ANNEXURE 1

TRANSNET NATIONAL PORTS AUTHORITY

TARIFF METHODOLOGY REVIEW

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ABBREVIATIONS AND ACRONYMS

AER	Australian Energy Regulator
AFS	Annual Financial Statements
BER	Bureau of Economic Research
CAPEX	Capital Expenditure
CAPM	Capital Asset Pricing Model
CPI	Consumer Price Index
CWIP	Capital Work In Progress
DCT	Durban Container Terminal
DMS	Dimson, Marsh and Staunton
DOC	Depreciated Original Cost
DORC	Depreciated Optimised Replacement Cost
ECM	Economic Capital Maintenance
ETIMC	Excessive Tariff Increase Margin Credit
FCM	Financial Capital Maintenance
HC	Historic Cost
IBR	Incentive Based Regulation
IFRS	International Financial Reporting Standards
JSE	Johannesburg Stock Exchange
MRP	Market Risk Premium
NERSA	National Energy Regulator of South Africa
NPV	Net Present Value
NWC	Net Working Capital
OD	Operating Divisions
ODV	Optimised Deprival Value
Opex	Operating Expenses
PCM	Physical Capital Maintenance
PRSA / The Regulator	Port Regulator of South Africa
RAB	Regulatory Asset Base
RR	Revenue Requirement
RFR	Risk Free Rate
ROD	Record of Decision
RoR	Rate of Return
RORO	Roll on Roll off
SARB	South African Reserve Bank
SARS	South African Revenue Services
SOE	State Owned Enterprise
SRAB	Starting Regulatory Asset Base
SU	Specialist Unit
TNPA	Transnet National Ports Authority
TOC	Trended Original Cost
TOPS	Terminal Operator Performance Standards
VOA	Methodology for the valuation of the Authority's RAB
WACC	Weighted Average Cost of Capital
WACD	Weighted Average Cost of Debt
WEGO	Weighted Efficiency Gains from Operations

1.   Introduction

On 30 March 2017 the Ports Regulator of South Africa ("the Regulator") issued a Port Tariff Methodology ("Tariff Methodology"). The approved Tariff Methodology is multi-year in its approach (3 years) and allows for an annual review and an annual adjustment of tariffs within the three year period as opposed to fixing the prices for the full period.

The current Tariff Methodology was applicable from FY 2018/19 up to FY 2020/21 and is based on the Rate of Return methodology. Therefore, there is a need to review the tariff methodology that will be applicable from FY 2020/21 and going forward.

This exercise provides an overview of the Regulatory Regimes and alternatives to the rate of return regulation currently applied by the Regulator in the regulation of the port system. The exercise further provides an overview on the other elements of the methodology with alternatives and proposes the best practices that will ensure an efficient and financially sustainable port system. The aim of the exercise is to update the methodology to reflect the correct state of affairs as the regulation of the port system is moving from its infant to mature stage.

2.   Tariff Methodology Discussion Paper Salient Aspects

2.1   Appropriate Tariff Methodology Period

Current Approach

Tariff Methodology Applicable for a period of three (3) years. This is the current approach of the Regulator, wherein the Tariff Methodology is fixed for a period of three years. This approach was adopted by the Regulator when the Regulatory Framework was still at its infancy, and required a fair amount of revision and enhancement. Reviewing the Tarff Methodology, every three years, does not allow for the determination of a steady or smooth tariff trajectory (volatility in tariffs), and is not supported.

Alternative Approaches

i.   Tariff Methodology Applicable for a period of five (5) years. Since the inception of Regulation in 2006, and the issuance of the first Tariff Methodology in 2013, the Tariff Methodology has evolved significantly. This review, amongst others, aims to finalise the asset methodology approach. Constant "tweaking" of a methodology could result in tariff volatility. To provide a greater degree of certainty and predictability to stakeholders, a tariff methodology for a longer period, would be more appropriate.

ii.   Fixed Tariff Methodology. This considers a Tariff Methodology that is fixed indefinitely, but permits the review of the Tariff Methodology, if and when the need arises. The reviews could be triggered by a change or introduction of new policy; or simply a need to review elements within the methodology (e.g. appropriate use of ETIMC). This is the most common Tariff Methodology approach adopted by Regulators, specifically in South Africa. For example, the Multi-Year Price Determination Methodology, used to regulate the revenues of Eskom SOC Ltd ("Eskom") is fixed, but prescribes a tariff application period of three (3) years. Similarly, the Tariff

Methodology for Petroleum Pipelines and the Tariff Methodology for Petroleum Loading and Storage facilities is fixed in nature, with reviews undertaken when necessary.

The Authority's Proposal

At the onset on regulation, no approved tariff methodology existed, for the formulation of a tariff application. Over the years of regulation, this has evolved with three versions of tariff methodologies being approved by the Regulator. This has led to the establishment of a tariff methodology based on sound regulatory principles. Continuous review of a tariff methodology could create volatility to the tariffs and also creates an administrative burden which is not in the public interest.

As we move into a more mature space of regulation, a fixed tariff methodology is therefore proposed, to provide greater transparency, consistency and predictability to port users and stakeholders. A fixed tariff methodology provides for the flexibility of reviewing the tariff methodology, as and when the need arises.

Tariff Application Period: In the context of the current environment, with the fluctuation on operating and capital spend and the extent of the clawback, the current practice of a three year tariff application, with an annual review of the tariffs is supported (year 1 fixed tariff adjustment and subsequent three years indicative tariff adjustments).

2.2   The Appropriate Tariff Methodology

Current Approach

The current tariff methodology is a rate of return ("RoR") or revenue cap methodology, with elements of Incentive Based Regulation (IBR) being introduced into the model/formula. The Regulator states that the RoR methodology protects customers from excessive monopolistic prices, with the argument being that monopolistic firms should be required to charge prices that would prevail in a competitive market.

The RoR methodology allows for the recovery of costs as well as earn a fair return on capital employed. The Rate of Return may be set by using the Weighted Average Cost of Capital ("WACC"). The return is generally set commensurate with prevailing conditions in the market for funds. The returns from similar risk investments become the benchmark; and represents the opportunity cost if alternate investments forgone. The cost of capital, for the purposes of economic regulation, includes opportunity cost. The RoR has been criticized for creating inappropriate incentives to regulated firms (e.g. gold plating) and sometimes to potential new entrants into the industry.

Alternative Approach

Price Cap. Price Cap was originally developed and used in the United Kingdom in order to limit the abuse of market power. Price cap regulation sets a cap on the price that the regulated entity can charge. The cap is set according to several economic factors, such as the price cap index, expected efficiency savings and inflation. This is in contrast to RoR where total revenue is the regulated variable.

Under Price Cap, the regulated price is adjusted each year by the rate of inflation plus or minus some predetermined amount and without regard to the changes in the firm's profits. Price Cap is predominantly used in the telecoms and water sector, in the USA and New Zealand and other developing countries such as Malaysia, Mexico, and Peru. Argentina utilises price caps for electricity and gas as well.

Price Cap has the benefits of providing the regulated entity with strong incentives to reduce costs and improve efficiency whilst removing the negative incentive to "gold plate" costs. It also reduces the need for micromanaging the operations of the regulated entity. The success of a price cap regime is premised on allowing the regulated entity to keep, for the period of time profits it receives by improving efficiency. The real benefit in Price Cap is that the entity realizes its true abilities and in essence its efficiency capabilities.

The following are some of the advantage of Price Cap regulation:

- Price Cap regulation has a history of not working out as planned in other sectors and countries, however if agreed and set appropriately between the regulators and regulated entities allows the entity to keep (economic) profits above the cost of capital;
- It creates an environment where the regulated entity gradually and over time reduces the operating costs using approaches such as negotiating lower input costs with suppliers, decreasing overhead costs and obtaining a lower cost of capital etc.;
- Price Cap regulation also assists in reducing cross subsidisation and removes incentives for over investment in capital; and
- It is the best form of emulating the competitive market environment, where prices declines as productivity increases.

The following are the disadvantages associated with Price Cap regulation:

- The cost or total effort required to implement and apply price cap regulation: This relates to compliance costs and the resources required to manage and analyse the information required by the Regulator for pricing;
- The potential to set the price control too tightly or loosely: If the price cap is set too tightly, it can result in benefits to the customer at the expense of the regulated entity. If set too loosely, it may result in the regulated entity gaining excessive profits;
- The possibility of lowering service levels: In an attempt to reduce costs, it may result in the service levels of the regulated entity declining; and
- Aggressive incentive schemes lead to reduced Investments in infrastructure and maintenance in the long term.

The Authority's Proposal

The current Rate of Return/ Revenue Cap (Hybrid Approach) be maintained due to the following:

- Regulatory Best Practice. The National Energy Regulator of South Africa ("NERSA") is mandated to regulate the electricity, piped-gas and petroleum pipelines industries in South Africa. In terms of tariff regulation, NERSA adopts a Rate of Return methodology across all three industries. For the regulation of Eskom (Pty) Ltd, the Multi-Year Price Determination (MYPD) Methodology,

includes incentive based principles through the introduction of transmission and distribution service incentives and energy efficiency demand side management schemes.

In addition, regulation in the United States of America, Canada, Japan and the United Kingdom, is predominantly based on Cost of Service (or rate of return) regulation. In accordance, with tried and tested industry norms, it is proposed that the RoR methodology, with elements of IBR built in, be implemented for regulation of port pricing in South Africa.

- Tariff Strategy. The Tariff Strategy is premised on the RoR/ Hybrid Revenue Cap methodology. As we are still at the early stages of implementation (Year 3) of the Tariff Strategy, which is premised on the RoR methodology, it would make good sense to maintain the RoR methodology. The Global Port Comparator studies undertaken by the Regulator, indicates that gradual progress has been made in terms of alignment of tariffs to international benchmarks.

  In addition, the RoR provides the Authority with a level of protection/ security in mitigating volume risk and ensuring revenue certainty.

The introduction of Price Caps were considered and is currently not supported or proposed due to the discussions below, which in addition further support the need to maintain the RoR methodology:

- Infrastructure/ Capital Intensive Firms. Price Caps are typically set or a period of 5 years, with reviews undertaken at the end of the five year period. This therefore subjects a company to more risk. For example, if costs rise in a given year, whilst profits fall (if higher volumes or efficiencies do not materialise), it would not be able to raise prices immediately to compensate for the cost increases. This could only be done until the next review, which may be several years away. For a capital intensive firm like the Authority, currently implementing measures to improve efficiencies, it would not be beneficial to implement price cap regulation. With the RoR method, however, the required compensation of costs can be recovered within a year. Allowing for the recovery of adequate revenues/profit.

- Risk and the regulatory system. It is worth noting that under price cap, in contrast to the scenario painted above, the flip side of the coin also holds true i.e. if the cost reduces, it does become more advantageous to the firm, as it will allow for the retention of greater revenues/profits. This however means that the risk is borne by the firm, whilst under RoR the risk is borne by both the firm and consumers.

  The increased risk to the business, results in an increased cost of capital, and would be contrary to lowering the cost of doing business in South Africa.

  The aforementioned risk, which measures the capital cost of a firm, is measured by the Beta. The Beta is used worldwide as an important factor in decision making. The Beta measures the extent to which the firm's returns vary relative to those of a diversified portfolio of equity holdings. It indicates whether an investor with a diversified portfolio would take on more risk

by investing in a particular firm. The higher the beta, the bigger the increase in the riskiness of the investor's portfolio.

A study undertaken by the Oxford Economics Research associates for the World Bank, compared the Betas of firms subject to Price Cap Regulation to firms under rate of return regulation. The study confirmed that firms under price cap regulation have a higher Beta, than those subject to RoR regulation. Figure 1 below provides a summary of the results of the study:

Table 1: Average Infrastructure Firm Betas, By Country, Sector, and type of Regulation, 1990-94

TABLE 1   AVERAGE INFRASTRUCTURE FIRM BETAS, BY COUNTRY, SECTOR, AND TYPE OF REGULATION, 1990–94

Country	Electricity Regulation	Electricity Beta	Gas Regulation	Gas Beta	Combined gas and electricity Regulation	Combined gas and electricity Beta	Water Regulation	Water Beta	Telecoms Regulation	Telecoms Beta
Canada	—	—	—	—	ROR	0.25	—	—	ROR	0.31
Japan	ROR	0.43	—	—	—	—	—	—	ROR	0.62
Sweden	—	—	—	—	—	—	—	—	Price cap	0.50
United Kingdom	—	—	Price cap	0.84	—	—	Price cap	0.67	Price cap	0.87
United States	ROR	0.30	ROR	0.20	ROR	0.25	ROR	0.29	Price cap (AT&T)	0.72
									ROR (others)	0.52

— Not available or not applicable.

Note: The betas are asset betas that control for differences in debt-equity ratios between firms. ROR is rate-of-return regulation.

Source: Oxford Economic Research Associates, "Regulatory Structure and Risk: An International Comparison" (London, 1996).

When reviewing the results of the study it is worth bearing in mind, that the Asset Beta of the Authority, under RoR regulation, is 0.50. Based on the above, maintaining the RoR tariff methodology approach is proposed.

- Additional Comment: Elements of IBR. The ROR/Revenue Cap Methodology allows for the introduction of elements of IBR. One such IBR element introduced by the Regulator, is the Weighted Efficiency Gains from Operations ("WEGO"). Whilst additional IBR elements could be considered for incorporation into the tariff methodology, this should be established over time, when performance regarding operational and capital spend may be measured satisfactorily to determine or demonstrate that customer expectations are being met or exceeded.

- Additional Proposal: Timing of Tariff Application submission versus RoD Issuance Date. The tariff application process commences around May annually and submitted to the Regulator annually on 01 August. The RoD is generally issued by the Regulator by 01 December annually. There is therefore a significant time lapse from the date of submission of the tariff application to the time of the tariff decision, during which time, changes in forecasted economic data also occurs. It has been observed that amongst other reasons, deviations between the tariff adjustment applied for by the Authority and that approved by the Regulator is due to such changes in economic data. There is therefore a need to close the gap.

In this regard, to provide greater certainty, NERSA publishes forecasted data to be used by licensees in the formulation of tariff applications. Adjustments for the timing of information is dealt with through the clawback mechanism. It is proposed that the Regulator consider a similar approach.

2.3 The Appropriate Asset Valuation Approach

Capital maintenance ("repayment")

The underlying principle of capital maintenance is that income should only be recognised as accounting profit after the full recovery of costs including the cost of capital maintenance. There are three different capital maintenance approaches which, prescribe valuation models applicable to each.

Types of Capital Maintenance:

i.   Financial Capital Maintenance: Financial capital maintenance ("FCM") measures the value of assets at the end of a period as well as the calculation of depreciation, with the aim of ensuring that the financial capital invested in the asset is repaid. This is important in affirming that asset owner receives the investment back plus a reasonable profit. This can be measured in fixed nominal monetary units (capital is returned on the basis of historic nominal values), or in fixed real terms (capital is returned on the basis of constant values). There are two valuation models under financial capital maintenance, namely, the Historical Cost ("HC")/ Depreciated Original Cost ("DOC") and the Trended Original Cost ("TOC").
   a.   HC/DOC approach. The gross value of assets are simply recorded at the original cost of creating or purchasing the assets. It is this gross value that is depreciated to determine the depreciated original cost values.
   b.   TOC approach. The gross asset value is determined by revaluing assets from their original cost by applying a specified index to inflation (CPI) in asset price. This approach assists in ensuring that returns are not eroded by inflation thereby setting proper price signals.

   In terms of determining the return on investment, as the HC would determine returns in nominal terms and TOC in real terms, both the HC and TOC are considered to have the same result in the long term whilst in reality this may not necessarily be the case in terms of actual cash flows given other factors not remaining constant such as taxation.

ii.   Physical Capital Maintenance: Physical capital maintenance ("PCM") aims to ensure that the asset owner receives the replacement cost value back (as adjusted from time to time), plus a return on this adjusted capital value. Under rate of return regulation, a method based on physical capital maintenance can thus be expected to generate a revenue stream that differs from financial capital maintenance.

   The Depreciated Optimised Replacement Cost ("DORC"), is the more widely exercised model of physical capital maintenance. In principle, the DORC approach, determines the gross asset value as the optimised modern equivalent asset value, which is then depreciated to determine the net DORC value. The DORC method is a replacement cost based asset valuation approach that achieves physical capital maintenance.

iii. Economic Capital Maintenance: Whilst Economic Capital Maintenance ("ECM") approach measures asset values and calculates depreciation, it is aimed at repaying the economic value of the physical assets. The regulatory objective is to ensure that the investor receives the economic value back (as adjusted from time to time), plus a return on this adjusted capital value. This however, does introduce a significant level of uncertainty in pricing accurately for intangible economic externalities and variables. Under economic capital maintenance, asset values are calculated based on Optimised Deprival Value ("ODV").

The use of ODV depends on two legged economic assessment:
   a. basing the value of the asset on the expected future cash flows (i.e. tariffs); and
   b. considering the maximum of the DORC value.

The above economic assessment encounters difficulties and the application of ODV in the circumstances of the Authority can have fatal limitations. Taking into account that the Authority infrastructure assets are regulated, determining both the Net Present Value ("NPV") of their revenues and the disposal value of assets suffers from circularity. Furthermore, given that port tariffs are set on a system wide basis with costs aggregated, and tariff charges not relating directly to specific infrastructure assets, determining the cash flows suffers from revenue attribution problems. It is not practical to determine objective ODV value for port infrastructure assets and to adopt the ECM approach in determining the Regulatory Asset Base ("RAB").

Current Approach

The Authority is currently using the TOC approach for the calculation of its RAB, where each asset is trended and depreciated as per its own life. FCM is concerned with ensuring that the real value of the investors' financial capital is returned. This applies irrespective of whether or not depreciation is sufficient to replace the company's assets such that it could maintain its operational capability. Generally, under FCM the opening RAB value would be rolled forward each period at the general rate of inflation, as measured by CPI. The RAB relating to existing assets would not be subject to revaluation, except to allow for inflation. The main advantage of the FCM approach is its simplicity. Once the initial RAB value has been determined, subsequent revaluations require a simple indexation of the asset base for general, not asset specific, inflation. Partly for this reason, many established regulators (such as those in the UK) employ FCM when regulating stable, mature industries.

Problems with how TOC approach has been applied by the Authority Previously

In the absence of a formal valuation been undertaken by the Regulator to establish replacement values of the Authority's asset base, the Starting Regulatory Asset Base ("SRAB") computed by the Authority at commencement of regulation was informed by the asset values contained in the accounting asset register of the Authority in 2008. This was considered to be best proxy at the time for the SRAB as it was the only asset register prepared in terms of International Financial Reporting Standards (IFRS). These were independently audited and comprised a majority of assets whose values were reflective of DORC.

The SRAB value determined and applied by the Authority, whilst used by the Regulator for tariff determination purposes, has never been formally accepted by the Regulator as final for the purpose of

the calculation of the Authority's required revenue. Post the introduction of the SRAB with the initial tariff application in FY 2009/10, the Authority's RAB for tariff determination purposes has been determined using the TOC approach. The TOC approach adopted was approved and supported by the preceding tariff methodologies.

Another issue relating to the RAB was sampling error. Since FY 2009/10, a single amount has been used to represent an excess of 46 000 assets. Furthermore, an average life of 40 years was used to represent all assets, irrespective of the asset class/type. A sample is a finite part of a statistical population whose properties are studied to gain information about the whole population. The bigger the sample, the closer it is to represent the population.

To address the above stated issues regarding the SRAB and subsequent RAB determination, on 29 March 2018 the Regulator issued an RoD on the "***Methodology for the valuation of the Authority's RAB***" ("VoA") to be implemented with the FY 2019/20 Tariff Application. The VoA considers a hybrid approach where assets with capitalisation dates pre-1990 are valued at HC, whilst assets in existence post 1990 are valued at TOC.

The Authority evaluated the new methodology, modelled the outcome of the valuation of assets for FY 2019/20 and compared the outcome with that of the current methodology. Implementation of the VoA would have resulted in the reduction of the Authority's revenue base significantly, impacting the organisation's key financial ratios and credit metrics, breaching most of the parameters in the first year of implementation.

The Authority's Proposal

The most recent (FY 2019/20) tariff application RoD, the Regular applied the TOC approach in the valuation of the Authority's assets. This approach is a major shift in the previous DORC valuation approach. In this approach, every asset is recorded at its original cost and is depreciated on its own useful life. This has resulted in a difference of approximately R1.1Bn between what was applied for in FY 2019/20 versus what was approved. The Authority has managed to stabilise its business based on the aforementioned TOC approach of establishing 1990 as a start and trending all assets. Furthermore, the regulator guided the Authority to prepare the FY 2020/21 tariff application in this approach.

Therefore, in the interest of maintaining a sustainable port system, the Authority proposes to retain the current TOC approach. However, the principle should be applied to the entire population and not the sample. Each asset should be trended on its historical cost and depreciated on its own useful life as prescribed in the FY 2019/20 RoD.

2.4   Appropriate Depreciation Method

Depreciation is the allowance provided for in the revenue requirement so that the Authority can recover its investment in port assets over the economic life of the asset (i.e. return of capital). The regulatory depreciation allowance is the total of the depreciation of the historical cost as well as the amortisation of the indexation of the assets.

Current Approach

Straight-line method. Currently, the Authority is applying the straight-line depreciation method whereby an equal amount is provided each year for depreciation of each asset until the asset has been written down to nil or its scrap value at the end of the estimated life of the asset.

Alternative Approaches

i.   Diminishing Balance Method. Using this approach, depreciation is charged at a fixed percentage every year to the net asset amount (i.e. trended value less depreciation and amortisation). In this method, depreciation is higher in the early stages and declines gradually over the years even though the depreciation rate remains constant. It is worth noting that the asset can never be fully depreciated in this method.

ii.   Double Declining Balance Method. This method is a hybrid approach between straight-line and diminishing balance method. Like diminishing balance method, the depreciation is charged on the opening write-down value of the asset. In addition, like the straight-line method, a fixed rate of depreciation is charged in this method, but the rate is twice the straight-line.

The Authority's Proposal

Most regulators and regulated entities globally prefer the straight-line depreciation method. This method ensures that financial capital maintenance is achieved as the "real capital" is recovered i.e. depreciation is calculated on an indexed RAB value which is slightly higher than the historical cost.

Given that the return of capital (i.e. depreciation allowance) is calculated on the indexed RAB, this approach ensures that the capital redemption of all investments in port assets is near the value of "real capital". The investment in port assets takes place, for example, in year 0, whilst the return of the investment is earned throughout the life of the asset. By virtue of recovering the investment over multiple periods, this introduces the concept of time value of money (i.e. R1 today has more buying power than R1 tomorrow). The trending of the RAB with CPI revalues the asset base so that the buying power of the initial investment is maintained throughout the recovery period.

The diminishing balance and the double declining balance do not fully depreciate at the end of the assets useful life. This can result in the incorrect asset balances and the concept of FCM can never be achieved due to these anomalies. Furthermore, the double declining method depreciates the asset two times quicker as the diminishing balance method. Moreover, the diminishing and double declining balance methods overburdens users upfront, the straight-line method does not burden users upfront for assets that have long useful lives which results in a gradual tariff trajectory, and subsequently sends proper price signals.

For the reasons stated above, and considering the simplicity of its application, the Authority is supportive of the straight-line method and wishes to continue applying it in determining its depreciation allowance.

2.5   Appropriateness of the inclusion of Net Working Capital in RAB determination

Net Working Capital ("NWC") refers to the business operations funding requirements other than regulatory assets in service. This is the difference between current assets and current liabilities.

Current Approach

NWC comprises of inventory, trade receivables and trade payables.

i.   Inventories on hand are required to maintain port facilities.
ii.   Trade receivables accounts for amounts receivable to the Authority for services advanced to port users as part of its business operations.
iii.   Trade payables are amounts payable by the Authority for assets purchased or services availed (this includes capital expenditure payables).

The NWC of the Authority is always negative because the Authority is in a capital intensive industry that requires constant capital expenditure. Furthermore, the NWC is computed based on balances at year end. According to the Authority's creditor's payment policy, the Authority pays its creditors 30 days after the services have been rendered. Some of the trade payable balances included in the Annual Financial Statements ("AFS") would be settled in 30 days thereby reducing the outstanding balance.

The RR model has an inherent assumption that incomes and expenses occur at the same time. The NWC is a time value of money tool that aims to adjust for the timing differences between when costs are incurred versus when the revenues are received.

Alternative Approach

Other regulators (such as NERSA) do include NWC into the RAB computation for the same reasons. In their approach, in addition to inventory, trade receivable and trade payables, other variables such as the operating cash and minimum cash balance are included. It should be noted that it would not be feasible for the Authority as it does not keep cash on hand.

The Authority's Proposal

To the extent that the time at which a particular cost is incurred is not matched with its recovery (via tariff revenues), then capital is required to cover the time lag – working capital. An investment in working capital is a necessary part of conducting a regulated business. The Authority is therefore supportive of including NWC in the computation of RAB maintaining it in its current form.

2.6   Appropriateness of the Real Vanilla WACC

The regulatory cost of capital

The cost of capital is one of the most important factors that the Authority has to estimate. According to the current Tariff Methodology the cost of capital is determined by a Weighted Average Cost of Capital ("WACC") consisting of a cost of equity (determined using Capital Asset Pricing Model ("CAPM")) and the cost of debt (the Authority's actual embedded debt costs adjusted for actual weighting). The WACC defines the return on assets the Authority must earn in order to satisfy its creditors and shareholder.

The WACC method of calculating the cost of capital reflects the competition in the market for attracting capital. The regulatory cost of capital should reflect what an investor would require in return on investments with the same systematic risk as the regulated business. The cost of equity reflect the opportunity cost for an investor and the cost of debt reflects the lenders required rate of return. These costs are weighted together to reflect the cost of capital. The weight is given by the ratio of equity and debt, and should, from a regulatory point of view reflect the optimal gearing for an efficient port system.

The objectives of the Authority setting an appropriate WACC is to:

- Ensure prices reflect the true cost of the services provided;
- Send the correct price signals to facilitate efficient investment in new assets; and
- Earn a fair return on existing assets.

By setting a WACC that is equal to that required by the market, the Authority is aiming for an investment level that is economically efficient, and prices that properly signal costs to customers.

Current Approach

Currently the Authority is applying a real WACC expressed in Vanilla terms (i.e. post-tax cost of equity and pre-tax cost of debt). Accordingly, a separate allowance for the tax expense in the RR formula is required. The formula is as follows:

$$WACC_{vanilla} = k_d.g + k_e(1 - g)$$

Where:

k_d	=	pre-tax cost of debt
k_e	=	post tax cost of equity
g	=	gearing, which is debt over total capital

Alternative Approach

Real Post tax WACC. An alternative to Real Vanilla WACC is the Real Post-tax WACC. This approach is the same as the Real Vanilla WACC described above except that this approach uses the real post-tax cost of debt.

The formula is a follows:

$$WACC = \left[\left(\frac{Eq}{Dt + Eq}\right) * Ke\right] + \left[\left(\frac{Dt}{Dt + Eq}\right) * Kd\right]$$

Where:

Eq = Shareholders equity

Dt = Interest bearing debt

Ke = Post-tax, real cost of equity[1] derived from the capital asset pricing model (CAPM)

Kd = Post-tax, real' cost of debt

This is an approach used by other regulators such as NERSA. The risk associated with this approach is of under or over estimating tax liabilities i.e. variant between allowed (projected) tax expense and actual tax.

The Authority's Proposal

A high WACC is an incentive for greater investment by regulated businesses but it also results in prices that exceed the true cost of supply, thus, it can discourage customers from using services that they would benefit greatly from.

On the other hand, a lower WACC discourages investment. In this case, prices will be below cost, discourage investment in new capacity and encourage overuse of the service. This may result in capacity shortages and supply interruptions that can impose high costs in the long run. By setting a WACC that is equal to that required by the market, regulators are aiming for an investment level that is economically efficient, and prices that properly signal costs to customers.

The real vanilla WACC excludes all tax-related matters from the WACC calculation and a separate Tax allowance is determined in part of the RR formula. The risk associated with post tax WACC approach is of under or over estimating tax liabilities i.e. variant between allowed (projected) tax expense and actual tax. The Authority proposes to retain the real vanilla WACC for the reasons above and for its simplicity.

2.7 Appropriateness of Capital Asset Pricing Model

The cost of equity is one of the inputs into the WACC calculation. It is imperative that the most appropriate cost of equity approach is adopted. In a well-functioning regulatory regime, the Authority's shareholder must be rewarded for assuming the risk of investing in port infrastructure.

Current Approach

The Authority is currently using the CAPM model to determine its cost of equity. The CAPM formula is used to calculate the expected return of an investment given its level of systematic risk. In this approach, the expected return on equity is the total of the risk-free rate and a risk allowance. The risk allowance is calculated as a proportion of the risk premium for all investments.

The CAPM formula is expressed as follows:

$$k_e = r_f + \beta \times MRP$$

Where:

Rf	=	Real risk free rate
β	=	Measure of NPA's exposure to market (non-diversifiable) risk
MRP	=	The market risk premium measuring the premium over and above the risk free rate that investors might expect to earn

The main insight of the model is that it allows the Authority and the Regulator to evaluate the risk of an asset in terms of the asset's contribution to the systematic risk[1] of their total portfolio. The size of the risk premium for a business depends on the extent of covariation of returns on its stock with that on the

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[1] Systematic risk is the risk that cannot be diversified away through diversification or in any other way

market. If the stock is less volatile, β will be less than 1 and the risk premium will be less than the market average (which has been the case for the Authority in the preceding years).

CAPM provides an economically grounded and relatively objective procedure for a required return estimation, it has been widely used in economic regulation. For example, the Australian Energy Regulator ("AER") regulates gas and electricity transmission and distribution assets using the CAPM model.

Alternative Approach

i.   Dividend Growth Model ("DGM"). Under this model, the cost of equity can be calculated from the current value of traded assets and the expected dividends arising from the assets. The DGM relies upon the estimation of the yield (dividend yield with respect to stock price) and a growth factor. While the conceptual simplicity of this approach is an attractive element, estimating the cost of equity for private companies using the DGM has proven challenging. To get around this, publicly available estimates of utility growth are combined with proxy groups – similar risk firms – to estimate the growth rate, and determine the cost of equity.

The DGM is generally used in the United States by the state and federal regulators to determine the cost of equity. However, this is cross-checked to the CAPM to confirm reasonability of the cost of equity. The DGM estimates the cost of equity through positing a relationship between the market value of an asset and the future payment flow from the asset. That is, the market value of an asset is equal to the present value of future payments from the asset. In the case of listed equity, the market value is the share price and the future payments are dividends. The following equation is used to link the share price ("P0"s) and expected dividend stream ("Dt").

$$P_0 = \frac{D_1}{(k-g)},$$

Or rearranging,

$$k = \frac{D_1}{P_0} + g$$

Where:

K   =   Cost of equity
D1   =   Dividend at the end of year 1
P0   =   Value of the Common Stock
G   =   Growth rate

The dividend growth model calculates the value of a business by dividing expected future dividends by the cost of capital minus the growth rate, which is rearranged to solve for the cost of capital.

The major shortfall of the DGM is that it assumes a constant growth rate which that can be unrealistic and a constant dividend.

ii. The Shareholder determining the appropriate cost of equity. The determination of the cost of equity involves a lot of subjectivity from the RFR, Beta and MRP. A possible approach to address the subjectivity would be the shareholder informing what the cost of equity should be. This should be a transparent process, and the state should set a cost of equity rate that is at appropriate levels in terms of what dividends it may seek (taking into account the notion of lowering the cost of doing business) or reinvest into the port system through CAPEX implementation.

The Authority's Proposal

The CAPM is a model that describes the relationship between risk and expected return. While it has general application to all investments, it is most commonly used in the pricing of risky securities such as shares. The general idea behind CAPM is that investors need to be compensated for 2 factors:

- time value of money, and
- non-diversifiable risk.

The time value of money is represented by the risk-free rate in the formula and compensates the investors for placing money in a risk-free investment over a period of time. The other part of the formula represents the risk premium, or compensation, the shareholder needs for taking on risk.

The CAPM is transparent as it relies on inputs that are directly observable in financial markets, which is desirable for the regulation of the ports system. Furthermore, it compensates the shareholder an appropriate return commensurate with risk as stated above.

The DGM model would not be feasible for the Authority as it assumes a constant growth rate and a constant dividend which can be unrealistic. This would be breached by the change in the valuation of assets implemented in the FY 2019/20 RoD as this would result in a lower dividend. Moreover, the Authority has not paid a dividend in the last three years. Taking the above into account, the Authority proposes retain the use of the CAPM.

2.8 Appropriateness of the Risk-free rate and the Averaging period

The risk free rate is the theoretical rate of return on an investment with no risk. This is the interest that an investor would expect from a completely risk free investment over a specified period. In reality, the risk free rate does not exist because even the safest investments carry a certain amount of risk.

A common regulatory approach to determining the risk-free rate is to take the arithmetic averages of historic government yields and then adjust for inflation through the using of the Fischer equation. South African Reserve Bank ("SARB") bond yield data on bonds with maturities of longer than 10 years are available from 1960 at monthly intervals.

Currently the Authority is using the KBP2003M government bond as a proxy for the RFR. An alternative is the R214 bond maturing in 2041. Furthermore, the data set is based on a 5-year average. The alternatives are as follows:

i. 7-year average; or
ii. 10-year average.

The Authority's Proposal

The Authority proposes to increase the averaging period to 10 years or longer, because averaging over a long horizon has the potential to produce more statistically precise estimates if the underlying risk free rate is static.

The average life of all of the Authority's assets is 17 years (based on averaging the lives of all assets in the fixed asset register), and the R214 matures in 2041 (i.e. 22 years till maturity). The rationale is to align the average life of the assets with the maturity of the bond.

No data to indicate maturity date of the KBP2003M government bond. Whilst, the R214 is more aligned and reflective of the average useful life of 17 years. It is worth noting that moving from KBP2003M to R214 would result in a spike in the tariff, in the first year of implementation.

The Authority proposes the use of the R214 versus the KBP2003M not because of the tariff spike, but because it has a maturity date of year 2041. Furthermore, the Authority would have preferred to use the 10 year averaging period, but the R214 index data is only available for the last 7 years. The rationale behind choosing longer dated averaging period is that averaging over a long horizon has the potential to produce more statistically precise estimates if the underlying risk free rate is static.

2.9 Appropriateness of the Market Risk Premium and the averaging period

The MRP is the premium demanded by investors for investing in the market portfolio comprising all risky assets in the economy, instead of a riskless asset. The MRP cannot be observed; it must be estimated. By definition, the MRP is a forward-looking concept, but its likely future size is typically inferred from long-run historical data. In particular, a common approach to estimating the MRP is to examine average historic excess returns on the market (i.e. the average spread between historic returns on a market proxy and the return on government securities) over a long period of time.

The MRP can be measured in two ways:

- Arithmetic mean (measures the average of the annual returns for the period under consideration); and
- Geometric mean (measures the constant annual return that compounded would be produce the same total return over the relevant period). Currently, in line with the approved tariff methodology, the Authority is using the Dimson, Marsh and Staunton ("DMS") geometric mean to determine the MRP.

It is worth noting that in the previous regulatory manuals, the arithmetic mean was used to compute the average MRP. However, because the arithmetic mean considers each year in isolation, it tends to overstate the mean. Furthermore, the arithmetic mean is appropriate for a single period estimation,

and the proposal on this methodology is premised on a multi-period. Hence, the shift to a geometric mean MRP estimation.

The current source of determining the MRP the DMS report for bond returns. Currently, the mean period of averaging is based on 118 years i.e. from 1900 to 2018. The mean period alternative would be any period shorter than the current 118 years.

The Authority's Proposal

The expected future value of an initial rand investment is obtained by compounding the average return. The most commonly used method for computing average returns in equity premium studies is the arithmetic average. If returns are correlated over time, arithmetic averages may overstate the terminal value. When this is the case, the geometric mean, which is the correct statistic for computing the median terminal value of the investment, is more reliable.

The DMS report published annually is one of the best datasets available for estimating the appropriate MRP. This dataset provides annual risk premium estimates for 19 countries, including South Africa, using historical returns data from 1900. The main advantages of the DMS estimates are that they are independent, calculated in a consistent manner over time, and tend to be sensible values that are stable from year to year.

Shifting to shorter averaging periods would result in higher revenues, however, this would not be in the best interests of the port system. Therefore, the Authority proposes the continued use of the DMS estimate of the geometric MRP measured against bonds for South Africa be used to determine a MRP for its real cost of equity. The Authority further proposes to maintain the longer data set i.e. from 1900 to date (longer periods have the potential to produce more statistically precise estimates if the underlying risk premiums).

2.10   Appropriateness of the Asset Beta versus Debt Beta

The beta of an investment is a measure of the risk arising from exposure to general market movements as opposed to idiosyncratic (company specific) factors. A beta of 1 means that a firm is directly correlated to the market i.e. when the market performs, so does the investment, and the opposite is true. In line with the tariff methodology, the beta calculation is used by the Authority to measure its risk profile in relation to that of the market, and is used as an input in the CAPM model to determine the appropriate equity return.

Current Approach

Asset beta. An asset beta measures the market or systematic risk, which in theory is the sensitivity of its returns to the returns on the market portfolio of risky assets. The asset beta reflects the Authority's systematic risk and is independent of the capital structure.

It is worth noting that Transnet (the Authority being an operating division of Transnet) is not a listed entity in the Johannesburg Stock Exchange ("JSE") or any other stock exchange, therefore, a beta cannot be observed through the financial market. For the purposes of having a beta for the cost of equity calculation, the approved *FY 2018/19 – FY 2020/21 tariff methodology* prescribes an asset beta of 0.50

and is re-levered to an equity beta by using the hamada equation. The equity beta is estimated taking into account the estimated long-term debt ratio as well as the equitable tax.

Alternative Approach

Debt beta. Debt beta represents the sensitivity of debt risk premium to the overall debt market. It is used to de-lever and re-lever the asset beta to the gearing level assumed for the business. The debt beta is not directly observable in the market place and is estimated by the following formula:

$$R_D = R_F - \beta_D(R_M - R_F(1-t)),$$

> Where:
>
> Rd is the cost of debt
> Rf is the risk free rate
> βd is the beta of debt
> T is the tax rate

Equity beta

The equity beta is the beta we are attempting to determine. This can be determined by either the use of an asset or debt beta. There are three types of risks that are generally associated with a regulated entity, and the beta needs to ensure that the Authority is compensated accordingly. These include:

- Systematic risk. Relates to the risk of the market as a whole. It incorporates market wide factors such as the country's sovereign risk, legal, taxation and foreign affairs environment;
- Company specific risk. This relates to the Authority's size and nature of the geographic region in which it operates, substitutability, demand, customer profiles, e.tc; and
- Regulatory risk. This relates to regulatory uncertainty with respect to matters such as changes in policy and regulatory frameworks e.g. VoA.

The Authority's Proposal

The South African port system over the last couple of years has been using an asset beta of 0.50. This beta is then converted to an equity beta to reflect the uniqueness and risks of the Authority (i.e. adjusting the beta to reflect the equitable tax computation and the regulatory debt to equity ratio (as per the approved gearing).

On the other hand, the Authority modelled a debt beta of -0.88. This assumes that the Authority is not subject to risk. This would result in a discount to the already low risk free rate. Assuming that the Authority is not facing any risk is highly inaccurate, as such, it will yield the incorrect cost of equity.

To compute the debt beta, the following formula was manipulated to compute the debt beta using the following parameters: the cost of debt, risk free rate and equitable tax.

$$R_D = R_F - \beta_D(R_M - R_F(1-t)),$$

Where:

Rd is the cost of debt
Rf is the risk free rate
βd is the beta of debt
T is the tax rate

The Authority is in support of continuing the use of an asset beta and subsequently re-levering it to an equity beta using the hamada equation.

2.11 Appropriateness Level of Beta for a Capital Intensive and Regulated Entity

As the Authority is not a traded entity, the beta cannot be directly observed from the market. A problem arises when attempting to estimate a beta for a non-listed entity. An approach that can be adopted to estimate a beta of a non-traded firm involves using betas of comparable publicly traded companies and adjusting the beta so that it takes into account the financial risk of a non-traded entity. There are two main types of risks that affect the size of a company's beta:

- Business risk; and
- Financial risk.

Business risk is the risk associated with operating earnings, which in turn, depend on revenues. Typically, companies in the same industry have similar level of business risk. Financial risk is associated with the uncertainty of net income and cashflows. The greater the share of debt in the financing of the company, the greater the financial risk. In short, companies with a high financial leverage are characterised by high financial risk.

Current Approach

Currently, the Authority is using an asset beta of 0.5 as per the current approved tariff methodology.

Alternative Approach

The alternative to using the 0.5 asset beta would be determining an average asset beta from the Authority's peer companies. Comparable companies to that of the Authority should operate in the same industry as this would indicate similar level of business risk. As the amount of leverage differs, an adjustment of the debt-to-equity ratio will be made to the estimated beta to reflect the Authority's capital structure and different tax rates between countries. A problem with this approach is sourcing the information required to determine the Beta.

In the previous studies conducted by the Authority, various companies were identified that could potentially be used as suitable peer companies. These companies are as follows:

- Adani Ports and Special Economic Zone
- Dalian Port PDA Co Ltd
- Jiangsu Lianyungang

- Jinzhou Port Co Ltd
- Novorossiysk Commercial Sea Port PJSC
- Piraeus Port Authority
- Port of Tauranga Ltd
- Rizhao Port Co Ltd
- Shanghai International Port Group Co Ltd
- Shenzhen Chiwan Wharf Holdings Ltd
- Thessaloniki Port Authority SA
- Tianjin Port Co Ltd
- Wuhu Port Storage & Transportation Co Ltd
- Yingkou Port Liability Co Ltd
- Chongqing Gangjiu Co Ltd
- Hamburger Hafen und Logistik AG
- Nanjing Port Co Ltd
- NCB Holdings Bhd
- Xiamen International Port Co Ltd (Hong Kong)

The Authority's Proposal

Whilst peer companies exist, sourcing information required to determine the Beta has proven challenging. Thus, the Authority would like to maintain the current asset beta of 0.50.

2.12 Appropriateness Level of Gearing

Gearing is a ratio of the Authority's loan capital (cost of debt) to the value of its equity capital (cost of equity). Gearing should be based on a long-term target of the Authority to ensure that the optimal capital structure is achieved, which will assist in the lowering of the cost of doing business. Currently, the Authority is applying the 50% gearing as per the approved tariff methodology. The alternatives are as follows:

i. Using the Authority's actual gearing of 16.9%; or
ii. Transnet Optimal Gearing of 45%.

The Authority's Proposal

The 50% regulatory gearing is assumed to be the optimal capital structure, which will lower the cost of capital and subsequently lower the cost of doing business. The Authority finds itself in an anomalous situation as the conversion from an asset to equity beta is done through the hamada equation, which takes into account the debt-to-equity ratio. The actual gearing (which is lower than the deemed optimal gearing) reduces the re-levered equity beta, and results in a lower WACC. If the conversion of asset to equity beta did not involve the debt-to-equity ratio, then the results would be different. By ignoring the gearing ratio on the re-levering of the beta, a 50% gearing is preferred as it results in a lower WACC than the actual gearing (16.9%) and Transnet optimal gearing (45%).

Whilst the actual gearing is low, it would not be in the best interest of the Authority to use it in the capital structure. A gearing of 40% to 55% is appropriate for a capital intensive firm. Thus, the Authority proposes the continued use of the 50% gearing.

2.13   Appropriateness of allowing a return

The Port directives require that the Regulator ensure the Authority:

- Recovers its investment;
- Recover its costs; and
- Earn a return commensurate with its risk.

The risk faced by the Authority remains constant irrespective of whether the Authority is an OD of Transnet, a subsidiary of Transnet or a standalone entity out of Transnet. The faced by the Authority arises from:

- Systematic risk: relates to the risk of the market as a whole. It incorporates market wide factors such as the country's sovereign risk, legal, taxation and foreign affairs environment;
- Company specific risk: this relates to the Authority's size and nature of the geographic region in which it operates, substitutability, demand, customer profiles, e.tc; and
- Regulatory risk: this relates to regulatory uncertainty with respect to matters such as changes in policy and regulatory frameworks.

The recovery of the Authority's investment in port infrastructure is recouped through depreciation (i.e. return of capital). The Authority is of the view that the depreciation allowance to date has been sufficient to recover the investment in port infrastructure, even through the use of the previous asset valuation approach.

In the absence of a formal valuation been undertaken by the Regulator to establish replacement values of the Authority's asset base, the SRAB computed by the Authority at the commencement of regulation was informed by the asset values contained in the accounting asset register of the Authority in 2008. This was considered to be best proxy at the time for the SRAB as it was the only asset register prepared in terms of IFRS. These were independently audited and comprised a majority of assets whose values were reflective of DORC.

Post the introduction of the SRAB with the initial tariff application in FY 2009/10, the Authority's RAB for tariff determination purposes has been determined using the TOC approach. The TOC approach adopted was approved and supported by the preceding tariff methodologies. Another issue relating to the RAB was sampling error. Since inception, a single amount has been used to represent an excess of 46 000 assets. Furthermore, an average life of 40 years was used to represent all assets, irrespective of the asset class/type. A sample is a finite part of a statistical population whose properties are studied to gain information about the whole population. The bigger the sample, the closer it is to represent the population. Table 2 below shows the depreciation allowance for the past five years based on actual numbers comparing the previous tariff methodology approaches and the current FY 2019/20 RoD TOC approach:

Table 2: Depreciation allowance: tariff methodology approach vs FY 2019/20 RoD approach

	Depreciation					
	2014/15	2015/16	2016/17	2017/18	2018/19	Total
Actual approved Depreciation (Based on prior tariff methodologies)	1 683	1 786	1 930	2 026	2 112	9 536
Actual Depreciation (Based on TOC approach)	1 494	1 636	1 965	2 052	2 167	9 313
Difference in depreciation approaches	188	150	-35	-26	-55	223

When comparing the actual depreciation as per the prior tariff methodologies with the depreciation as per the TOC approach over the last 5 years, the difference is only R223m. This means that through the old methodology approach, we recovered approximately R223m higher than what we should have had we adopted the TOC. This amount is in the appropriate deviation range considering the major reduction in the asset register value.

The current view of the Regulator and other port stakeholders is that all the monies allowed to the Authority as returns are used by Transnet to fund its other OD's. Table 3 below is an analysis of what was allowed as the net interest expense and cost of equity return over the past five years versus what was actually paid to our creditors and debt funders, and shareholder:

Table 3: Net interest expense and Cost of Equity

	2014/15	2015/16	2016/17	2017/18	2018/19	Total
Interest (Kd)						
Tariff Methodology	1 478	1 546	1 098	2 224	2 343	8 689
AFS	1 789	1 844	1 741	1 908	1 387	8 669
Difference	-311	-298	-643	316	956	20
Dividends (Ke)						
Tariff Methodology	2 516	2 693	2 224	2 673	3 082	13 187
AFS	4 429	1 960	-	-	-	6 389
Difference	-1 913	733	2 224	2 673	3 082	6 798
Transfer to Retained Earnings	-	-	1 724	2 347	5 217	9 288
Difference	-1 913	733	500	326	-2 135	-2 490

In the last five years, the net difference between what the tariff methodologies have allowed versus what was paid as per the AFS is only R20m. Again, this is within an acceptable deviation range.

Conversely, in the last five years, the methodology allowed a total of R13 187m as cost of equity and only a total of R6 389m was paid over as dividends. Furthermore, a total of R9 288m was transferred to the Authority's balance sheet as retained earnings. The Authority has been careful in terms of how it was spending on its cost of debt and cost of equity. The R9 288 was retained because there wasn't major CAPEX spend in the recent years.

Table 4: Capital redemption of Debt and reinvestment of Equity portion not redeemed

	Depreciation					
	2014/15	2015/16	2016/17	2017/18	2018/19	Total
Actual approved Depreciation (Based on prior tariff methodologies)	1 683	1 786	1 930	2 026	2 112	9 536
Loan Redemption	453	453	1 182	979	1 599	4 667
Equity Capital no redeemed	1 229	1 333	748	1 047	513	4 870
Actual Capital Expenditure	2 907	2 961	2 033	1 194	905	10 000
Additional Loans required to cover CAPEX shortfall	-1 678	-1 628	-1 285	-147	-392	-5 130

Table 4 above is a representation of the actual spending of the depreciation allowance received as return of investment. A total of R9 536m was allowed as depreciation allowance and a total of R4 667m was

used to redeem a portion of the loans previously taken. The equity balance of R4 870m was reinvested in the CAPEX programme of R10 000m over the five year period.

The Authority's Proposal

In the text above, the Authority clearly demonstrated that none of the allowances received were used elsewhere outside of the port system. Therefore, the Authority is of the view that the return it is currently earning is sufficient and requests to retain the profit to compensate it in-line with the port Directives.

2.14 Appropriateness of the current Cost of Debt

The financial capital maintenance principle prescribe a "no better or worse principle" in that it allows for the Authority to recover all costs it incurs in the provision of port services. The use of the actual embedded debt costs, adjusted for the actual weighting aligns to the principles of financial capital maintenance. The Authority only recovers to the extent that it actually incurred the finance charges. There is no better proxy than the debt costs actually incurred. Any debt costs not incurred as a result of forecasting errors are adjusted through the clawback mechanism.

The Authority's Proposal

The Authority strives for a methodology that best represents the actual outcome. Where this is not likely, assumptions made needs to be based on sound and justifiable principles. As such, the Authority would like to retain using the actual embedded debt costs adjusted for effective weighting as this achieves financial capital maintenance. Any debt costs not incurred as a result of forecasting errors are adjusted through the clawback mechanism.

2.15 Appropriateness of the Equitable tax

Current Approach

The RR formula considers the equitable tax rate in determining the tax allowance for the Authority. In line with the Tariff Methodology, the equitable tax rate is determined over a five (5) year period. A segmental financial report which considers the profit before tax contribution for the Operating Divisions of Transnet is used to determine the equitable tax rate.

The rationale behind the shift from the corporate tax rate of 28% to an equitable tax rate method was due to the Authority not being a standalone entity but rather an operating division of Transnet, and does not pay tax in its own capacity. The profits and losses of Transnet OD's are offset against each other and the net tax paid to the South African Revenue Services ("SARS") is lower due to the allowance resulting from other ODs. By using the 28% corporate tax rate to determine the tax allowance, the Authority's contribution is higher than that of the other ODs.

The Authority's Proposal

Transnet's operating structure comprises of OD's as opposed to subsidiaries. The Authority is one of Transnet OD's, and as such, from a Transnet perspective profits and losses of the OD's are netted off against one another. This results in the overall tax paid by Transnet being lower than 28% due to the loss allowances.

As such, the Authority's tax allowance at 28% appears excessive as it contributes a large percentage of the overall tax paid to SARS. An equitable tax rate allows for the fair sharing of the Transnet tax payable in any year has to be calculated proportionally for all profit making divisions / segments / business units. The Authority is proposing the continued use of the equitable tax.

2.16 Appropriateness of the current Analysis of Operating Expenses

Current Approach

According to the RoR approach OPEX is generally a pass through cost of allowable expenses. Deviations between forecasted and actual OPEX, is adjusted for through the clawback mechanism. This approach allows the Authority to effectively execute its Mandate.

Alternative Approach

NERSA undertakes an analysis of expenses together with the justification provided by the entity and applies caps to certain expenses, where it finds the expenses to be overstated or not reasonably justified. The most significant adjustments between what is requested by the utility and what is ultimately granted by the Regulator, other than changes to the RAB, is due to the cutting of operating expenditure by the Regulator.

The Authority's Proposal

The Regulator's approach is supported as any deviations from forecasts versus actuals are returned back to customers through the clawback mechanism. Any savings should be shared, based on a sharing mechanism with port users.

2.17 Appropriateness of the current Analysis of Group Costs

Current Approach

The Regulator has adopted the approach of allowing group costs as a pass through. The group cost allocation policy and the "process" is subject to audit. This is further submitted and scrutinised by the Regulator on an annual basis. Interim results are also shared with the Regulator.

Alternative Approach

For the regulation of Group Costs of Transnet Pipelines, and in an attempt to curb soaring Group Costs, NERSA adopted an approach of setting a base rate and thereafter escalating the base rate by CPI. Transnet Pipeline has over the years argued, that the aforementioned approach is ineffective and that it results in a shortfall as it is unable to fully recover its portion of the costs allocated by Transnet Group.

The Authority's Proposal

The Regulator's approach is supported as any deviations from forecasts versus actuals are returned back to customers through the clawback mechanism.

2.18   Appropriateness of the Clawback Mechanism

The key purpose of applying claw-backs is to ensure that the Authority and all port users are fairly treated and not subjected to unfair gains or losses as a result of incorrect forecasting, inaccurate information and system shocks. The main objective of the application of a clawback mechanism is to reduce the impact of differences between allowed revenue (based on a number of forecasts and assumptions) calculated at the time of the tariff application, versus actual audited results, and is intended to ensure the coherence and integrity of the regulatory regime.

The variables that are estimated on an annual basis include:

- RAB;
- Depreciation;
- Volumes;
- Inflation; and
- Taxation.

Current Approach

The clawback mechanism considers a two year period, with interim adjustments made for the year preceding the tariff application filling period, and final adjustments made for the last audited financial year of the Authority.

Alternative Approach

The approach adopted by other Regulators such as NERSA, is to consider adjustments to the clawback, for the year in which the audited results are available. No adjustments are made for the interim period.

The Authority's Proposal

The Authority prefers the approach of the Regulator as it enables both port users and the Authority to be compensated, as soon as the regulatory regime allows, for deviations between budgeted and actual results. This could also assist in preventing volatility to the tariffs. The Authority proposed maintaining the current determination of clawback.

2.19   Appropriateness of the Excessive Tariff Increase Margin Credit

As the Excessive Tariff Increase Margin Credit ("ETIMC") is "revenue collected from port users" before the Authority was entitled to it. The current Tariff Methodology defines the use of the ETIMC as follows:

The Regulator may authorise the release of part, or whole, of the value of the ETIMC facility to influence tariff levels whenever it deems necessary including, but not limited to, spikes in tariffs (defined as an average increase in excess of the CPI inflation forecast) due to sharp increase in capital expenditure,

volume volatility, or any market related factors. Further, the Regulator may consider national objectives when making a decision to add to, or to utilise the ETIMC facility to adjust tariffs.

The ETIMC allowance allowed to the Authority in the past, is yet to be returned to customers. It is therefore maintained in a "fund", to be used in accordance with the guidance provided in the Tariff Methodology.

It is generally accepted that capital expenditure may spike at some point in the foreseeable future. In addition, external market related factors such as unexpected (or expected) fluctuations in volumes, inflation, the RFR etc. may result in significant spikes to the tariff as well.

Current Approach

To compensate the port stakeholders for the opportunity cost of their capital (invested in with the Authority but could be invested elsewhere for a better return) and to adjust for the time value of money, a real vanilla WACC return is applied to ETIMC fund.

Alternative Approach

The alternatives to this approach include adjusting the opportunity cost with:

i.   Inflation (to maintain its buying power); or
ii.   Weighted Average Cost of Debt ("WACD").

The Authority's Proposal

ETIMC is viewed as an investment by Port Users, as opposed to debt incurred by the Authority. Adjusting the fund by inflation or the WACD, would not appropriately adjust for the opportunity cost. The vanilla WACC represents the risk adjusted opportunity costs of capital, and is the minimum return for an investment in order to continue to attract capital, given the risks. The Authority is of the view that the vanilla WACC return is appropriate for calculating a return on the ETIMC account. Thus, proposes to maintain the real vanilla WACC.

2.20 Comment on the design, size and implementation of WEGO

Current Approach

WEGO was introduced with this current methodology and was applicable with the FY 2020/21 tariff application. The initial 5 KPI's focused on Waterside performance and are follows:

i.   Vessel Service Delays;
ii.   Ship Working Hour;
iii.   Berth Productivity;
iv.   Ship Productivity Indicator; and
v.   Ship Turnaround Time.

WEGO determines gain or loss in performance comparing current year's performance to the previous year's performance.

The Authority's Proposal

Vessel Service Delays measures the number of vessels that were serviced on time as compared to total number of vessels serviced. The Authority proposes that we maintain this KPI as it measures the Terminals ability to be ready on time for the vessel to be serviced and the Authority's ability to service vessels on time.

Ship Working Hour, Berth Productivity and Ship Productivity Indicator, measures vessel cargo handling rate at different times of vessel visit. The Authority recommends that only Berth Productivity be maintained as a KPI as ship working hour is measured in Terminal Operator Performance Standards ("TOPS") as part of the Authority's oversight role over Terminal Operators and ship productivity indicator includes a component of vessel manoeuvring, time in and out. To improve ship productivity indicator manoeuvring time needs to be reduced. This will negatively impact safety of vessels in port, if pilots are required to speed up this process.

Ship Turnaround Time ("STAT") measures the amount of time spent in the port. Technical committee needs to look at how to effectively measure STAT, taking to account the impact of parcel sizes. STAT might be longer due to increased parcel sizes or shorter due to decrease in parcel sizes, changes might not be due to improved performance.

Landside KPI's

Currently there are two KPI's measured, Terminal Turnaround Time (terminal entry gate to terminal exit gate) and port turnaround time (port entry gate to terminal exit gate). Terminal turnaround time is the Authority's TOPS measure as part of Oversight role. The Authority recommends that port turnaround time be part of WEGO, as this measures turnaround time from port entry to port exit.

The Authority is currently working on developing a system to enable capturing of data at port entry and exit, to enable calculation of performance real-time. This project is starting at Durban Container Terminal ("DCT"), on successful implementation it will be rolled out to other ports.

2.21 Comments on the Publication of the Annual Financial Statements and Segmental Report

The Companies Act, 2008 (Act No.71 of 2008), allows for the publication of Annual Financial Statements (AFS) of registered companies only. The Authority, as an operating division of Transnet, is not a registered company in its own right and is therefore not obliged to disclose its audited AFS. The Authority does however, prepare AFS for submission to the Regulator for the purposes of economic regulation and are submitted for the sole use of the Regulator. NERSA implements Regulatory Reporting Manuals (or Regulatory accounts) which replaces AFS for a regulated entity for use by the Regulator. This information is not published by NERSA. Segmental information is available in the Transnet AFS.

The Authority's Proposal

The Authority prepares AFS for submission to the Regulator for the purposes of economic regulation for the sole use of the regulator. Furthermore, the segmental information is available in the Transnet AFS. Thus, the Authority requests that its AFS should not be published.

3.   Conclusion

The above review of the Tariff Methodology recommends a fixed tariff methodology with the continued use of the Rate of Return / Revenue Cap with IBR components included. This suggested review to the methodology seeks to ensure that whilst the Authority is able to fund its capital investments in the long term, it can also deliver ports infrastructure for the use by the port users at an affordable cost. This ensures a sustainable environment for the Authority and its port stakeholders.

End.