



Methodology for the Valuation of the National Ports Authority's Regulatory Asset Base

March 2018

1. Introduction

The Regulator has published a draft methodology and discussion paper entitled "A Methodology for the Valuation of Port Assets" on the 23rd of February 2018 for public consultation setting out the considerations in the treatment of the National Ports Authority's Regulatory Asset Base (RAB) going forward. The discussion document outlined various theoretical approaches to the establishment and treatment of an opening Regulatory Asset Base (RAB) as well as treatment of various asset classes within the RAB. The RAB is a critical element in the calculation of the Revenue Requirement and represents the value of the assets that the Authority is allowed to recover depreciation as a return *of* capital as well as to earn a return *on* capital through its tariffs. Public consultations and submission due date closed on the 22nd of March 2018 and a submission from the NPA was received.

2. Methodology

The methodology is premised on the principles of capital maintenance which presents the following approaches and which were comprehensively discussed in the discussion paper:

- Financial Capital Maintenance (FCM) is based on the Historic Cost (HC) and Trended Original Cost (TOC) models;
- Physical Capital Maintenance (PCM) is based on the Depreciated Optimised Replacement Cost (DORC) model; and
- Economic Capital Maintenance – asset values are calculated on a deprival value and Net Present Value and Deprival Value.

The Regulator concluded that the appropriate (minimum) criteria elements, as determined by the Regulator for the purpose of setting an appropriate RAB and asset valuation system must:

- Be based on a principled and sound rationale;
- Produce a reasonable asset value for existing assets;
- Result in an acceptable price-path;
- Ensure financial capital maintenance;
- Encourage efficiency and caution with respect to new investment decisions on the part of the NPA;
- Be reconcilable back to the NPA asset register, at least at a particular point in time; and
- Minimise regulatory information asymmetry problems.

The Regulator concluded that the TOC approach (Financial Capital Maintenance) based on the capitalisation dates and values in the NPA asset register best meets the criteria, however, some concerns related to the older assets capitalised before 1990 remain. Assets with capitalisation dates before 1990 will therefore be treated at historical costs. Here the assumption is that assets in existence by 1990 have been in existence for a long period of time and, for most of that time, have been depreciated on a trajectory following the historic cost method. The Regulator therefore treats these assets on the historic cost method, while treating any assets created from 1991 onwards on the basis of the TOC approach.

3. The following is the approach to be implemented:

3.1. TOC values provide a viable approach to setting the RAB and will be applied to new (post 1990 assets).

3.2. The Regulator will differentiate between assets in existence in 1990 and those with capitalisation dates after 1990 and will treat the older assets on a Historical Cost basis.

3.3. The Regulator will allow the NPA 60 days from publication of this Methodology to correctly allocate capital maintenance applied to pre-1990 assets as appropriate in the asset register on condition of:

- 3.3.1. Evidence of each capital maintenance project must be provided on a case-by-case basis.
- 3.3.2. All relevant expenditure and adjustments to the remaining useful lives of these assets as a result of the relevant capital expenditure must be detailed and provided to the Regulator on each capital asset.
- 3.3.3. These capital maintenance line items must be allocated separate asset numbers and allocated to the appropriate capitalisation dates for inclusion in the asset register.
- 3.3.4. These assets will thereafter, if to the satisfaction of the Regulator, be considered for treatment on a TOC basis.

3.4. On application by the NPA as part of its annual Tariff Application, the Regulator may, in considering the revenue impact of the implementation of the methodology decide to accelerate the depreciation period of the pre-1990 assets in order to smooth out the revenue impact thereof.

4. RAB Rules

The RAB covers all assets employed/owned by the NPA in the provision and supply of port capacity and services. The following are the conditions that must be met in order to include an asset in the RAB. The following rules set out the criteria for inclusion and valuation of assets and treatment of maintenance on the RAB:

4.1. Prudency test applicable to new and used assets for inclusion in the RAB

The amount by which the capital base may be increased in any specific year is the amount of the actual project capital expenditure incurred in that specific year provided that:

- 4.1.1. The amount does not exceed the amount that would be invested by a prudent landlord port owner acting efficiently in accordance with good industry practice to achieve the lowest sustainable cost of delivering the required services; and
- 4.1.2. A least one of the following conditions is satisfied:
 - a) The anticipated incremental revenue (subjected to the claw back mechanism in outer years if found to not true) generated by the capital expenditure exceeds the investment cost;
 - b) The NPA can satisfy the Regulator that the new capital expenditure has system wide benefits that in the Regulator's opinion justify its inclusion in the capital base; or
 - c) The new capital expenditure is necessary to maintain safety and integrity in the system.
- 4.1.3. Fixed assets must be long-term in nature and must be operationally used and useable;
- 4.1.4. Fixed and other assets that are not in an operationally used and useable (useful) form will not be included in the RAB;
- 4.1.5. Used and useable means that assets should be in a condition that makes it possible to supply demand for port services in the short to medium-term (within 12-36 months).
- 4.1.6. Assets will be included in the RAB and subjected to the TOC methodology as set out if the expected life of the asset exceeds 5 years.
- 4.1.7. All assets with 5 or less years (i.e. depreciation periods of 5 years or less at the acquisition of said assets will attract straight line depreciation to be included in the tariff calculation). Maintenance on these "short term assets" may have maintenance costs included if used beyond full depreciation.
- 4.1.8. The NPA shall with each tariff application provide a list of temporary and long term unused assets (i.e. all assets not used operationally). This list will be published

- 4.1.9. In addition, all capital expenditure must be approved by formal PCC and NPCC resolutions.¹
- 4.1.10. All capital expenditure must be submitted to the Regulator on an annual basis as part of the Annual Tariff Application for consideration by the Regulator on 1 August of every year.

4.2. Calculation of the RAB

- 4.2.1. Working capital will be included in the RAB for the purposes of calculating the return as per the Tariff Methodology.
- 4.2.2. The return on capital will be based on the trended original cost (TOC) value of the assets (for assets with capitalisation dates post 1990) and historical cost value for assets predating 1990 to ensure financial capital maintenance.
- 4.2.3. A *real* return will be applied in the case of assets that is valued on a TOC basis and a *nominal* return will be applied to the HC asset values in the RAB.
- 4.2.4. The net TOC value is determined by calculating the accumulated and annual depreciation on a straight line basis over the elapsed life for those assets that are depreciated (with appropriate adjustments for refurbishments etc.).
- 4.2.5. The historic asset base as at 31 March 1990 will be used as an opening asset base (This asset base will be used as a basis to determine the current trended net value of NPA's assets).
- 4.2.6. Concession funded assets and prepayments (e.g. concessions that resulted in assets transferring back to the NPA) will be recorded on the regulatory asset base at the NPV of the actual market related rental, i.e. rental will be assumed on par with the WACC return at a minimum.

$$\text{i.e. NPV} = (\text{Rental revenue less costs less tax}) / \text{WACC.}$$

4.3. RAB Depreciation

- 4.3.1. Accumulated depreciation is the cumulative straight line depreciation of regulated property, plant and equipment.
- 4.3.2. The depreciation should be calculated on historical cost of an asset (this is independent of the amortization of the revaluation amount) and based on the remaining useful life of each asset; See Annexure A.
- 4.3.3. The total accumulated depreciation and accumulated amortisation is deducted from the TOC cost of the RAB to obtain the regulatory asset base on which to calculate the return. See Annexure A.

¹ This is in part to dis-incentivise the over-investment or replacement of fully functional and usable assets early.

- 4.3.4. Mothballed and/or impaired assets will not earn a return although the maintenance of mothballed assets with a definite plan for future use, will be allowed in the operating expenses.²
- 4.3.5. Similarly, the maintenance on assets still in use, but fully depreciated, will be allowed in the operating expenses.
- 4.3.6. A complete list of assets in this category must be compiled and updated on an annual basis by the NPA.

4.4. Treatment of Maintenance

- 4.4.1. Maintenance to be treated as *operational expenditure* (i.e. not capitalised and included in the RAB) for purposes of tariff calculation will be defined as: “work undertaken within the port system with the intention of:
 - a) re - instating the physical condition of an asset to a specified standard (e.g. dredging to the specified depth).
 - b) preventing further deterioration or failure.
 - c) restoring correct operation within specified parameters.
 - d) replacing *components* of assets at the end of their useful/economic life with modern engineering equivalents.
 - e) making temporary repairs for immediate health, safety and security reasons.
 - f) assessing assets for maintenance requirements (e.g. to obtain accurate and objective knowledge of physical and operating condition, including risk and financial impact, for the purpose of maintenance)”.
- 4.4.2. Maintenance or projects that **may be included** in the RAB as *capital expenditure* when it results in the following:
 - a) an increase in the asset’s useful function or service capacity (e.g. dredging to a greater than specified depth).
 - b) an extension of its useful life.
 - c) an improvement to the quality of the service(s) delivered through utilisation of the asset (e.g. the installation of a mooring system in Ngqura).
 - d) a reduction in future operating costs.
 - e) the upgrade or enhancement becoming an integral part of the asset.
- 4.4.3. Maintenance dredging must be subjected to the criteria above.

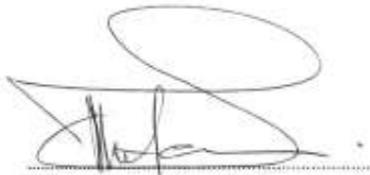
Annexure B summarises the treatment of different assets descriptions in the RAB.

² See annexure A for complete list of asset differentiation

5. Applicability of the RAB Valuation Methodology

This methodology is applicable in its approach to the valuation of the RAB and the calculation of the Required Revenue from the date of the application for the 2019/20 tariff expected on 01 August 2018 and future tariff years until reviewed or updated by the Regulator.

Any part of the current applicable Multi-Year Tariff Methodology (published March 2017) that contradicts this Valuation Methodology is hereby replaced by this Methodology.



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Annexure A

The example below illustrating the calculation of depreciations and the TOC value (for new assets and those that postdates 1990 capitalisation dates) of the RAB is based on the following basic assumptions:

- Historical cost of R100 m.
- Inflation 5% per Annum.
- Depreciation on a straight line basis over 30-years life of asset.
- Service life of the asset is 30 years.
- No adjustment in the Remaining Useful Life.

RAB Calculation		Yr 0	Yr1	Yr2	Yr29	Yr30	
		R'm					
Original Cost	1	100.00	100.00	100.00	100.00	100.00	
Capex	2	100.00	-	-	-	-	
Depreciated original cost brought forward	3	-	100.00	96.67	6.67	3.33	
Current period depreciation	2/RUL	4	-	3.33	3.33	3.33	
Depreciated original cost carried forward	3-4	5	100.00	96.67	93.33	3.33	
	6						
TOC opening balance	13	7	-	100.00	101.50	26.13	13.72
Accumulated trend	8		-	-	4.83	19.47	10.39
Current period trend	7*1pt	9	-	5.00	5.08	1.91	0.69
Trended balance on which return earned	8+9	10	-	5.00	9.91	20.77	11.07
Trend depreciation allowance	10/RUL	11	-	0.17	0.34	10.39	11.07
Accumulated trend carried forward	10-11	12	-	4.83	9.57	10.39	-
TOC closing balance	5+12	13	100.00	101.50	102.90	13.72	-
	14						
Total depreciation and amortisation	4+11	15	-	3.50	3.68	13.72	14.41
	16						
Regulatory Asset Base	3+10	17	-	105.00	106.58	27.44	14.41

Annexure B

Asset description	Remaining Useful Life	RAB depreciation and Valuation treatment	Maintenance allowed as part of operational expenditure	Return allowed (included in RAB calculation for return purposes)	Notes
Short term assets	5 years or less	Straight line Historical Cost	Yes	Yes	
Existing assets in use not fully depreciated	More than 5 years	TOC	Yes	Yes	
Existing asset in use-fully depreciated	Any	If leased – lease revenue will be assumed value If not leased (e.g. breakwater – maintenance on the asset may be capitalised)	Yes/optional	Allowed to capitalise maintenance. Value on RAB for return calculation will be 0.	Risk of gold plating requires prudency assessment and NPCC approval for capex inclusion in RAB
Assets no longer in use	Any	Removed from RAB	Yes	No	
Assets acquired for strategic purposes (E.g. land)	Any	Included in RAB	Allowed on a case by case basis	Return will be deemed equal to lease revenue. Value on RAB will be 0 until in use.	

Notes:

Capitalisation dates will be 1990 if no capitalisation date post 1990 is available