

User Guide: NTESMO Revenue Model Suite

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1. Background

1.1. What is NTESMO?

NTESMO is a business unit providing System Controller (SC) and Market Operator (MO) functions within Power and Water Corporation (PWC), which is a government-owned corporation.

The System Controller provides the critical role of overseeing the safe, secure and reliable operation of the Darwin- Katherine Power System (DKPS), Tennant Creek and Alice Springs power systems.

The Market Operator facilitates settlement of market participants and registers new participants in the DKPS.

1.2. How is it regulated?

The services provided by both functions are regulated and NTESMO is entitled, under section 39(1) of the Electricity Reform Act 2000 to impose and recover charges to undertake its functions.

Section 39(2) of the Electricity Reform Act 2000 requires these charges to be approved by the Utilities Commission of the Northern Territory (Commission). NTESMO recovers regulated charges from retailers based on the energy consumption of their customers.

The Commission's approach to calculating charges is to apply a revenue cap to each regulatory year based on a building block method, with the ability to seek a pass through of costs for specified events following the Commission's determination.

1.3. Recent changes

Consistent with the Commission's decisions regarding the regulatory framework, NTESMO applied a building block approach to forecast the revenue requirements for the 2024-25 to 2026-27 regulatory period. The building block approach calculates forecast revenue based on the following components:

- return on capital;
- return of capital (depreciation);
- operating expenditure; and
- an allowance for tax expenses.

For a more thorough discussion on the building block revenue items please refer to the AER's PTRM handbook which can be found using the links listed in Appendix A.3.

This approach and model suites are set for use in the 2027-28 to 2031-32 regulatory period.

1.4. Purpose of this document

This user guide is focused on the collection of Excel workbooks used to calculate NTESMO's building block revenues for the system control and market operator functions. This document will describe the purpose of each model, highlight which assumptions need to be updated and discuss other consideration where relevant.

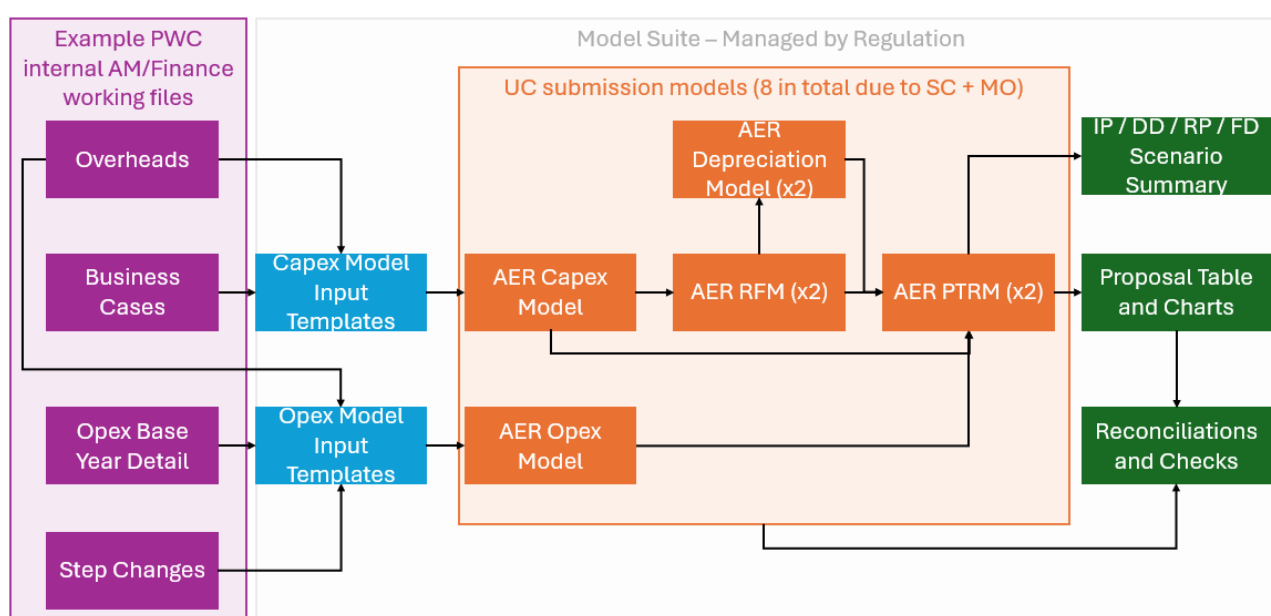
2. Model Suite Overview

2.1. Model suite structure

Figure 1 below provides an overview of the Excel based modelling required to calculate building block revenue, which can be broadly categorised into a four-part process including:

- Internal data sources and working documents (purple boxes)
- Input templates designed to transpose data from a variety of sources into a consistent format and dollar basis (light blue boxes)
- The linked suite of Excel models which are submitted to the Commission (orange boxes)
- A group of internal workbooks which increase the quality of the information being provided to the Commission (green boxes)

Figure 1: Model suite overview and flow of information



This user guide is focused on the relationships between the models within the grey outline box and does not cover the internal data sources and working documents on the left of the diagram.

2.2. Purpose of the input templates

The input templates play an important role despite adding a layer of complexity to the process. They were included in the process for four reasons:

1. The input templates align source documents with the content and structure of models adopted by the AER.
2. The input templates facilitate internal signoff procedures for assumptions flowing into the regulatory models. Each of the templates are aligned with a team or person who is responsible for the data.
3. The input templates consistently convert the dollar basis of internal working files into the dollar basis required for the models in the suite, using the same CPI assumptions.
4. The input templates reduce the risk of linking errors if the project team make structural changes to their internal working files.

The following table summarises the purpose of each template.

Table 1: Content and purpose of each input template

NTESMO Input Template	Content and purpose
Opex base year and overheads	The 'Input_Opex_Base' worksheet shows the raw base year by cost category, function and sub function. It also contains the base year adjustments which are made to provide the Opex Forecast Model with an adjusted base year for trending purposes. While the Opex Forecast Model technically only requires one input to quantify the adjusted base year, the 'Input_Opex_Base' worksheet was designed to provide more detail for the Commission and aligns to the format of data provided in previous submissions. The 'Input_Overheads' worksheet summarises the corporate overheads split by function and nature. The 'Output_Overheads' worksheet links to the Capex Forecast Model. Currently, these sheets are marked as redundant as the model treats corporate overheads using the base-step-trend approach. For further information, refer to the Expenditure Model User Guide.
Forecast step changes	This template centralises the step change and the specific forecasts to be presented in the Opex Forecast Model. The forecasts are built up by function, sub function and cost category. The personnel cost forecasts are 100% labour and, therefore, should include labour escalation over the forecast period. As the Opex Forecast Model does not apply trends to steps and specific forecasts; labour escalation needs to be applied to the forecast prior to linking to the Opex Forecast Model.
Forecast capex	The 'Input_Projects' worksheet collects direct unescalated capex, capitalised corporate overheads, and RAB asset class information. The 'Output_Projects' worksheet then converts the business forecast of direct unescalated capex into the price base required by the Capex Forecast Model.

2.3. Key assumptions

The following high-level assumptions apply to all workbooks in the model suite:

- Rate of return assumptions are to be based on AER decisions relating to PWC standard control services.
- Inflation assumptions are based on three different sources. Actual inflation movements are sourced from the Australian Bureau of Statistics (ABS), short term inflation estimates are sourced from the most recent Reserve Bank of Australia's (RBA) Monetary Policy Statement (MPS), and forecast inflation is calculating as per the glide path method in the Australian Energy Regulator's (AER) PTRM.
- Asset management provide capex forecasts by project and only include direct unescalated costs.
- Operating expenditure forecasting adopts a Base Step Trend (BST) methodology, with the base year being the most recent audited year.

- The Expenditure Model will implement PWC’s Cost Allocation Methodology (CAM) – except for the corporate overheads for which an alternative approach (base-step-trend) has been deployed. For further information, refer to the Expenditure Model User Guide.

2.4. Relationship with the Expenditure Model

The Expenditure Model is an Excel workbook managed by PWC and is the main source of the assumptions and inputs that flow through the revenue model suite.

Each time the revenue forecast needs to be updated it is critical that the links back to the Expenditure Model are refreshed. This is because any movement in the opex and capex forecasts impacts the allocation between capitalised overheads and expensed overheads.

2.5. The process to update the model suite

The process of updating the model suite can be broken into two phases:

- Phase 1 – the sources or input templates are updated.
- Phase 2 – Push the new data through all the workbooks in the model suite.

Table 2 provides a step-by-step guide to update the revenue forecast based on the following assumptions:

- All workbooks which make up the model suite are saved in same folder.
- The name of each workbook is not changed.
- All sources are saved in the same sources sub folder.
- All templates are saved in the same templates folder.

It is recommended that users do not use Excel’s Autosave feature to provide more control on when a save event occurs. Given the large number of workbooks, it is useful to monitor the ‘date modified’ field in the file explorer view to keep track of which step of the process you are up to.

Table 2: Step by step guide to update the model suite

Step by step guide to update the model suite	
Step 1	Review each updated source file and save them in the sources sub folder with a new date and/or version number. Risk: You want to make sure the location of source data has not changed (i.e., the number of rows and columns has not changed).
Step 2	Begin Phase 1 by opening each input template, updating or refreshing links to each source file, and then saving and closing each template. Risk: If you have all the templates open along with all the workbooks in the model suite there is a risk Excel will crash.
Step 3	Begin Phase 2 by systematically opening each workbook in the model suite and checking, updating, or refreshing links as required. Save each workbook once all the sources and template links have been refreshed. Do not close the workbook.

	Tip: You do not need to update or refresh the links to the workbooks within the model suite as they are all in the same folder and will refresh automatically when all workbooks are open together.
Step 4	Scan through each model to check the process of updating links has not created any errors. Tip: The 'Tables and charts' workbook is the most likely place to highlight issues if they do arise.
Step 5	Review the key model outputs and confirm the changes are in line with expectations based on the changes to source files or input templates. Tip: For each revenue scenario keep a list of assumption changes which will help to explain variances to previous revenue scenarios.
Step 6	Once you are comfortable that the model suite has been updated correctly you can save and close each file in the model suite. Tip: Create a summary of all key model outputs and when you 'lock down' a revenue scenario copy and paste the values on a dedicated worksheet so you can see if the values change unexpectedly later on.
Step 7	If the charges model is not saved in the same location as the rest of the model suite, do not forget to open a new version of the charges model and update the links back to the revised revenue building blocks.

3. The Models

3.1. Opex Model

The Opex Model is a workbook commonly adopted by the AER. The NTESMO version is based on the Opex Model submitted by PWC during the 2024–29 Determination process.

The model is designed to apply the AER base-step-trend methodology to one service at a time, so NTESMO has modified the inputs and outputs to derive separate outputs for both SC and MO.

Table 3: Summary of the Opex Model

Worksheet	Purpose and approach	Linkages
Index	This worksheet contains a description of the worksheets in the model and a hyperlink to each worksheet.	
Input General	This is the AER's worksheet with no changes. Inputs can be changed to update the dollar basis and headings within the model.	

Input Inflation	This worksheet contains CPI inputs based on ABS and RBA MPS data. The Opex Model typically adopts an unlagged June to June profile.	
Input PWC	This is a new NTESMO specific worksheet inserted into the model to provide more detail regarding the composition of the base year and applicable base year adjustments. The proportions between SC and MO calculated in this worksheet are used to split the trended adjusted base year value in subsequent worksheets.	Opex Base and OH Template
Input Reported opex	This is the AER's worksheet with no changes. The inputs in this worksheet reference the values in the 'Input PWC' worksheet.	
Input Rate of change	This worksheet is an AER worksheet and collects trending assumptions. Price change relates to labour escalation and inputs. Output growth inputs were left blank as SC and MO operating costs are not directly linked to the scale of drivers such as customers, consumption or demand. Productivity relates to partial factor productivity as requested by the Commission.	NTESMO Expenditure Model
Input Step changes	NTESMO extended the AER's step change inputs to include mapping to sub function, function and cost category. This change was required for the total opex forecast to be split by function in the 'Output Models' worksheet.	Forecast Step Changes Template
Calc Opex forecast	The AER's worksheet implementing the BST methodology with no changes. This is the primary calculation worksheet in the model.	
Output Models	NTESMO extended the AER's worksheet to include the content below row 20. This allowed the forecast to be split by function, sub function, cost category and driver.	SC and MO PTRMs Tables and charts workbook
Lookup Tables	The AER's worksheet with no changes.	

Check List	The AER's worksheet with no changes.	
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3.2. Capex Model

The Capex Model is based on the AER's standardised SCS capex model. Refer to A.1. for links to the relevant AER content noting that the explanatory statement will be the most useful document.

The AER's SCS capex model implements a three-step process which starts with the direct unescalated forecast for each capex project, applies escalation based on the mix of labour and non-labour elements, and then (if applicable) adds capitalised overheads to each project. The other major aim of the capex model is to map all projects into a forecast split by RAB asset class.

Table 4: Summary of the Capex Model

Worksheet	Purpose and approach	Linkages
Index	This worksheet contains a list of hyperlinks to worksheets and worksheet descriptions.	
Input Setup	This worksheet contains lookup lists used throughout the model. Table 9, relating to the applicable RAB asset classes, is the only input which may need to be reviewed.	
Input Escalations	This worksheet allows users to nominate the first year of the regulatory period, the dollar basis, the applicable inflation forecast and the applicable labour escalation forecast. Where possible the inflation inputs should align with the actual/estimated CPI in the RFMs and the PTRMs. Labour escalation and inputs should be aligned with the Opex Model and PWC's 2024–29 Determination.	SC and MO RFMs NTESMO Expenditure Model
Input Projects	This worksheet focuses on the direct unescalated capex forecast by project including the mapping of each project to function and asset classes.	Forecast Capex Template
Input Overheads	The AER's template allows for capitalised overheads to be calculated several ways. NTESMO calculates overheads within the Expenditure Model and simply links in the total forecast to be allocated to the network related projects.	Opex Base and OH Template
Calc Overheads Allocation	The AER's worksheet with no changes.	

Calc Project Costs	This worksheet is the engine of the model. Users can see how the total forecast is built up by project and step in the process. The values in columns BR to BX ultimately get applied within the SC and MO PTRMs.	
Output PTRM (NTESMO)	This worksheet is a customised output worksheet built for NTESMO based on the AER's 'Output PTRM (D)' and 'Output PTRM (T)' worksheets which NTESMO has not used. Columns B to I contain SC outputs while columns K to Q contain MO outputs. Data in rows 7 to 58 links out to the respective PTRMs while data below row 280 is designed for the Tables and charts workbook.	SC and MO PTRMs Tables and charts workbook

The following worksheets have been hidden as they are not used by NTESMO: 'Input|Disposals', 'Input|Type2 Capcons', 'Input|Expensing', 'Output|PTRM (D)', 'Output|PTRM (T)', 'Output|RIN', 'Output|AER' and 'Model Validation'.

It is expected in future submissions that NTESMO would populate table 17 in the 'Input| Projects' worksheet with labour proportions to capture labour escalation occurring during the regulatory period.

3.3. Roll Forward Models (RFMs)

The SC and MO RFMs adopt AER templates which have been used and updated within the industry for many years. Refer to A.2. for links to the relevant AER content, noting that the handbook will be the most useful document.

The purpose of the RFM is to calculate the opening balance of the asset bases at the start of the regulatory period by taking the opening balance of the current period, adding gross capital expenditure, subtracting any asset disposals, capital contributions, and straight line depreciation, before adding inflation on the opening asset base, in order to calculate the closing balance.

The movements described above ignore potential complexities where adjustments can be made to the asset bases. The adjustments were not applicable to NTESMO during in the 2024-25 to 2026-27 period. However, in future periods, NTESMO will have the ability to true up for differences between estimated and actual t-1 net capex and make final year adjustments if required.

The SC and MO models are identical to each other except for the inputs flowing into them and NTESMO has not modified the workbooks in any way. Therefore, Table 5 will simply focus on the assumptions entered into the main assumption worksheet called 'RFM input'.

Table 5: Summary of the 'RFM input' worksheet

'RFM Input' worksheet	Description	Source
Asset class name	Inputs should be aligned with PWC's 2024–29 Determination, however, only asset	

	classes applicable to NTESMO need to be populated.	
Opening asset value	Set to opening RAB value of the final year of the previous regulatory control period.	SC and MO 2019-24 RFMs
Standard life	For the applicable asset classes the inputs should be aligned with PWC's 2024–29 Determination.	SC and MO 2024-27 PTRMs
Opening tax asset value	Set to opening TAB value of the first year of the current regulatory period.	SC and MO 2024-27 PTRMs
Tax standard life	For the applicable asset classes the inputs should be aligned with PWC's 2024–29 Determination.	SC and MO 2024-27 PTRMs
Base regulatory year	Set to 2024-25 so after 3 years the closing balance, as at 30 June 2027, can be used as the opening balance to the 2028-32 period.	
Length of regulatory period	Set to the length of the current regulatory control period.	
Actual capital expenditure – as incurred	Historic capex actuals where available. Forecast capex figures to be used where not.	NTESMO Expenditure Model
Actual asset disposal – as incurred	Set to zero as asset disposals are not applicable within NTESMO this period	
Actual capital contributions – as incurred	Set to zero as capital contributions are not applicable within NTESMO this period	
Actual CPI	Actual inflation values as reported by ABS.	NTESMO Expenditure Model
Forecast CPI	Forecast inflation values as published by RBA.	NTESMO Expenditure Model
Nominal Vanilla WACC	Inputs should be aligned with PWC's 2024–29 Determination	NTESMO Expenditure Model
Real Straight-line RAB Depreciation Option	Actual Weighted Average Remaining Life Real SL Depreciation	
Actual Year-by-Year Tracking RAB Depreciation (\$m Nominal)	Inputs are blank because depreciation can be calculated in the RFM based on the	

	weighted average remaining life (WARL) method.	
Actual Year-by-Year Tracking Tax Depreciation (\$m Nominal)	Values are calculated based on the year-by-year tracking option.	SC and MO Depreciation Modules

3.4. Depreciation Modules

The SC and MO depreciation tracking modules adopt AER templates designed to work alongside the AER RFM templates. Refer to A.3. for links to the relevant AER content if more detail or content is required.

NTESMO has included the depreciation modules in the revenue modelling suite to calculate tax depreciation using the declining balance method. The SC and MO models are identical to each other except for the inputs flowing into them and NTESMO has not modified the workbook in any way. Therefore, Table 6 will simply focus on the inputs entered into the main assumption worksheets and highlight that assumptions are sourced from the RFMs, with the exception of immediately expensed capex.

Note both the 'RAB input' and 'TAB input' worksheets have been populated as data from the 'RAB input' worksheet feeds into the 'TAB input' worksheet via AER prepopulated formulas.

Table 6: Summary of depreciation tracking module inputs - 'RAB inputs'

'RAB input' worksheet	Description	Source
First regulatory year for tracking	The value of 2024-25 has been input.	
Years in regulatory period	This has been set as 3 years to align with the current regulatory period duration.	
Lagged actual CPI inflation rate	Based on values reported in the RFMs	NTESMO Expenditure Model
Nominal vanilla WACC (fixed real time varying)	Based on values reported in the RFMs	SC and MO RFMs
Real vanilla WACC	Based on values reported in the RFMs	SC and MO RFMs
Opening RAB	As per the RFMs	SC and MO RFMs
Actual gross capex – as incurred	Based on values reported in the RFMs	SC and MO RFMs

'RAB input' worksheet	Description	Source
Actual asset disposals – as incurred	Not populated, assumed to be zero during the 2024-27 regulatory period	
Actual capital contributions - As incurred	Not populated, assumed to be zero during the 2024-27 regulatory period	
RAB standard life	Based on values reported in the RFMs	SC and MO RFMs
Depreciable asset	All asset classes except for 'Land and easements' set to 'Yes' as the AER does not depreciate 'Land and easements' assets	
RAB closing balance	Based on values reported in the RFMs	SC and MO RFMs

Table 7: Summary of depreciation tracking module inputs - 'TAB inputs'

'TAB input' worksheet	Description	Source
First regulatory year for tracking	As per the inputs in the 'RAB input' worksheet	
Years in regulatory period	As per the inputs in the 'RAB input' worksheet	
Diminishing value multiplier	Adopted the standard AER assumption of 200% in line with their tax guideline	
Opening TAB	Based on values reported in the RFMs	SC and MO RFMs
Actual gross capex – as incurred	Based on values reported in the RFMs	SC and MO RFMs
Actual immediately expensed capex - As incurred	Not populated, assumed to be zero during the 2024-27 regulatory period	

'TAB input' worksheet	Description	Source
Actual asset disposals – as incurred	Not populated, assumed to be zero during the 2024-27 regulatory period	
Tax standard life	Based on values reported in the RFMs	SC and MO RFMs
RAB standard life	As per the inputs in the 'RAB input' worksheet	
Asset adjustments (as incurred) – TAB	Not populated, assumed to be zero during the 2024-27 regulatory period	
Asset adjustments remaining life -TAB (years)	Not populated, assumed to be zero during the 2024-27 regulatory period	
Asset adjustments remaining life - RAB (years)	As per the inputs in the 'RAB input' worksheet	
Tax depreciation method (SL/DV)	All assets set to DV except for 'Buildings – Capital works', 'In-house software' and 'Equity raising costs' which are set to SL based on the AER tax guideline.	

The outputs from the 'Tracking output' worksheet link back to the 'Actual Year-by-Year Tracking Tax Depreciation (\$m Nominal)' inputs in the RFM.

3.5. Post Tax Revenue Models (PTRMs)

The PTRM was designed to calculate the revenue that NTESMO should be able to recover across the upcoming regulatory period.

Table 8: Summary of main assumption worksheet ('PTRM input') in the PTRM workbooks

'PTRM input' worksheet	Description	Source
Asset class name	Inputs should be aligned with PWC's 2024–29 Determination and the RFMs	The RFMs 'PTRM input summary' worksheet
Opening asset value	As per the closing balance of the RFMs	The RFMs 'PTRM input summary' worksheet
Remaining life	As per the RFMs	The RFMs 'PTRM input summary' worksheet

'PTRM input' worksheet	Description	Source
Standard life	Inputs should be aligned with PWC's 2024–29 Determination and the RFMs	The RFMs 'RFM input' worksheet
Opening tax value	As per the closing balance of the RFMs	The RFMs 'PTRM input summary' worksheet
Tax remaining life	As per the RFMs	RFMs 'PTRM input summary'
Tax standard life	Inputs should be aligned with PWC's 2024–29 Determination and the RFMs	The RFMs 'RFM input' worksheet
Base regulatory year	Set to '2027-28' as this is the first year in the 5-year 2028-32 regulatory period	
Length of regulatory period	Set to '5'	
Forecast Capital Expenditure – As Incurred	Total gross capex including escalation and overheads	Capex Model
Forecast Immediate Expensing of Capital Expenditure - As Incurred	Assumed to be zero	
Forecast Asset Disposal – As Incurred	Assumed to be zero	
Forecast Capital Contributions – As Incurred	Assumed to be zero	
Forecast Operating Expenditure	Total opex based on the AER's base-step-trend methodology	Opex model
Revenue Adjustments	Used to implement cost pass through for TEM Reform.	The Expenditure Model 'Calc_Cost_pass_through' sheet
Expected Corporate Tax Rate	Set to the AER's standard assumption of 30% as per their tax guideline and 2024-29 decision	

'PTRM input' worksheet	Description	Source
Tax Loss Carried Forward From Previous Period	Not applicable in the 2028-32 regulatory period	
Diminishing Value Multiplier	Set to the AER's standard assumption of 200% as per their tax guideline and 2024-29 decision	
Expected Inflation	Based on RBA forecasts	NTESMO Expenditure Model
Return on Equity	Based on the AER's assumptions adopted in their 2024-29 decision	NTESMO Expenditure Model
Value of Imputation Credits (gamma)	Based on the AER's assumptions adopted in their 2024-29 decision	NTESMO Expenditure Model
Proportion of Debt Funding	Based on the AER's assumptions adopted in their 2024-29 decision	NTESMO Expenditure Model
Trailing Average Portfolio Return on Debt	Based on the AER's assumptions adopted in their 2024-29 decision	NTESMO Expenditure Model
Imputation Credit Payout Ratio	Based on the AER's assumptions adopted in their 2024-29 decision	AER - Final decision - PWC distribution determination 2024-29 - PTRM - April 2024 - Public.xlsm
Subsequent Equity Raising Costs	Based on the AER's assumptions adopted in their 2024-29 decision	AER - Final decision - PWC distribution determination 2024-29 - PTRM - April 2024 - Public.xlsm
Dividend Reinvestment Plan Costs	Based on the AER's assumptions adopted in their 2024-29 decision	AER - Final decision - PWC distribution determination 2024-29 - PTRM - April 2024 - Public.xlsm
Dividend Reinvestment Plan Take Up	Based on the AER's assumptions adopted in their 2024-29 decision	AER - Final decision - PWC distribution determination 2024-29 - PTRM - April 2024 - Public.xlsm
Debt Raising Costs	Not applicable in the 2028-32 regulatory period	
Maximum Allowed Revenue	Not applicable to NTESMO as charges are calculated elsewhere	

'PTRM input' worksheet	Description	Source
Revenue Yield	Not applicable to NTESMO as charges are calculated elsewhere	
Straight-line Depreciation Option for Opening RAB	Value set to Weighted Average Remaining Life Depreciation	
Year-by-Year Tracking Depreciation on Opening RAB	As per the outputs of the Depreciation models	Depreciation model
Straight-line Depreciation Option for Opening TAB	Value set to 'Year-by-Year Tracking Depreciation'	
Year-by-Year Tracking Depreciation on Opening TAB	As per the outputs of the Depreciation models	Depreciation model
Energy Delivered Forecast (MWh)	Not applicable to NTESMO as charges are calculated elsewhere	
Base Year Prices per Tariff Component	Not applicable to NTESMO as charges are calculated elsewhere	
Forecast Sales Quantities (Years 1-5, including final year of previous regulatory control period)	Not applicable to NTESMO as charges are calculated elsewhere	
Forecast Sales Quantities (Years 6-10)	Not applicable to NTESMO as charges are calculated elsewhere	

3.6. Governance models

The following three models sit within the model suite but are not submitted to the Commission as they are internal workbooks designed to support the broader revenue proposal.

Tables and charts

The tables and charts workbook plays a key role in centralising multiple model inputs and outputs before presenting them in the format required for the written proposal. It allows readers of the proposal to investigate and validate where values came from by clicking back through the links.

The various checks in this workbook also ensure that the values reported in document align with the values in models.

This workbook is customised to each revenue proposal, therefore, it is reasonable to expect the 2028-32 version of the 'Tables and charts' workbook will require significant changes.

3.7. What if AER determinations are not available?

The tables in sections 2.1 to 2.5 would have highlighted that the intent, where possible, is to align NTESMO assumptions with those adopted by the AER. However, the timing of NTESMO submissions to the Commission are unlikely to coincide with PWC submissions to the AER.

This section elaborates on the options PWC could consider when updating assumptions sourced from the AER within the 2028-32 regulatory period.

Table 9: Options to align NTESMO assumptions with AER assumptions

Model	Assumption	Options
Opex and Capex Models	Real labour escalation	Typically, PWC and the AER commission dedicated real labour escalation reports during the price review process which are specific to the utilities sector within the Northern Territory. If these reports do not cover the new NTESMO regulatory period PWC could: • Commission an updated report from the same consultants used during the AER process • Extrapolate a 2-to-3-year rolling average from the most recent NT reports • Assume the NT will move in line with other states and use the most recent AER decision assumptions
Roll forward models	RAB and TAB standard lives	The AER does not regularly change RAB and TAB standard lives. So PWC standard lives should be retained unless:

		- The AER conducts a review which impacts standard lives and subsequently issues updates to their models - PWC conducts a peer review of standard lives and identifies changes are required
	Actual / Estimated Inflation	Actual and estimated inflation needs to be updated each year. PWC needs to ensure the same profile or index is applied by continuing to use the same - June to June or December to December movements - Lagged versus unlagged movements All actuals should be sourced from the ABS (6401.0, Tables 3 and 4, series A2325846C) All estimates should be sourced from the latest RBA MPS.
	Forecast inflation	Forecast inflation is sourced from the PTRM associated with the RFMs reporting period. This input should always be available as it is backwards looking.
	Nominal Vanilla WACC	The rate of return is sourced from the PTRM associated with the RFMs reporting period. The PTRM in this case should be the PTRM that includes any required annual cost of debt updates.
PTRMs	RAB and TAB standard lives	As per the comments made regarding RFM standard lives
	Expected Corporate Tax Rate	This input should be aligned with the latest AER Rate of Return Instrument (RoRI) or latest tax review which are both updated periodically. It should also align with the AER's latest PTRM template issued for Distribution Services
	Diminishing Value Multiplier	This input should be aligned with the latest AER Rate of Return Instrument (RoRI) or latest tax review which are both updated periodically. It should also align with the AER's latest PTRM template issued for Distribution Services
	Expected Inflation	Expected inflation refers to the geometric mean of a 5-year forecast gliding from the latest RBA MPS forecasts to

		the RBA's target 2.5% in the final year of the regulatory period. The calculation is usually supported within a model called the 'Rate of Return Model'.
	Return on Equity	The return on equity equals the risk-free rate + (market risk premium x equity beta). The market risk premium and equity beta should be aligned with the latest AER Rate of Return Instrument (RoRI). The risk-free rate can be updated by observing the movements within a 20 working day period for government bonds. Examples can be found on the AER website relating to previous submissions.
	Value of Imputation Credits (gamma)	This input should be aligned with the latest AER Rate of Return Instrument (RoRI) which is updated periodically.
	Proportion of Debt Funding	This input should be aligned with the latest AER Rate of Return Instrument (RoRI) which is updated periodically.
	Trailing Average Portfolio Return on Debt	The AER applies a 10-year rolling average of annual observations when calculating return on debt. The calculation is usually supported within a model called the 'Rate of Return Model'. Good practice would include PWC maintaining a model which tracks cost of debt observations over time. In the absence of this data PWC would need to select averaging periods, store observations from applicable bonds and then calculate the return on debt value.
	Imputation Credit Payout Ratio	This input should be aligned with the latest AER Rate of Return Instrument (RoRI) which is updated periodically.
	Subsequent Equity Raising Costs	This input should be aligned with the latest AER Rate of Return Instrument (RoRI) which is updated periodically.
	Dividend Reinvestment Plan Costs	This input should be aligned with the latest AER Rate of Return Instrument (RoRI) which is updated periodically.

	Dividend Reinvestment Plan Take Up	This input should be aligned with the latest AER Rate of Return Instrument (RoRI) which is updated periodically.
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3.8. Charges model

The required revenue from the PTRM sets the total revenue NTESMO can recover from the 2028-32 regulatory period. This value needs to be included in the charges model where forecast volumes and various true ups are also incorporated.

The charges model is submitted to the Commission annually and will also be included within the revenue model suite to provide an indication of bill impacts across the upcoming regulatory period.

4. Appendices

A.1. Standardised SCS capex model

Website: <https://www.aer.gov.au/industry/registers/resources/models/standardised-model-standard-control-services-capital-expenditure-standardised-scs-capex-model>

Explanatory Note: <https://www.aer.gov.au/system/files/AER%20-%20Standardised%20SCS%20capex%20model%20-%20Explanatory%20Note%20-%2016%20December%202021.pdf>

Template: <https://www.aer.gov.au/system/files/AER%20-%20Standardised%20SCS%20Capex%20Model%20-%2016%20December%202021.xlsb>

A.2 Roll forward model (distribution)

Website: <https://www.aer.gov.au/industry/registers/resources/models/electricity-roll-forward-models-transmission-and-distribution-2020-amendment>

Handbook: <https://www.aer.gov.au/system/files/Appendix%20B%20-%20Distribution%20roll%20forward%20model%20handbook%20-%20version%202%20-%20December%202016.pdf>

Template: https://www.aer.gov.au/system/files/AER%20-%20Electricity%20distribution%20RFM%20-%20v3.1_1.xlsm

A.3 Electricity post-tax revenue models (transmission and distribution)

Website: <https://www.aer.gov.au/industry/registers/resources/models/electricity-post-tax-revenue-models-transmission-and-distribution-april-2021-amendment>

Handbook: <https://www.aer.gov.au/system/files/Final%20Decision%20-%20Amended%20distribution%20PTRM%20handbook%20-%20version%204.pdf>

Template: https://www.aer.gov.au/system/files/Appendix%20A%20-%20Amended%20electricity%20distribution%20PTRM%20-%20April%202021_0.xlsm

A.4 Depreciation Tracking Module

Website: <https://www.aer.gov.au/industry/registers/resources/models/electricity-roll-forward-models-transmission-and-distribution-2020-amendment>

Handbook: Not applicable

Template: https://www.aer.gov.au/system/files/Appendix%20D%20-%20Distribution%20roll%20forward%20model%20-%20Depreciation%20tracking%20module%20-%20Electricity%20-%20version%201_0.xlsb

A.5 Internal use only – SharePoint considerations

This section will briefly discuss a few best practice concepts when collaborating via SharePoint.

Managing Scenarios

Although SharePoint has version history functionality, it is strongly recommended that a new scenario is created at each milestone of the project, or when conducting internal sensitivity analysis. This is easily achieved by copying the latest folder and giving the scenario a new name or reference. The main benefit of this is to allow comparisons between different revenue scenarios.

Managing issues and risks

When preparing a revenue scenario by updating the Excel workbooks saved within SharePoint it is recommended that:

- Users do not use the AutoSave feature in Excel, as this can lead to unintended changes and/or a loss of control in terms of when each file has been updated.
- The person preparing the revenue scenario should 'check out' all models once the model update process is complete to avoid someone else accidentally making changes.
- The number of people who have edit rights to the folder where the models are saved should be limited.
- Before any material changes are made to the model suite it is recommended that a copy of the model suite is saved as a backup, in case the workbooks or links become corrupted during the process of implementing the material changes.
- The person preparing the revenue scenario adds a worksheet to the 'Scenario Summary' workbook for the sole purpose of storing a 'locked down' version of the scenario outputs (as values) so that PWC can ensure no changes have been made to the models once a scenario is deemed 'locked down'.

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