatory period and years in period, gross capex, disposals, RAB standard lives and RAB remaining lives for asset adjustments.

[114] If an ex-post review determines that some year t−2 capex is to be excluded then the user will update t−2 capex with the approved efficient capex.

- initiate the 'Insert additional TAB tracking period' macro—by pressing the button on the **TAB input** sheet. This will add in the required rows into the **TAB tracking** sheet to calculate depreciation for the new period of capex.

This process is then repeated for each new period of TAB depreciation tracking required.

C.4.1 Updating the TAB input sheet for new regulatory control period

To update the **TAB input** sheet for a new regulatory control period of TAB depreciation tracking, the user must add the required inputs for the 'Regulatory period' and 'Years in regulatory period'. These are to be entered in the column relating to the first year of the new period.

A note 'input for next period' appears in row 9 above the required input cells for the new period. This is shown in Figure 35.

Figure 35   TAB input sheet—Update for additional regulatory control period

Figure 36 shows how a user must enter the input data in these cells for a new period. In this case the period is 2020–25, and is 5 years after the initial (2015–20) period for which TAB depreciation tracking had commenced. Once the inputs are entered, the labels for the additional years of capex required appear in row 15.

Figure 36   TAB input sheet—Regulatory control period added and labels for gross capex

The user must then enter all of the required inputs for the years in the new regulatory control period that has been added. Figure 37 highlights the required new inputs for the example

above, where the 2020–25 regulatory control period is added to the tracking module. The new inputs required are:[115]

- the DV multiplier

- actual gross capex and disposals for 6 years (2019–25)[116]

- actual immediate expensing for 5 years (2020–25)[117]

- tax standard lives for the 2020–25 regulatory control period

- any TAB asset adjustments and associated remaining lives[118] for the 2020–25 regulatory control period

- tax depreciation approach (DV/SL).

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[115] This example assumes no ex-post review has determined any change to year t–2 capex. If a review did take place for the 2020–25 regulatory control period shown, it would consider the 5 years of capex from years t–2 (2018–19) through to year 3 (2022–23). If the review required revisions to actual capex, then the user would enter the approved efficient level of capex for the relevant years within the ex-post review period (2018–23). Therefore, if the review determined that year t–2 (2018–19) actual capex was to be revised, then the previously entered year t–2 (2018–19) actual capex inputs would need to be updated to reflect this in the tracking module.

[116] In the event of an adjustment to t–2 capex as the result of an ex-post review of actual capex, 7 years of inputs (2018–25) would be required to be entered, i.e. revising year t–2 (2018–19) with actual efficient capex determined..

[117] For the roll forward of the TAB in the first period subject to the tax review changes, only 5 years will need to be entered because the recognition of immediate expensing starts from year t. For subsequent periods of TAB tracking, year t–1 immediate expensing inputs should be updated for actuals.

[118] For both RAB and TAB remaining lives.

Figure 37 TAB input sheet—Updated with new inputs for added period

C.4.2 Updating the TAB tracking sheet for new regulatory control period

To update the **TAB tracking** sheet for an additional regulatory control period of TAB depreciation tracking, the user must initiate the 'Insert additional TAB tracking period' macro by pressing the button on the **TAB input** sheet (step 1).

After initiating the macro, the user is prompted to enter the number of years in the additional period for tracking—typically 5 years (step 2).

Figure 38 and Figure 39 show the steps for adding an extra five year regulatory control period.

Figure 38   'Insert additional TAB tracking period' macro—Step 1

Figure 39   'Insert additional TAB tracking period' macro—Step 2

Running the macro may take a few minutes. The progress of the macro is displayed in the status bar (bottom left corner) as it steps through the process of updating the tracking module.

When completed, the **TAB tracking** sheet should include the following calculations (for a typical five year regulatory control period):[119]

- five additional rows of net capex depreciation

- five additional rows for the depreciation of asset adjustments.

Figure 40 shows the updated **TAB tracking** sheet layout after the macro has been completed for an extra five year regulatory control period of TAB depreciation tracking.

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[119] The number of rows added for capex and for asset adjustments will be equal to the number of years added.

Figure 40 TAB tracking sheet after macro has completed

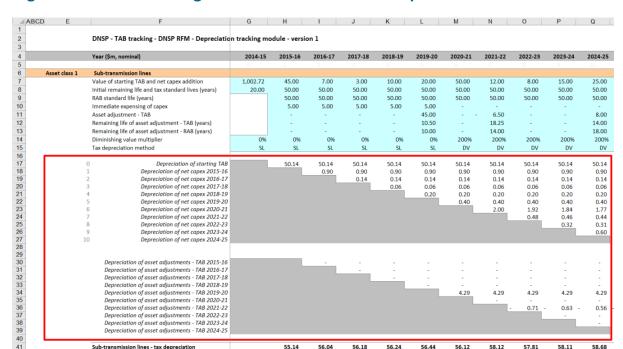|	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
DNSP - TAB tracking - DNSP RFM - Depreciation tracking module - version 1											
Year ($m, nominal)	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**
Asset class 1 — Sub-transmission lines											
Value of starting TAB and net capex addition	1,002.72	45.00	7.00	3.00	10.00	20.00	50.00	12.00	8.00	15.00	25.00
Initial remaining life and tax standard lives (years)	20.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
RAB standard life (years)		50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
Immediate expensing of capex		5.00	5.00	5.00	5.00	5.00	-	-	-	-	-
Asset adjustment - TAB		-	-	-	-	45.00	-	6.50	-	-	8.00
Remaining life of asset adjustment - TAB (years)		-	-	-	-	10.50	-	18.25	-	-	14.00
Remaining life of asset adjustment - RAB (years)		-	-	-	-	10.00	-	14.00	-	-	18.00
Diminishing value multiplier	0%	0%	0%	0%	0%	0%	200%	200%	200%	200%	200%
Tax depreciation method	SL	SL	SL	SL	SL	SL	DV	DV	DV	DV	DV
0 — Depreciation of starting TAB		50.14	50.14	50.14	50.14	50.14	50.14	50.14	50.14	50.14	50.14
1 — Depreciation of net capex 2015-16			0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
2 — Depreciation of net capex 2016-17				0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
3 — Depreciation of net capex 2017-18					0.06	0.06	0.06	0.06	0.06	0.06	0.06
4 — Depreciation of net capex 2018-19						0.20	0.20	0.20	0.20	0.20	0.20
5 — Depreciation of net capex 2019-20							0.40	0.40	0.40	0.40	0.40
6 — Depreciation of net capex 2020-21								2.00	1.92	1.84	1.77
7 — Depreciation of net capex 2021-22									0.48	0.46	0.44
8 — Depreciation of net capex 2022-23										0.32	0.31
9 — Depreciation of net capex 2023-24											0.60
10 — Depreciation of net capex 2024-25											
Depreciation of asset adjustments - TAB 2015-16			-	-	-	-	-	-	-	-	-
Depreciation of asset adjustments - TAB 2016-17				-	-	-	-	-	-	-	-
Depreciation of asset adjustments - TAB 2017-18					-	-	-	-	-	-	-
Depreciation of asset adjustments - TAB 2018-19						-	-	-	-	-	-
Depreciation of asset adjustments - TAB 2019-20							4.29	4.29	4.29	4.29	4.29
Depreciation of asset adjustments - TAB 2020-21								-	-	-	-
Depreciation of asset adjustments - TAB 2021-22									0.71	0.63	0.56
Depreciation of asset adjustments - TAB 2022-23										-	-
Depreciation of asset adjustments - TAB 2023-24											-
Depreciation of asset adjustments - TAB 2024-25											
Sub-transmission lines - tax depreciation		55.14	56.04	56.18	56.24	56.44	56.12	58.12	57.81	58.11	58.68

C.5 Increasing the number of years (columns) in tracking module

As detailed in section B.6, to increase the number of years for calculating depreciation in the tracking module, the user must initiate the 'Add years to calculation' macro. This macro can be initiated using the button in the **TAB input** sheet **(or RAB input** sheet). Regardless of whether the user runs the macro from the **TAB input** sheet or the **RAB input** sheet, the outcome will be the same.[120]

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120 Note that this is different to the 'Insert additional RAB tracking period' and 'Insert additional TAB tracking period' macros which only modify the sheets for which they are pressed.