NATIONAL ENERGY REGULATOR OF SOUTH AFRICA

TARIFF METHODOLOGY FOR THE APPROVAL OF TARIFFS FOR PETROLEUM LOADING FACILITIES AND PETROLEUM STORAGE FACILITES

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Tariff Methodology for Petroleum Loading facilities and Petroleum Storage facilities

Table of contents **Page**

ABBREVIATIONS

AR	Allowable revenue
CAPM	Capital asset pricing model
CPI	CPI headline index as published by Statistics South Africa
Dya	Actual number of days from the commencement of the financial year when the new operating asset became used
Dyp	Projected number of days from the commencement of the financial year when the new operating asset was estimated to become used
Dt	Debt
C	Expenses: maintenance and operating for the tariff period under review
Eq	Equity
Indexed	Adjustment made to the asset base using CPI
Kd	Cost of debt
K_e	Cost of equity
MRP	Market return premium
NRBTA	Net revenue before tax allowance Opex (Operating and maintenance expense)
RAB	Regulatory asset base
Rf	Risk-free rate of interest
Rf_t	The average monthly marked-to-market real risk-free rate of interest for the preceding period indicated
T	Tax expense
t	Prevailing corporate tax rate of the licensee
Tff(s)	Tariff(s)
Tr	Tax rate of relevant country
w	Net working capital
WACC	Weighted average cost of capital
WA β	Weighted average β of the proxy firms’ asset betas
	Beta: The systematic risk parameter for regulated entities providing pipeline, storage and loading facility services.

1 Introduction

This methodology applies to the approval of tariffs for storage and loading facilities in the petroleum industry.

1.1 Licensees may submit their applications using their own methodologies or use this methodology as a guide. However, the Energy Regulator will use this tariff methodology to evaluate tariff applications. Therefore, licensees must provide in their applications all the information necessary to apply this methodology.

1.2 It is intended to accommodate existing assets in the industry that are of long standing, the need for large new investment required in the industry, the diversity in the nature and size of the expected investors, anticipated competition and the limited size and nature of the markets for petroleum loading facilities and petroleum storage facilities in South Africa.

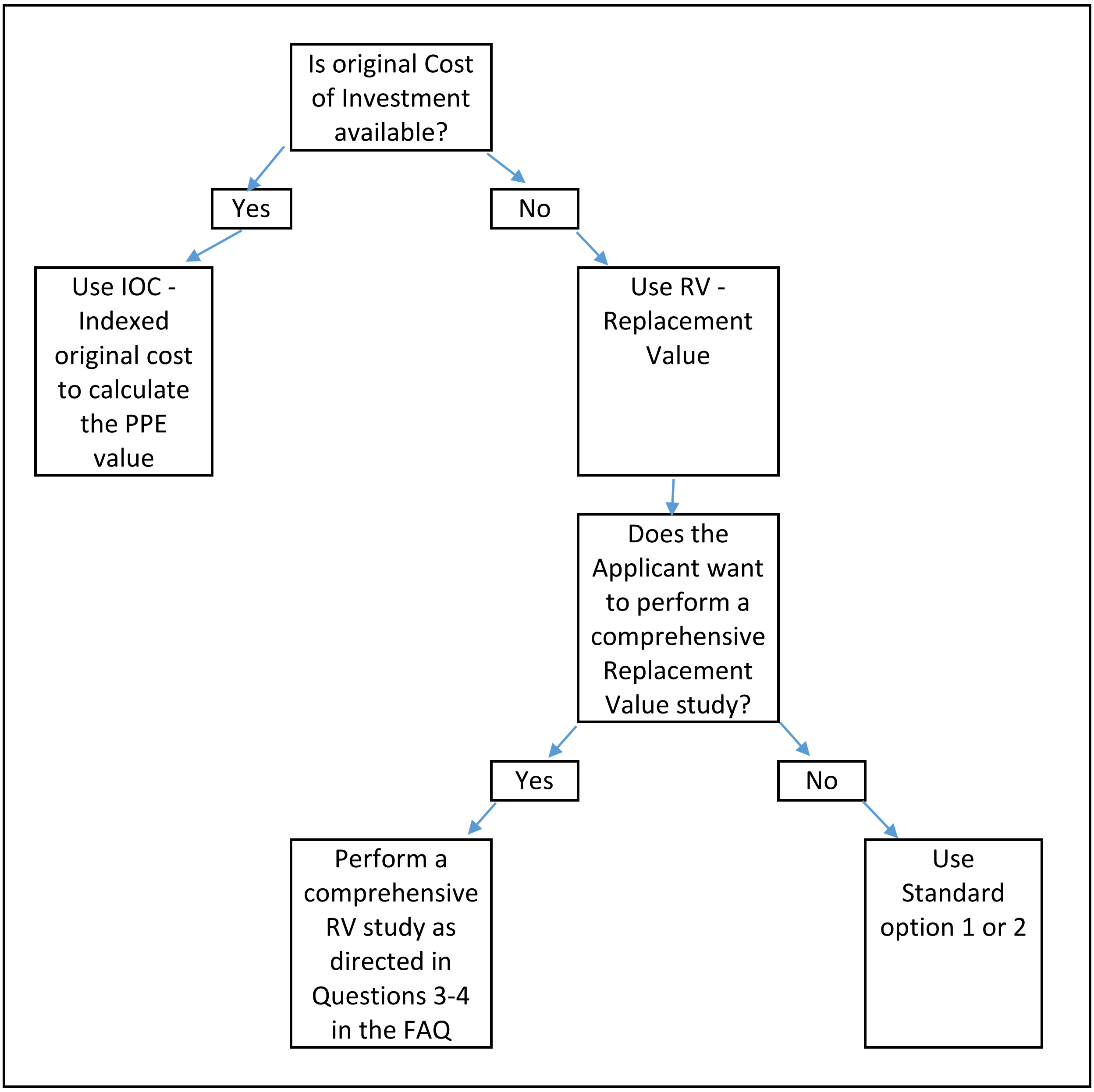
1.3 This methodology does away with depreciation as an element of the calculation of Allowable Revenue and uses the basis of Indexed Original Cost (IOC) or Replacement value (RV), where original investment cost information is not available, to establish the value of Property Plant and Equipment (PPE).

1.4 This methodology accommodates a new development in the form of a standard costing model [detailed in section 10 of the methodology] to provide licensees with the option to apply for tariffs on a simplified basis, which should also yield benefits in terms of a shorter processing time period.

1.4.1 Standard cost option 1 (standard costing, volumes and tariffs); and

1.4.2 Standard cost option 2 (standard costing, with own volumes and tariff design)

1.5 The options are demonstrated in the decision tree:



1.6 Clarifications of some aspects of this Methodology are given on the website of the National Energy Regulator of South Africa (NERSA or Energy Regulator) in the form of Frequently Asked Questions (FAQ).

2 Legal Basis

2.1 The legal basis for this tariff methodology lies in the Petroleum Pipelines Act, 2003 (Act No. 60 of 2003) ('the Act'). Section 28 (2) of the Act requires that tariffs must be:

(i) *based on a systematic methodology applicable on a consistent and comparable basis;*

(ii) *fair;*

(iii) *non-discriminatory;*

(iv) *simple and transparent;*

(v) *predictable and stable; and*

(vi) *such as to promote access to affordable petroleum products.*

Further, Section 28(3) of that Act requires that:

(a) *The tariffs set or approved by the Authority must enable the licensee to - recover the investment;*

(b) *operate and maintain the system; and*

(c) *make a profit commensurate with the risk.*

2.2 Naturally the Energy Regulator mandate flows from the entire Act including the objectives and powers and duties and not merely the two subsections quoted above.

2.3 Regulations also influence the way in which tariffs are set. The current Regulations in terms of the Petroleum Pipelines Act, 2003 (Act No. 60 of 2003), were published in Government Notice 765 GG 39142 of 28 August 2015.

3 Allowable Revenue (AR)

3.1 Allowable Revenue (AR) must be determined by applying the allowable revenue (AR) formula.

3.2 The following formula must be used to determine the Allowable Revenue (AR):

AR = (RAB x WACC) + E + T

Where:

AR = Allowable revenue

RAB = Regulatory asset base

WACC = Weighted average cost of capital

E = Expenses: operating and maintenance expenses for the tariff period under review.

T = Tax: estimated notional tax expense for the tariff period under review.

Note: Further details on each of the elements of this formula are provided below.

4 Regulatory Asset Base (RAB)

4.1 Formula for determining the value of the Regulatory Asset Base

4.1.1 The following formula must be used to determine the value of the Regulatory Asset Base (RAB):

RAB = PPE+w

Where:

PPE = Indexed Original Cost (IOC) of operating assets

or

Replacement Cost of operating assets (Property, Plant and Equipment) where original investment cost information is not available

w = Net working capital

4.2 Property, Plant, and Equipment (PPE)

4.2.1 The value of prudently acquired[1] operating property, plant, and equipment that are used or will be used in the tariff period under review comprises only non-current assets in accordance with the categories given in the Regulatory

Reporting Manual (RRM)[1].

4.2.2 Non-current operating assets, reduced by the values contemplated in sections 4.2.8 to 4.2.10.

4.2.3 PPE is calculated for each asset category and summed to arrive at the total PPR value.

4.2.4 Plant, Property and Equipment under construction are excluded from PPE.

4.2.5 Non-current operating assets applicable in the tariff period under review are assets of a long term economic lifespan (more than one year).

4.2.6 Changes to PPE (at indexed value / replacement value) are implemented on a pro-rata basis when the assets concerned is/will be commissioned, decommissioned or disposed of in the tariff period under review.

4.2.7 Changes to the PPE will be in proportion to the share of the tariff period under review during which they will be implemented. If the period or value of an asset in the PPE is different to the period or value estimated when the tariff was approved, a clawback adjustment is made in a subsequent tariff period after the information has become available.

4.2.8 Non-refundable contributions by customers to the licensee are deducted from PPE.

4.2.9 Contributions to a licensee such as equity, grants and deposits, will be deducted from PPE. This deduction will take the relevant taxation, if any, into account and only the after-tax portion will be deducted. For the purposes of this paragraph "contributions" means contributions collected by means of Government imposed taxes, levies and the like that are collected only from customers of that licensee

[1] RRM Volume 4: Published on www.nersa.org.za

and or only from petroleum consumers that utilize or will utilize petroleum transported by that licensees loading facilities or stored by that licensees storage facilities.

4.2.10 Contributions received in charges representing non-refundable funds are deducted from PPE.

4.2.11 Leasehold improvement costs borne by the licensee means an investment in a right to use property and is admitted to the PPE at indexed original cost (IOC) or replacement value.

4.3 **Net Working Capital (w)**

4.3.1 Net working capital refers to various regulated activities or business operations funding requirements other than operating property, plant and equipment in service. These funding requirements include inventories, prepayments, minimum bank balances, cash working capital and other non-plant operating requirements. Working capital funding requirements funded by investors are legitimate Regulatory Asset Base allowances on which a return may be granted.

4.3.2 The following formula must be used to determine net working capital:

Net working capital = inventory + line fill or tank bottoms + receivables + operating cash – trade payables.

Where:

(i) *Inventory means any product or operating and maintenance material relating to PPE. Inventory is to be valued at the lower of cost or net realisable value.*

(ii) *Line fill or tank bottoms means Petroleum owned by the license concerned used to fill a loading facility and its auxiliary pipeline and or the value of tank bottoms valued at lower of cost or net realisable value.*

Tank Bottoms means the minimum amount of petroleum that is required to be kept in a tank for physical operational reasons.

(iii) *Receivables mean accounts receivable in relation to the service rendered in relation to the storing and loading of product through a petroleum licensed storage facility or loading facility.*

(iv) *Operating cash means the amount of investor-supplied funds needed to finance day-to-day operations. This is finance to bridge the gap between the time expenditures are made to provide service and the time cash is recovered for that service. It is the cash supplied by investors to finance operating costs during the time lag before revenues are collected. Included in this operating cash will be the minimum cash balance to be kept as required by lending institutions. A licensee will have to provide proof of such a requirement and if provided, the amount will be included in the net working capital.*

(v) *Trade payables mean the current liabilities (amounts payable to creditors in relation to the licensed activity) for which the amount to be settled is usually known rather than uncertain (as for provisions);*

(vi) *Working capital generated out of trading (and not storage) activities should not be included.*

5 Weighted Average Cost of Capital (WACC)

5.1 The following formula must be used to determine the WACC based on the capital structure of the licensed activity:

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

Where:

Eq = Shareholders equity[2]

Dt = Target debt ratio determined the Energy Regulator from time to time, published in the FAQ.

Ke = Cost of equity-post tax, real[3]

Kd = cost of debt- Post-tax, real[4]

5.2 **Cost of equity (Ke)**

5.2.1 The cost of equity (Ke) must be determined according to the capital asset pricing model (CAPM), in real terms, as described below and the result must be subjected to reasonableness checks.

5.2.2 The formula for calculating the cost of equity according to the capital asset pricing model (CAPM), is:

$$\mathbf{Ke = Rf + (MRP * \beta)}$$

Where:

Ke = Cost of equity -post-tax, real

Rf = Real risk free rate of interest, this is the average of the real monthly marked-to-market risk free rate for the preceding 360 months for all government bonds[5] with at least a 10 year maturity as at 12 months before the commencement of the tariff period under review

MRP = Real market risk premium- post-tax. The proxy used for the market is the Johannesburg Stock Exchange (JSE) All Share Total Return Index (ALSI with JSE code J203T) for the preceding 360 months as at 12 months before the commencement of the tariff period under review. The arithmetic average for the 360 months used.

β = 'Beta' is the systematic risk parameter for regulated entities providing

[2] Equity is calculated as RAB minus Debt (RAB –Dt)
[3] Note: Market return indices published by the JSE reflect after-tax returns
[4] First convert from pre to post tax and then from nominal to real.
[5] Data on government bonds are sourced from the South African Reserve Bank and published by NERSA

pipeline, storage and loading facility services. The licensee will propose a beta, along with details of proxies used and its calculation of the proposed beta. The Energy Regulator will approve an appropriate beta[5].

The following adjustments to the Ke (small stock premium, project specific risk and liquidity premium) will be considered on a case-by-case basis:

(i). Small Stock Premium (SSP): an adjustment to compensate for the lack of specific qualitative abilities of a licensee if warranted.

(ii). Project specific risk (α): an adjustment only if warranted.

(iii). Liquidity premium (LP): to accommodate assets which are not publicly traded, if the circumstances warrant such an adjustment.

5.3 Cost of debt (Kd)

5.3.1 The Cost of debt is the prevailing prime interest rate at the time of application.

5.3.2 The cost of debt used must be after tax, real values determined as follows:

$$Kd_{\text{post-tax, nominal}} = \frac{1 + [Kd_{\text{pre-tax,nom}} * (1 - t)] - 1}{1 + CPI}$$

Where:

$Kd_{\text{pre-tax, nominal}}$ = Prevailing prime interest rate, at the time of the application.

t = Prevailing corporate tax rate of the licensee

CPI = Actual annual consumer price index (The value as at 12 months prior to the commencement of the current tariff period under review).

6 Expenses – Operating and Maintenance (E)

6.1 Reasonable operational expenses, excluding repairs and maintenance costs, will be allowed. The reasonableness of such expenses will be determined by the Energy Regulator on a case-by-case basis.

6.2 These expenses are to be categorised in accordance with the regulatory reporting manuals[6].

6.3 The fully-allocated cost attribution approach for the allocation of costs is used. This approach is as per the methodology contemplated in the regulatory reporting manuals.

6.4 As Property, Plant and Equipment [PPE] is valued at replacement cost, repairs and maintenance cost will be allowed at 2% of the replacement value of the PPE as determined above in section 4.2 regulated business will be allowed.

6.5 Principles regarding expenses:

6.5.1 Expenses planned for the efficient operation and maintenance of the regulated business will be allowed.

6.5.2 Procurement practices must be prudent.

6.5.3 Internal expenses must meet the criteria of being competitive in comparison to appropriate benchmarks.

6.5.4 Research and development expenses are permitted, subject to adequate justification.

[6] Note: The Energy Regulator has approved regulatory reporting manuals. Volume One and Volume Four (Gazetted on 10 September 2008) apply to the petroleum storage and loading facilities. These manuals are intended for general regulatory reporting by licensees and outline the format and content of information required to inform tariff applications

6.5.5 Reasonable joint costs[7], may be permitted, subject to adequate justification and in accordance with the regulatory reporting manuals.

6.5.6 Provision for land rehabilitation costs are permitted, subject to adequate justification. These funds must be kept in accordance with the Petroleum Pipelines Act 2003 (Act No. 60 of 2003) sub-regulation 9 of the Regulations made in terms of the Act published under GN R342 in *Government Gazette* 30905 of 4 April 2008.

6.5.7 Operating expenses which are not related to the operations of the regulated assets that are used or will be used in the tariff period under review are not allowed.

6.5.8 Expenses relating to corporate social responsibility and donations are not allowed, unless it can be shown that these costs benefit tariff paying customers.

6.5.9 Litigation costs incurred in the production of income in accordance with South African Revenue Services rules are allowed. The costs of litigation arising from the transgression of laws are not allowed.

6.5.10 Justifiable marketing expenses are allowed, but only those relating to the marketing of regulated activities.

6.5.11 Expenses on mothballed plant that the licensee plans to bring back into use in future are not admitted as the plant will be valued as a new plant (replacement value) when it comes back into use.

[7] Although not precisely the same, joint costs are sometimes referred to as shared services, corporate costs or common costs.

7 Clawback Adjustment (C) and Reopening of Tariff Decisions

Annual Tariff Applications

7.1 Clawback or giveback adjustments to Allowable Revenue will not be permitted instead annual tariff applications will be analysed in depth to ensure assumptions correspond with recent history.

Multi Year Tariffs Applications

7.2 Licensees have the right to apply for changes to their tariff approvals at any time they wish to do so. Naturally the Energy Regulator will expect justifiable reasons for doing so.

7.3 The Energy Regulator has the right to reopen multiyear tariff approvals if actual data [volumes and operational expenditure] have changed, from those forecast at the time the tariff was approved, to the extent that tariffs would be affected by more than 6%.

7.4 Changes to previously approved multiyear tariffs will NOT trigger a clawback or give back but will rather reset the future tariffs to levels representing the new updated assumptions for data (volume and operational expenditure). The WACC used in the initial multiyear tariff decision will continue to apply.

8 Tax Expense (T)

8.1 Tax expense allowances will be calculated on the notional tax basis.

8.2 Notional tax refers to a licensee's estimated notional tax expense with respect to the regulated activity for the tariff period under review. If the licensee opts for the notional tax approach, the calculation is to be performed by applying the following formula:

Tax = {(NRBTA) / (1-t)}*t

Where:

NRBTA = Net revenue before tax allowance = RAB*WACC

t = Prevailing corporate tax rate of the licensee

9 Tariff Design [TD]

The Energy Regulator will approve tariffs(s) based on specific circumstances and the business model of a specific licensee while taking cognisance of the requirements of section 28 of the Petroleum Pipelines Act, 2003 (Act No.60 of 2003)

The sum of the tariff(s), multiplied by expected or forecast volume for each tariff, must equal the Allowable Revenue (AR)

10 Standard costing option for petrol and diesel storage

The Department of Energy [DOE] regulates the price of fuel [Petrol and Diesel] using its Regulatory Accounting System (RAS) models.

The Energy Regulator recognizes that many storage facilities earn their investment returns based on the value of secondary storage allocated by DOE in fuel prices.

Consequently, the Energy Regulator has developed a standard model based on the replacement value of assets and operating costs used by the DOE in the RAS models to enable licensees who elect to apply for tariffs on a simplified basis. This is done by reading standard costs from a table to calculate Allowable Revenue [AR].

11 Inflation of approved tariffs

11.1. If the licensee chooses to do so, it may apply for an annual inflationary adjustment to that approved tariff. Once a tariff is approved, based on this methodology, the Energy Regulator will accept an annual inflationary adjustment to this tariff.

11.2 Annual inflation adjustments must use the formula as set out below:

$$\text{Tariff } FY_n = \text{Tariff } FY_{n-1} \times KCPI_n$$

Where:

FY_n = Financial Year for which the tariff is being determined

FY_{n-1} = Financial Year prior to which the tariff is being determined

$KCPI_n$ = CPI Index value for three (3) months before the end of FY_{n-1} divided by the CPI index three (3) months before the end of FY_{n-2}.

11.3 The Applicant must submit for approval, to the Energy Regulator, two (2) months prior to the commencement of the new tariff about the new inflated tariff.

12 Review and Modification of the Tariff Methodology

The Energy Regulator will conduct a review of the methodology when necessary.

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