

Port of Melbourne



2019 - 2020 TARIFF COMPLIANCE STATEMENT

Regulatory model user guide

31 May 2019



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Abbreviations and acronyms

| Abbreviation / acronym | Description |
|------------------------|------------------------------------|
| ABBM | Accrual Building Block Methodology |
| ABS | Australian Bureau of Statistics |
| ARR | Aggregate Revenue Requirement |
| Capex | Capital Expenditure |
| CPI | Consumer Price Index |
| ESC | Essential Services Commission |
| GST | Goods and Services Tax |
| GT | Gross Tonne |
| ICB | Initial Capital Base |
| Opex | Operating Expenditure |
| PCP | Port Capacity Project |
| PMA | Port Management Act |
| Required Revenue | ARR based on the ABBM |
| SL depn | Straight Line Depreciation |
| Tariffs | Tariffs for Prescribed Services |
| TEU | Twenty-Foot Equivalent Unit |
| The Model | The Regulatory Model |
| TAL | Tariffs Adjustment Limit |
| TCS | Tariff Compliance Statement |
| WACC | Weighted Average Cost of Capital |
| WATI | Weighted Average Tariff Increase |

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1. Introduction

Model purpose

The regulatory model (the Model) calculates two revenue streams for the upcoming regulatory period:

- Forecast Revenue – prescribed service revenue (subject to the TAL) and revenue from legacy contracts with Port Users for prescribed services, and
- Aggregate Revenue Requirement (ARR) based on the accrual building block methodology (ABBM) – referred to as Required Revenue.

The Model calculates the above in accordance with the requirements of the Pricing Order.¹ The Model also calculates tariffs for Prescribed Services (tariffs) for the upcoming regulatory period, also in accordance with the Pricing Order.

The Model also tests whether the tariffs for the relevant regulatory period comply with key requirements of the Pricing Order.

Attachment 1 sets out the key Pricing Order requirements for calculating revenue and tariffs.

Version and review

The Model was first developed in early 2019 and forms part of Port of Melbourne's (PoM) 2019-20 tariff compliance statement (TCS) to the Essential Services Commission of Victoria (ESC) for the period 1 July 2019 to 30 June 2020.

The Model increases simplicity and transparency in response to the ESC's feedback on PoM's 2017-18 and 2018-19 TCSs.

The Model will be updated each year to support PoM's future annual TCS submissions to the ESC.

Tariffs

Actual tariffs are input to the **Data** sheet along with those proposed for the upcoming regulatory period. Although the Model can be populated with forecast tariffs out to the end of the (50 year) port lease period, it is not intended to calculate those tariffs.

Rather, tariffs for those years will need to be determined in a way that complies with the Pricing Order and may be affected by changes in demand, investment and any tariff re-balancing during the TAL period.

Port lease period

Although the port lease ends on 31 October 2066, the Model is set up with a 50 year horizon from 1 July 2016 out to 30 June 2066 to align with the regulatory years used to set tariffs (which run on an Australian financial year basis) and to simplify the depreciation and other calculations in the Model.

We would assess the length of the regulatory period and the smoothing of tariffs closer to the end of the port lease period, including to address the four month period from 1 July 2066 and 31 October 2066, once more information is available.

¹ Pricing Order made under the Port Management Act 1995 by the Victorian Government and gazetted on Friday 24 June 2016.

Structure of the user guide

This user guide is structured into three further chapters:

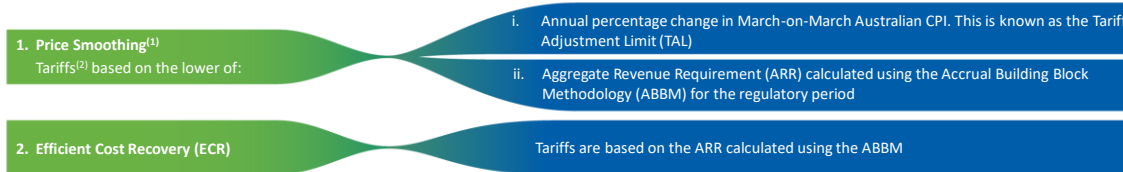
- Chapter **Error! Reference source not found.** provides background on the Model requirements
- Chapter 3 steps through each sheet of the Model, its purpose, and its structure
- Chapter 4 explains how to operate the Model, including to update key inputs.

2. Requirements for revenue and tariffs

Key pricing principles

There are two key pricing principles under the Pricing Order with which PoM’s tariffs must comply, as summarised in Figure 1.

Figure 1: Key pricing principles



- 1 Applies until at least 30 June 2032 and at the latest 30 June 2037 (TAL Period).
- 2 Except full out outbound container wharfage service tariffs – these will decrease by 2.5% p.a. until 30 June 2020.

PoM currently expects that tariffs (except for full outbound container wharfage services) will be subject to price smoothing through the application of the TAL and will therefore change in line with the annual increase in CPI during the TAL period. This is because tariffs implied by the ABBM are expected to be higher than tariffs subject to the TAL over this period (TAL period).

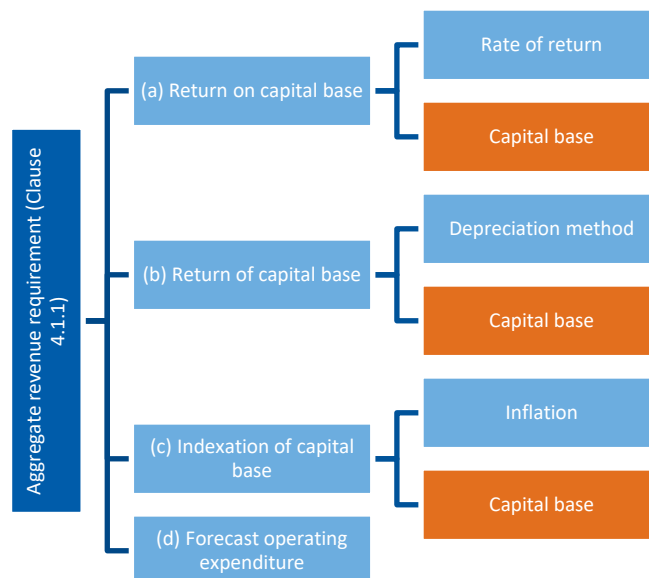
The Pricing Principles provide that tariffs must be set to allow PoM a reasonable opportunity to recover the efficient costs, as determined by the ABBM, of providing Prescribed Services.

Attachment 1 sets out further details on the key Pricing Order requirements for calculating revenue and tariffs.

Accrued Building Block Methodology

Figure 2 shows the ABBM components used to calculate the ARR. As highlighted in orange, three of the four building blocks that make up the ARR are derived from the capital base.

Figure 2: Diagrammatical representation of the aggregate revenue requirement



3. The Model

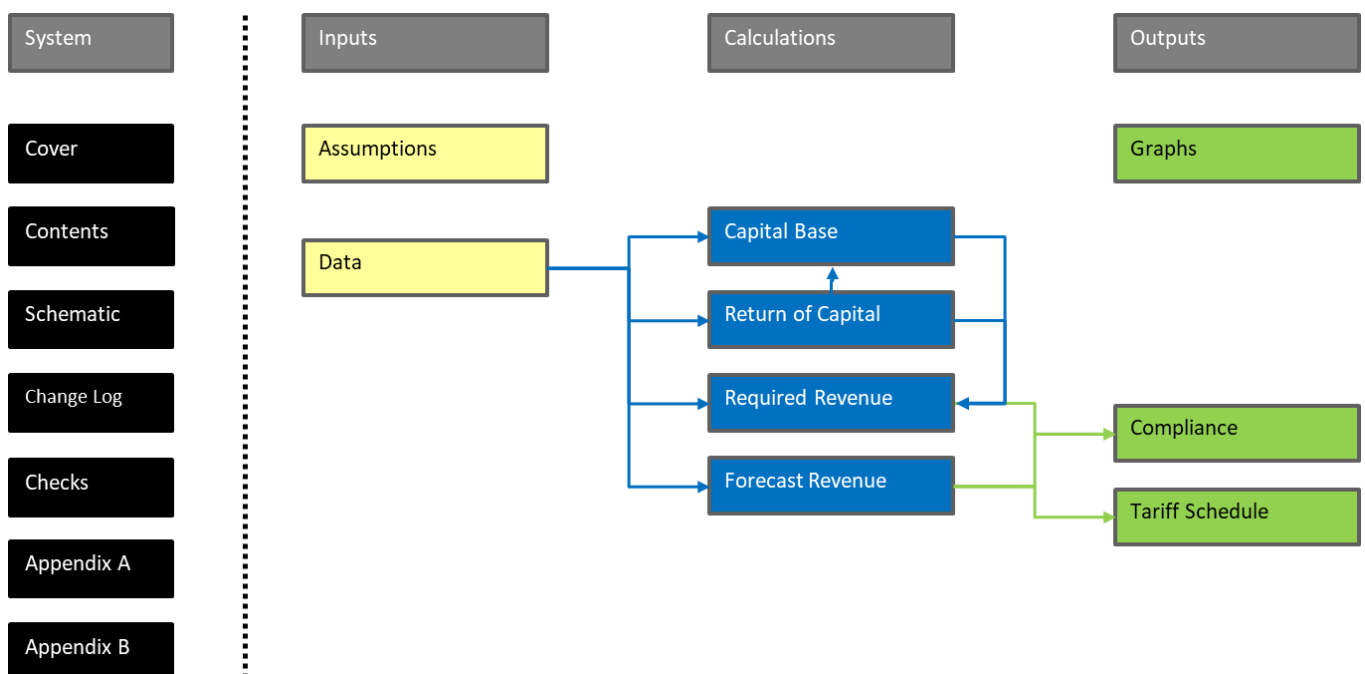
Overview

The Model is structured to separate system controls, inputs, calculations, outputs and appendices:

- System control sheets include the **Cover**, **Contents**, **Schematic**, **Change Log** and **Checks** sheets – which are used to help navigate and structure the Model
- Input sheets include **Assumptions** and **Data** – which are used to input all the data and user choices needed for the Model to work
- Calculation sheets include the **Capital Base**, **Return of Capital**, **Required Revenue**, and **Forecast Revenue** sheets – which are used to calculate the ARR (i.e. required revenue) and forecast revenue (i.e. prescribed service revenue (subject to the TAL) and revenue from legacy prescribed services contracts) that are used to demonstrate compliance with key Pricing Order requirements within the **Compliance** sheet
- Output sheets include the **Graphs**, **Compliance** and **Tariff Schedule** sheets – which provide the key outputs from the Model
- Appendix sheets include **Appendix A** and **Appendix B** sheets – which are not used by the other sheets but are included to show how some of the calculations work (e.g. depreciation).

The Model structure is summarised in Figure 3. The remainder of this chapter explains the purpose and operation of each of the system control, input, calculation and output sheets.

Figure 3: Model structure



Cover, contents and schematic sheets

The **Cover** sheet provides the base information about the Model. The **Contents** sheet lists and describes each sheet in the Model. The **Schematic** sheet includes Figure 3 above and relevant keys. The **Change Log** sheet includes a change

log for any changes from one version of the model to the next. As the version provided with the 2019-20 TCS is the first, there are no changes noted for it.

Assumptions sheet

The **Assumptions** sheet inputs key assumptions that drive the presentation of the Model. As shown in Figure 4, key assumptions include the:

- Model start date – the first year of the horizon shown in the Model
- Display years – identifying the relevant TCS year, ESC review period and regulatory period, which are then displayed at the top of all relevant input, calculation and output sheets
- Port lease period – identifying the years that apply to the port lease
- TAL period – identifying the years that apply to the TAL period.

The **Assumptions** sheet also includes key defined values used within the Model, such as ‘Half’, ‘Million’ and ‘Subsection’ (which is used to number subsection headings).

Figure 4: Assumptions sheet

| Port of Melbourne Regulatory Model (Commercial in Confidence) | | |
|---|-------|-----------|
| 4 Assumptions | | |
| No errors identified | | |
| [To Contents] | | |
| 4.01 Year Assumptions | | |
| This table inputs key dates and defined values used to structure the model. | | |
| All references to 'years' are July to June years unless otherwise stated. | | |
| Model Start | | |
| First year | Year | 2015 |
| Period start | Date | 01-Jul-14 |
| Period end | Date | 30-Jun-15 |
| Display Years | | |
| Tariff Compliance Statement Year | Year | 2020 |
| ESC Review Period | | |
| First Year | Year | 2017 |
| Last Year | Year | 2021 |
| Regulatory Period | | |
| First Year | Year | 2020 |
| Last Year | Year | 2020 |
| Port Lease | | |
| First year | Year | 2017 |
| Term | Years | 50 |
| Tariff Adjustment Limit (TAL) Period | | |
| First year | Year | 2017 |
| Last year | Year | 2031 |
| Defined Values | | |
| Half | Value | 0.5 |
| Million | Value | 1,000,000 |
| Subsection | Value | 0.01 |
| END | | |

Data sheet

The **Data** sheet enables inputs for inflation, rate of return, capital base, capital expenditure, operating expenditure, tariffs, volumes and other revenue – all in separate tables.

The inflation, rate of return, capital base, and capital and operating expenditure data is used to calculate the ARR in the **Required Revenue** sheet, including via interim calculations in the **Capital Base** and **Return of Capital** sheets. The tariff, volume, and other revenue data is used to forecast total prescribed services revenue in the **Forecast Revenue** sheet.

The inflation (5.02) and rate of return (5.03) tables cover:

- actual and forecast inflation inputs for each year used to escalate the port licence fee, tariffs and the capital base, including the consumer price index (**CPI**) for both the weighted average of the eight capital cities and for Melbourne, and
- the pre-tax nominal rate of return required by Clause 4.3 of the Pricing Order that is used to calculate the return on capital component of the ARR.

Cells F37:G37 can be used by the Model User to nominate what data is used to determine inflation calculated from the weighted average of eight capital cities CPI, including the quarter and whether a lagged series is used or not.

If actual CPI inputs are not available for a given year, then the forecast inflation inputs are used instead to determine the inflation for that year used throughout the model.

The capital base sheet (5.04) includes:

- the initial capital base (**ICB**) by asset class as at 1 July 2016, which matches that reported in Clause 4.7 of the Pricing Order and including the value of the PCP capital expenditure referred to in Clauses 4.2.3 and 4.7.2 of the Pricing Order
- the remaining life of the ICB, again by asset class that is used to depreciate the ICB in the **Return of Capital**
- the standard economic lives for each asset class, which is used to depreciate new capex in the **Return of Capital** sheet, and
- the initial unrecovered depreciation by asset class, which is set to zero and used as the opening balance for the unrecovered depreciation balance calculated in the **Return of Capital** sheet.

The capital expenditure (5.05) and operating expenditure (5.06) tables cover:

- actual and forecast gross capital expenditure (**capex**) for prescribed services by asset class
- actual and forecast capital contributions for prescribed services by asset class
- actual and forecast asset disposals for prescribed services by asset class, based on sale proceeds
- actual and forecast net capex, calculated as gross capex less capital contributions and asset disposals, and
- actual and forecast operating expenditure (**opex**) for prescribed services by category.

Capex and opex include expenditure for prescribed services, including those covered under legacy contracts rather than by prescribed service tariffs.

The tariff setting parameters table (5.07) includes for each tariff:

- the initial tariff included in the schedule to the Pricing Order
- a unique tariff index that is used to reference the tariff and volume data in calculations throughout the model
- the rounding applied
- a flag for whether the tariff is subject to export price decision or not, as referred to in Clauses 2.3.1, 3.2.1 and 14 of the Pricing Order, and

- a flag for whether the tariff is calculated as a ratio of another tariff and, if so, the ratio and the index for the tariff used to calculate the tariff.

The prescribed service tariffs (5.08) and prescribed service volumes (5.09) tables include:

- actual and proposed tariffs, which can be input either as hard coded values or as calculations using the inputs in the tariff setting parameters table (5.07), and
- actual and forecast volumes by tariff.

The other prescribed services revenue table (5.10) includes:

- actual and forecast revenue from legacy contracts with Port Users for prescribed services that have costs included in either the initial capital base or actual and forecast expenditure and which is not covered by the prescribed services tariffs included in table 5.08.

All financial data should be entered in nominal dollars (i.e. dollars of the day incurred), unless otherwise stated. Inputs should be included for all years up to and including the TCS year nominated at Cell F17 of the **Assumptions** sheet. Inputs can be included – but are not required – for all years of the port lease period.

Throughout the sheet, inputs can be marked as either ‘Actuals’, ‘Forecasts’ or ‘Update’ – which are used to identify the status of the data. ‘Actuals’ are data sourced from historical records, such as internal financial systems or external data providers such as the Australian Bureau of Statistics (**ABS**). ‘Forecasts’ are estimated data either determined by the Port of Melbourne or provided by an external party. ‘Update’ is data that is a placeholder that needs validating or updating with an actual or forecast and is used when populating the model before it is submitted to the ESC.

Capital Base sheet

The **Capital Base** sheet rolls forward the capital base as required by Clause 4.2 of the Pricing Order. The capital base for a given year includes any unrecovered straight-line depreciation from prior years.

The roll-forward is summarised in table 6.03 in aggregate and detailed in table 6.04 by asset class. Each year, the capital base is rolled forward by adding indexation and new net efficient capex to the opening value and removing any return of capital, as required by Clause 4.2:

- The opening capital base in the first year matches that initial capital base set out in Clause 4.7 of the Pricing Order. For subsequent years the opening balance simply matches the closing balance from the immediately preceding year.
- Indexation is calculated on the opening capital base and any new net capital expenditure for a given year and asset class. As per Clause 4.6.1, this includes a half year of inflation on new net capital expenditure.
- New net efficient capital expenditure for a given year and asset class is sourced from the Data sheet. As per Clause 4.2.1(c) of the Pricing Order, that expenditure is deemed to be incurred as the mid-point of the year.
- The return of capital calculated on the Return of Capital sheet, which is calculated as per Clause 4.4 of the Pricing Order.
- The closing balance of the capital base is then calculated by adding indexation and new net capital expenditure to the opening balance and removing any return of capital, as per Clause 4.2.1 of the Pricing Order.

The capital base is used in the **Required Revenue** sheet to calculate the ARR.

Return of Capital sheet

The **Return of Capital** sheet calculates the return of capital that is a deduction to the capital base (in the **Capital Base** sheet) and a component of the ARR (in the **Required Revenue** sheet).

The rate of return calculation recognises that in some years – especially over the TAL period – some or all of depreciation calculated using the straight-line method, described in Clause 4.4.1 of the Pricing Order, may not be recovered in the year, to which it relates. This is because, the application of the TAL prevents PoM increasing its tariffs to the level whereby PoM could recover its ARR with the application of straight-line depreciation. In such cases, clause 4.4.2(a) of the Pricing Order provides that an alternative to the straight-line method may be used. The alternative depreciation methodology only applies depreciation to the extent that forecast revenue from prescribed services (including legacy contract revenue) exceeds the ARR excluding the depreciation allowance.

To give effect to this, the Model uses a five-step process:

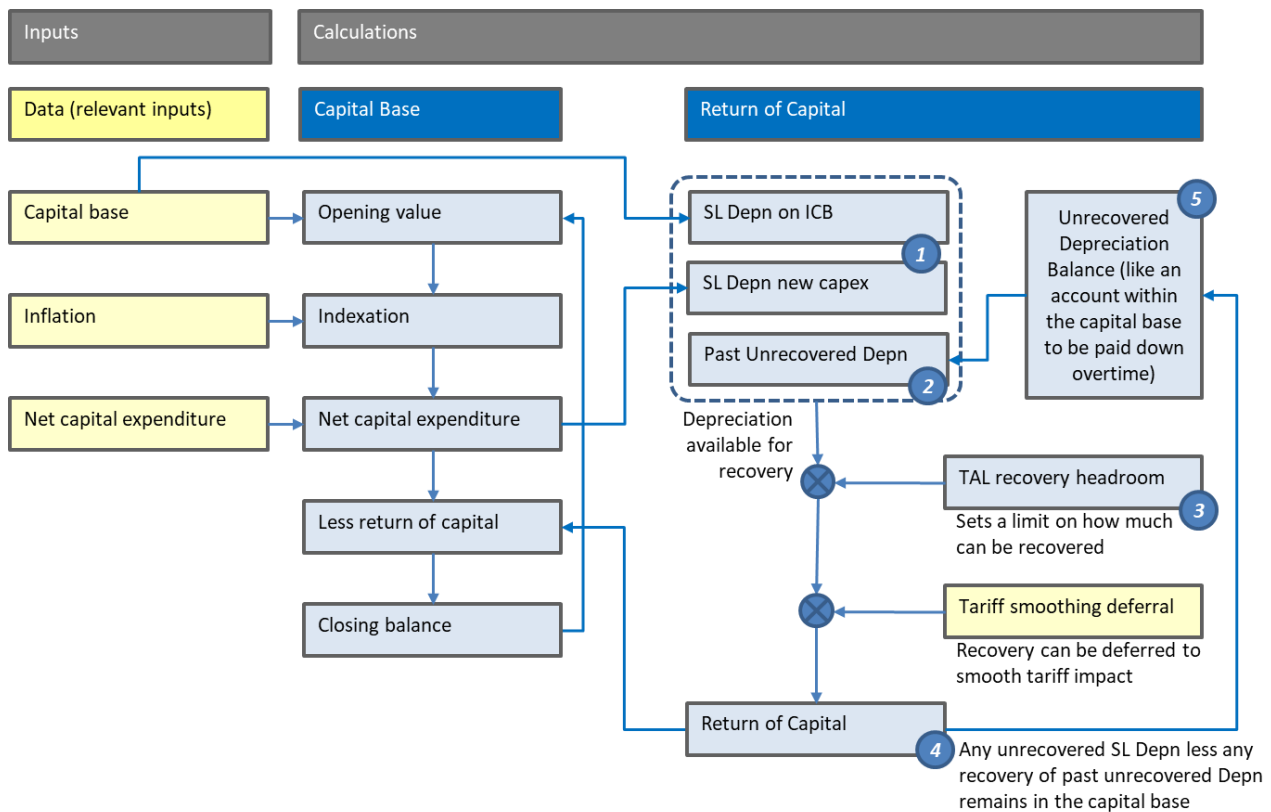
- *Step 1* – straight line depreciation on the ICB and new capex is calculated for a given year, independent of what has been returned (via the return of capital component of the ARR)
- *Step 2* – the depreciation from step 1 for a given year is combined with the balance of depreciation from prior years that has not yet been recovered to give the total depreciation that is available for recovery in that year
- *Step 3* – the headroom between the forecast revenue (during the TAL period) and the other components of the ARR (i.e. the return *on* capital, indexation and forecast opex) is calculated
- *Step 4* – the return of capital is calculated as the minimum of the depreciation available for recovery calculated in step 2 and the headroom calculated in step 3, reduced by any user nominated deferral (discussed below)
- *Step 5* – any unrecovered straight-line depreciation from a given year is added to the closing balance of the unrecovered depreciation balance for that year (to be used to determine the return of capital for the next year).

To allow for deferral of depreciation available for recovery, the Model user can input non-negative values (between 0 and 1 inclusive) for each year at row 69. These inputs may be used to give effect to an alternative depreciation method contemplated by Clause 4.4.2(b); and is particularly relevant for the years immediately after the end of the TAL period where a build-up of unrecovered depreciation during that period may otherwise lead to significant changes in prescribed services tariffs. The user nominated deferral values are set to zero by default.

The Model also allows for past headroom values to be input by the Model User at row 70. This can be used to fix the amount of headroom calculated under step 3 for a forecast year when it comes to roll-forward the capital base using actual expenditure and inflation. This is discussed further in Chapter 4.

The five-step process – along with the interactions with the **Data** and **Capital Base** sheets – is summarised in Figure 5. The relevant inputs from the **Data** sheet are shown in the yellow boxes on the left. The interactions with the calculations in the **Capital Base** sheet are shown next to those with the **Data** sheet. The return on capital calculations are summarised on the right, marked with the numbers (in blue circles) corresponding to the five steps noted above.

Figure 5: Return of capital calculation



The calculations are split up across tables as follows:

- Table 7.03 calculates the return of capital covered by step 4, the TAL recovery headroom covered by step 3, and allocates the return of capital across the sources of depreciation covered by steps 1 and 2.
- Table 7.04 calculates the return of capital by asset class, which is needed to roll-forward the capital base by asset class in the **Capital Base** sheet.
- Table 7.05 calculates the straight-line depreciation on both the ICB and new capex for each year of the port lease period in two separate calculation blocks: for the ICB at rows 139:161 and for new capex at rows 166:188. As a check in columns F, H and I, the total straight-line depreciation (**SL Depn**) by asset class for both blocks is compared to the ICB or the sum of capex in real dollar terms.
- Table 7.06 calculates the life to apply to new capex in the calculations included in Table 7.05. For a given year and asset class the life is calculated as the minimum of the standard economic life input to the **Data** sheet and the remaining term of the port lease period, consistent with what is required by Clauses 4.4.1(a) and 4.4.1(b) of the Pricing Order.
- Table 7.07 summarises the unrecovered depreciation balance, which operates much like the capital base calculated in the **Capital Base** sheet. The opening balance for the first year is set to zero in the **Data** sheet and set to the closing balance of the prior year for all other years of the port lease period. Indexation is applied to the opening balance as well as any new unrecovered straight-line depreciation for a given year. The balance is reduced by any recovery of unrecovered depreciation through the return of capital.

Importantly, the unrecovered depreciation balance sits within the capital base calculated in the **Capital Base** sheet. That is, any unrecovered depreciation remains within the capital base until it is recovered through the return of capital component of the ARR.

Depreciation of new capex is calculated using array formulas. To demonstrate that these are accurate a full waterfall calculation (for a user selected asset class) is included in the **Appendix A | Depreciation** sheet (which is further discussed below). That sheet is not used to calculate the ARR.

Required Revenue sheet

The **Required Revenue** sheet calculates the ARR for each year as per Clause 4.1.1 of the Pricing Order, which combines four components:

- a return on capital allowance calculated by summing:
 - a return on the opening balance – calculated by multiplying the opening balance of the capital base calculated in the **Capital Base** sheet by the pre-tax nominal rate of return input from the **Data** sheet, and
 - a return on new net efficient capex – calculated by multiplying new net efficient capex from the **Data** sheet by half the rate of return²
- a return of capital allowance calculated in the **Return of Capital** sheet
- a forecast opex allowance sourced from the **Data** sheet, and
- an indexation allowance calculated in the **Capital Base** sheet.

Unlike other equivalent calculations that use a ‘post-tax’ framework to apply the accrued building block methodology, the calculation specified in Clause 4.1.1 does not separately include a tax allowance component (or building block). Instead, estimated tax costs are included within the return on capital allowance by using a nominal *pre-tax* rate of return.

Table 8.03 calculates required revenue. At rows 41:43 it removes forecast revenue from the **Forecast Revenue** sheet to determine the share of the ARR that is under-recovered.

Table 8.04 provides an alternative presentation of the ARR that excludes unrecovered depreciation. The unrecovered depreciation balance is summarised in table 8.05 and sourced from the **Return of Capital** sheet. The check at cell G74 confirms that the balance of unrecovered depreciation by the end of the port lease period is zero.

Table 8.06 summarises the capital base calculated in the **Capital Base** sheet. The check at cell G87 confirms that the capital base is zero by the end of the port lease period. If this were positive, then it would show that the Port of Melbourne is not expected to – or has indeed not – recover its capital base.

Forecast Revenue sheet

The **Forecast Revenue** sheet forecasts total prescribed services revenue by adding:

- prescribed services revenue (subject to the TAL), and
- revenue from legacy contracts with Port Users for prescribed services.

Table 9.03 combines both prescribed services revenue (subject to the TAL) and legacy contract revenue (for prescribed services) for each year to calculate total prescribed services revenue, by tariff type. Legacy contract revenue is included as required by clause 6.2.2(b) of the Pricing Order.

Table 9.04 calculates the weighted average tariff increase (WATI) from prescribed services tariffs including and excluding tariffs subject to the export pricing decision. The two WATI values for a given year will differ if the tariffs subject to the export pricing decision change from the prior year by a different percentage to the other prescribed services tariffs.

Table 9.05 picks up the actual and forecast prescribed services tariffs from the **Data** sheet; while table 9.06 picks up the actual and forecast prescribed services volumes from the **Data** sheet. Table 9.07 multiplies the tariffs and volumes

² In this case, a ‘half’ rate of return is applied as a multiplicative half, which is equivalent to $(1 + [\text{annual rate of return}]/2)^2 - 1$.

from tables 9.05 and 9.06 to calculate the actual and estimated revenue from each prescribed services tariff for each year.

The revenue and WATI calculated values in this sheet are used in the **Compliance** sheet to test compliance with key requirements in the Pricing Order.

Graphs sheet

The **Graphs** sheet outputs two charts that are useful to illustrate the key revenue and capital base values calculated in the Model.

The first chart compares forecast revenue, ARR and unrecovered depreciation for each year. The second chart shows the capital base and the unrecovered depreciation balance for each year. The Model user can nominate the period to display for the charts by changing the years at cells E9:F9.

The charts are shown in table 10.01 while the data used to prepare them are shown in table 10.02.

Compliance sheet

The **Compliance** sheet shows whether key requirements in the Pricing Order are satisfied for the selected TCS year. If a requirement (or check) is not satisfied, then this triggers the error flag in the **Checks** sheet.

Table 11.01 checks that:

- forecast revenue from prescribed services (including from legacy contracts) does not exceed the ARR for the TCS year, consistent with Clause 2.1.1(a) of the Pricing Order
- the WATI does not exceed the TAL for the TCS, as required by Clause 3.1.1 of the Pricing Order
- the return of capital over port lease period does not exceed the undepreciated value of the ICB and new net efficient capex, as required by Clause 4.4.1(c).

Tariff Schedule sheet

The **Tariff Schedule** sheet outputs the tariffs for the selected TCS year in the format presented in the schedule to the Pricing Order, including by adding goods and services tax (**GST**).

The tariffs are sourced from the **Data** sheet. The Model user can nominate the GST adjustment at cell F8, with the default set to 10%.

Checks sheet

The **Checks** sheet includes a check from each of the Model input, calculation and output sheets – and based on the results of those checks provides an overall model check. If any of the sheet checks fails, then the overall model check fails and the message "*The model contains one or more errors*" is noted at the top of each sheet.

The check for a given sheet combines the results of the individual checks on that sheet, which vary by number and purpose depending on what is included in that sheet. Most checks seek to identify input or calculation errors. However, the checks on the **Compliance** sheet seek to identify any concerns against key requirements in the Pricing Order.

These checks are one tool to assist the Model user to review and validate the inputs, calculations and outputs in the Model. However, not all errors will be picked up by these checks. A model user should undertake care and diligence when operating the Model to ensure that its outputs remain accurate.

Appendix A and Appendix B sheets

The **Appendix A | Depreciation** and **Appendix B | Tariffs** sheets provide supplementary information. Although neither are used to calculate the ARR or forecast revenue or to test compliance in the **Compliance** sheet, they help inform the Model user about key calculations and inputs to the Model.

The **Appendix A | Depreciation** sheet shows that the array formulas used to calculate straight-line depreciation of net efficient capex are consistent with a longer-form waterfall method – where depreciation of each new year of net efficient capex for a given asset class is calculated on a separate row. The array method was used in the **Return of Capital** sheet, rather than the waterfall method, for efficiency reasons. If the waterfall method were used across all 20 asset classes and 50 years, this would require 1000 rows (i.e. 50 x 20).

The Model user can nominate what asset class to test using the drop down at cells H31:I31. The sheet then works by first sourcing straight line depreciation calculated for that asset class in the **Return on Capital** sheet and the net efficient capex and standard economic life from the **Data** sheet. The comparison between the two methods is undertaken in table 14.03. The depreciation calculated using the waterfall method is shown in table 14.04. If the values at row 40 are zero, then the two methods give the same values for each year of the port lease period – which is expected.

The **Appendix B | Tariffs** sheet compares the difference between tariffs for a given year that are calculated by indexing the initial tariffs set out in the Pricing Order and tariffs that are calculated by inflating tariffs from the immediately preceding year. Absent rounding, the two tariffs for a given year would be the same. Rounding, however, does lead to some small differences.

Table 15.03 sources the tariff setting parameters from the **Data** sheet. Table 15.04 calculates tariffs by indexing the initial tariffs (i.e. approach one). Table 15.05 calculates tariffs for a given year by inflating the prior year's tariffs (i.e. approach two). And table 15.06 calculates the difference between the two.

This comparison is important because it shows that even after the full port lease period the difference in tariffs between the two approaches is small – with the largest difference being about 6 cents (based on a given set of inflation forecasts). Using alternative inflation will change the results; however, the impact is not expected to be significant.

4. Operating the Model

Inputting assumptions and data

All inputs to the Model are contained within the **Assumptions** and **Data** sheets. The only exceptions are specific model user inputs in the following sheets:

- **Return of Capital** – any nominated deferral of depreciation
- **Graphs** sheet – the years displayed in the charts
- **Tariff Schedule** sheet – the GST adjustment to apply to tariffs
- **Appendix A | Depreciation** – the asset class to compare the waterfall and array depreciation calculations for.

To update the Model from one TCS year to the next:

1. Update the TCS year in the **Assumptions** sheet and the ESC review and regulatory periods if relevant – for instance, if the model is being used to apply to the 2020-21 TCS and there is only a one-year regulatory period, then cells F17, F22 and F23 should be set to 2021
2. Update the inputs in the **Data** sheet to ensure that all data is included for the TCS year, including the proposed tariffs
3. Check that the compliance checks in the **Compliance** sheet are passed – if not, then consider revising the inputs in the **Data** sheet, and most likely the proposed tariffs.

Applying these steps will update the outputs in the **Graphs**, **Compliance** and **Tariff Schedule** sheets.

Using Model outputs

The compliance checks are output in the **Compliance** sheet and can be used to check whether the proposed tariffs satisfy key requirements of the Pricing Order. In this way, the Model can be used to help demonstrate compliance with the Pricing Order.

The Model also provides outputs that can be used in the TCS itself. For instance, the charts in the **Graphs** sheet can be used to illustrate the actual and forecast revenue and the capital base. The tariffs in the **Tariff Schedule** sheet can be used to present the proposed tariffs in a way consistent with how the initial tariffs are shown in the Pricing Order.

Adding new tariffs

The Model is set up to allow for new prescribed services to be added. For instance, the tariff and volume inputs in the **Data** sheet allow for up to five further prescribed service tariffs to be included. Using these spare service inputs does not require any changes to the model structure.

If more than five new prescribed services need to be inserted, or the structure of existing prescribed services changed, then this may require changes to the structure of the model. This will involve tracing through the dependencies of the inputs to ensure that calculations that depend on them continue to work – and, in particular, the **Data**, **Forecast Revenue**, **Tariff Schedule** and **Appendix B | Tariffs** sheets.

Changes to the Model structure should be issued as a new version of the model, with any changes captured in the change log included in the **Change Log** sheet.

Fixing the return of capital

The Model is set up to allow for past TAL recovery headroom to be fixed based on the forecasts used for those years; by inputting values at row 70 of the **Return of Capital** sheet for years prior to the TCS year.

The TAL recovery headroom for a prior year could be fixed at the value previously forecast for that year (e.g. when determining tariffs for that year). Whether this is done will depend on the approach used to roll-forward the capital base from time to time.

Extending the regulatory period

The **Compliance** sheet currently compares revenue and tariffs for a single (TCS) year.

If the regulatory period is set longer than a year, then an additional calculation may be needed to compare forecast revenue from prescribed services against the ARR. This could be done by comparing the net present value of both forecasts over the regulatory period.

Attachment 1 Pricing Order Requirements for calculating revenue and tariffs

The key Pricing Order requirements for calculating tariffs are set out below.

Clause 2.1.1 sets out key pricing principles for setting prescribed service tariffs:

Prescribed Service Tariffs must be set so as:

- (a) *to allow the Port Licence Holder a reasonable opportunity to recover the efficient cost of providing all Prescribed Services determined by application of an accrual building block methodology of the type described in clause 4 (**Aggregate Revenue Requirement**); and*
- (b) *subject to clauses 2.1.1(a), 2.2, 2.3.1 and 3, to allow the Port Licence Holder a reasonable opportunity to recover, for each Prescribed Service Bundle, revenue that:*
 - (i) *does not exceed an upper bound representing the stand alone cost of providing the Prescribed Service Bundle; and*
 - (ii) *does not fall below a lower bound representing the avoidable cost of not providing the Prescribed Service Bundle.*

The 'Aggregate Revenue Requirement' is set out in clause 4.1.1 as:

For the purposes of determining its Aggregate Revenue Requirement, the Port Licence Holder must apply an accrual building block methodology over the Regulatory Period comprising:

- (a) *an allowance to recover a return on its capital base, commensurate with that which would be required by a benchmark efficient entity providing services with a similar degree of risk as that which applies to the Port Licence Holder in respect of the provision of the Prescribed Services (see clauses 4.2 and 4.3);*
- (b) *an allowance to recover the return of its capital base (see clause 4.4); and*
- (c) *an allowance to recover its forecast operating expenses, commensurate with that which would be required by a prudent service provider acting efficiently (see clauses 4.5); less*
- (d) *an indexation allowance (see clause 4.6).*

The default depreciation method used to calculate the return of the capital base is set out in clause 4.4.1 as:

Subject to clauses 4.4.2 and 4.4.3, for the purposes of clauses 4.1.1(b), depreciation must be determined so that each asset or group of assets used to provide the Prescribed Services is depreciated using a straight-line methodology over a period that is:

- (a) *no shorter than the reasonable economic life of the relevant asset or the remaining term of the Port Lease (whichever is shorter); and*
- (b) *no longer than the remaining term of the Port Lease,*
(Depreciation Period); and
- (c) *only once, meaning that the amount by which the asset or group of assets is depreciated over the Depreciation Period does not exceed the value of the asset or group of assets at the time of its or their inclusion in the capital base.*

An alternative to the straight-line depreciation method may be used in certain circumstances, as set out in Clause 4.4.2:

The Port Licence Holder may only use an alternative to the straight-line methodology to be applied under clause 4.4.1 if:

- (a) *the application of clauses 3.1.1 means that the return of capital derived using a straight-line depreciation methodology is not capable of being recovered in the applicable Financial Year; or*
- (b) *the alternative depreciation methodology is reasonably likely to reduce the variance in the expected annual percentage changes of Prescribed Services Tariffs through to the end of the Port Lease.*

Clause 3.1.1 describes the tariffs adjustment limit requirement:

In addition to complying with clause 2, the Weighted Average Tariff Increase implied by the Prescribed Service Tariffs set by the Port Licence Holder in respect of any Financial Year commencing on or after 1 July 2017 must not exceed the Tariffs Adjustment Limit.

Clause 3.2.1 describes the limits on tariff revisions where there is no rebalancing:

Subject to the Commission's acceptance of a Final Rebalancing Application under clause 3.2.18 (or pursuant to an appeal under Part 7 of the Essential Services Commission Act 2001 (Vic)), the Port Licence Holder may only revise each Prescribed Service Tariff (other than, in the period prior to the start of the 2020 Financial Year, Prescribed Service Tariffs that are subject to the Export Pricing Decision) in respect of a Financial Year by the same percentage adjustment.

The 'Weighted Average Tariff Increase' (**WATI**) is defined in clause 14 as:

***Weighted Average Tariff Increase** means, in respect of a Financial Year, the expected weighted average rate of increase in the Prescribed Service Tariffs using weightings based on historical revenues derived from the Prescribed Service Tariffs in the most recent Financial Year for which audited data are available or, if there is no historic audited data upon to calculate the expected weighted average rate of increase on this basis, an alternative estimate of revenue for the purpose of calculating weightings on a basis determined by the Commission.*

The 'Tariffs Adjustment Limit' (**TAL**) is defined in clause 14 as:

***Tariffs Adjustment Limit** means the percentage change in CPI between the March quarter immediately preceding the relevant Financial Year and the March quarter in the Financial Year two years preceding the relevant Financial Year.*