REGULATORY FRAMEWORK
FOR THE
ECONOMIC REGULATION
OF MUNICIPAL ELECTRICITY DISTRIBUTORS
OF SOUTH AFRICA

STAKEHOLDER CONSULTATION PAPER

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ABBREVIATIONS

ADAM	Approach to Distribution Asset Management
CAPEX	Capital Expenditure
CAPM	Capital Asset Pricing Method
CPI	Consumer Price index
CWIP	Construction Work in Progress
DME	Department of Minerals and Energy
DRC	Depreciated Replacement Cost
EEDSM	Energy efficiency and demand-side management
GAMAP	Generally Accepted Municipal Accounting Principles
GRAP	Generally Recognised Accounting Principles
EDI	Electricity Distribution Industry
ESI	Electricity Distribution Industry
IHC	Indexed historical cost
IDP	Integrated Development Plan
MEAV	Modern Equivalent Asset Valuation
MFMA	Municipal Finance Management Act
MIG	Municipal Infrastructure Grant
NIRP	National Integrated Resource plan
ODRC	Optimised Depreciated Replacement Cost
ODV	Optimised Deprival Valuation
PPE	Property, Plant and Equipment
PPI	Producer Price Index
RAB	Regulatory Asset Base
REDs	Regional electricity distributors
ROR	Rate of Return
SRAB	Starting Regulatory Asset Base
WACC	Weighted average cost of capital

1 EXECUTIVE SUMMARY

The National Energy Regulator of South Africa (NERSA) is the regulatory authority over the energy sector (electricity, piped gas and petroleum pipeline) in South Africa. In regulating the electricity industry, NERSA derives its powers and functions from the Electricity Regulation Act, 2006 (Act No. 40 of 2006) (as amended) (hereinafter referred to as ñthe ERAò).

The ERA confers upon NERSA the powers and duty to regulate electricity prices and tariffs. In particular, section 4 (a)(ii) states that ñthe Regulator must regulate prices and tariffsò.

Internationally, regulators have developed various methodologies to determine appropriate revenue levels required by regulated entities, involved in the generation, transmission and distribution of electricity. The purpose of this report is to provide for a framework to be used to regulate the tariffs of large municipal distributors by calculating a revenue requirement based on the rate of return methodology.

The framework provides for the application of the ROR methodology as the applicable methodology for large municipal distributors, and sets various rules to be applied by NERSA in the assessment of all applications for price and/or revenue increases from licensed distributors. This paper will discuss the application of the framework based on the five components of the ROR methodology ï namely, the Regulatory Asset Base (RAB), the Rate of Return and the Regulated Cost of Supply Expenses, the Claw-back Mechanism, and the Impact of Projected Volumes. All these five components will be discussed in order to ensure completeness in the application of the ROR framework in the economic regulation of electricity prices and tariffs.

The regulatory framework is arranged as follows: the next section deals with the introduction and background, followed by the rate of return regulatory methodology together with its advantages and disadvantages. The final section discusses the practical application of the ROR methodology, and the rules that have been derived for this application.

2 INTRODUCTION AND BACKGROUND

The National Energy Regulator of South Africa (NERSA) is the regulatory authority over the energy sector (electricity, piped gas and petroleum pipeline) in South Africa. In regulating the electricity industry, NERSA derives its powers and functions from the Electricity Regulation Act, 2006 (Act No. 40 of 2006) (as amended) (hereinafter referred to as ñthe ERAò). The ERA confers upon NERSA the powers and duty to regulate electricity prices and tariffs. In particular, section 4 (a)(ii) states that ñthe Regulator must regulate prices and tariffsò

To carry out its mandate of ñregulating prices and tariffsô and in particular those of metropolitan municipalities, NERSA has adopted an internationally accepted regulatory methodology, which is also accepted by stakeholders. The following guiding principles are important in the development and adoption of such a methodology:

1. The objectives to be achieved by the methodology
2. International best practice;
3. Developments within the South African Electricity Supply Industry (ESI), especially the restructuring of the industry; and
4. Current and future structure of the electricity industry;

Currently, in the absence of an economic methodology to properly determine the revenue requirement for municipalities, NERSA uses benchmarks to evaluate the tariffs so that they can be able to collect the required revenue.

The benchmarking methodology is well-established internationally and is normally applied in the case of information gaps within the regulated utilities.

Below are the advantages and disadvantages of the benchmarking methodology.

Advantages:

1. Benchmarking is internationally accepted as a regulatory methodology;
2. It looks at both the financial/ technical and the tariff level side;
3. It strives to ensure some tariff convergence/ rationalisation within the industry;
4. It is a very simplified method which allows for the approval of the high number of applications received from municipalities;
5. Because of the quality of data received from municipalities, it is the only available information.

Disadvantages:

1. It is difficult to see the link between the revenue requirement of the licensee and the approved tariffs;
2. It does not encourage efficient management of costs by suppliers;

3. While benchmarking is internationally accepted, in South Africa, this method is not fully developed due to the lack of information from municipal distributors.
4. It does not tackle issues with cross-subsidisation between various municipal departments.
5. Average consumption levels are used for different customer categories which might not be the true reflection of the levels in the respective municipalities

Given the above disadvantages of the benchmarking methodology, the Energy Regulator approved the rate of return (ROR) methodology to be used to evaluate the tariffs of large municipalities. The Energy Regulator further approved that this methodology be piloted at three metros which are: Ethekwini, City Power and City of Cape Town before it is rolled out to other metros and eventually to other big municipalities.

Objectives of the rate of return (ROR) methodology

Objective 1: Economic efficiency, including the optimal use of scarce resources.

- The ROR methodology is based on a cost plus basis of calculating the revenue required by the regulated entity. The regulator then determines efficiently incurred costs which should be allowed as part of regulatory expenses. This provides an incentive to regulated entities to reduce costs and operate more efficiently.

Objective 2: Price stability; contribution to low inflation rates through reasonable, predictable and smooth prices increases.

- The ROR methodology has the potential to achieve this objective by focusing on the level of required revenue by the regulated entity. Any excess revenue is not allowed by the regulator therefore ensuring that price increases by the utility are not excessive.

Objective 3: Revenues to market participants sufficient to cover costs and provide reasonable profit.

- This methodology is based on the concept of adequate rate of return for the regulated entity. This revenue is calculated to be õsufficient to cover efficiently incurred costs and provide reasonable profitòfor a tariff year. The ROR methodology can therefore be used to achieve this objective.

Objective 4: Reliable provision of service; Quality of supply and service, in accordance with appropriate standards; Customer satisfaction with the participants in the industry; Resolution of complaints and disputes.

- Because all cost incurred by the utility for provision of reliable service, quality supply and customer satisfaction, are allowed in the ROR methodology, utilities will not hesitate to prudently incur costs in order to supply such services.

3 THE RATE OF RETURN REGULATORY (ROR) METHODOLOGY

3.1 Brief Description of the ROR Methodology

The ROR methodology is defined as follows:

ñThe revenue to be earned by a utility should be equal to the efficiently incurred ***cost to supply*** electricity plus a fair ***rate of return*** on the ***regulatory asset base (RAB)***". The components of this definition are explained further as follows:

Cost to supply means all expenses that are efficiently incurred in the production and supply of electrical energy. This would mean that any expense that cannot reasonably be associated with the supply of electricity would not be included in calculating the price to be paid for that electrical energy. Such expenses include electricity purchase costs, production costs, operating and maintenance costs, manpower costs, and depreciation of property, plant and equipment involved in the production and supply of electricity. Other expenses, which are not regarded as directly or indirectly involved in the production and supply of electricity, will not form part of the ñcost to supplyò electricity. These expenses are fully discussed in Chapter 4 of this Framework under the title ñThe Regulated Cost of Supply Expensesò

Rate of Return means the amount of money to be earned by the suppliers of capital for their investment in the business. The return is equal to the rate of return multiplied by the appropriate capital employed. The rate of return can be determined as a percentage of the companyôs assets (return on assets) or as a percentage of the shareholders equity (return on equity). In the ROR methodology the return on assets (ROA) is used. The return is calculated as the weighted average cost of capital (WACC), where the cost of capital is represented by the cost of debt and the cost of equity invested in the regulated entity. This topic is further discussed in full in Chapter 4 of this report under the title ñThe Rate of Returnò

The ***Regulatory Asset Base*** means all productive assets employed by the utility in the supply of electricity. This includes all property, plant and equipment, which the utility utilises for the production and supply of electricity. Further, an allowance is made for working capital held by the regulated entity at the end of the financial year after providing for long outstanding debts. The RAB is also discussed in full in Chapter 4 of this Framework under the heading ñTreatment of the Regulatory Asset Baseò

3.2 Theoretical Application of ROR

The ROR methodology is applied by using the following formula:

R = E + (V – d + w) x r ± C

Where:

R = the required revenue of the regulated entity

E = the cost to supply (i.e., purchase costs, production costs, operating and maintenance costs, manpower costs, and depreciation of property, plant and equipment involved in the production and/or supply of electricity)

r = the calculated rate of return using the weighted average cost of capital (WACC)

V = the value of the qualifying property, plant and equipment used in the production and/or supply of electricity

d = the accumulated depreciation on above qualifying property, plant and equipment held by the regulated entity

w = the allowance for working capital held by the regulated entity for the purpose of the regulated production and/or supply of electricity

C = claw-back/payback

This would give the required revenue of the utility. This revenue would then be divided by the projected/forecast sales volumes to arrive at the price to be charged by the regulated entity to its customers. In tabular form, this is presented as follows:

Regulatory Asset Base (V ï d + w)	XXX XXX
multiplied by	
Rate of return (r)	X %
equals: Required return on investment	XX XXX
Add	
Allowed Expenses (E)	X.XXX
equals: Required revenue (before claw-back/ payback)	XX XXX
Deduct/ add: Claw-back/ payback	XX XXX
equals: Required revenue(R)	XXX XXX
Divide by: projected volumes to be sold	XXX XXX MWh
Equals: Average price	XX c/kWh

Table 1: Tabular representation of the ROR methodology

3.3 Advantages of Using the ROR Methodology

- The methodology is very simple and can be understood by both the regulated entity and the Regulator;

- The ROR methodology sets a basis for the determination of tariffs under a cost-reflective regulatory regime. In the first year of regulation, it is necessary to determine what the efficient cost to supply electricity is and also allow the utility to earn a fair return on its investment;

- The ROR methodology ensures that the financial viability of the regulated utility is maintained by reviewing the costs of the utility on an annual basis and allowing for justified cost increases;

- In an uncertain environment where the industry is undergoing restructuring (such as in South Africa), the advantages of the ROR methodology are enormous as it is very simple to adjust for unforeseen events when they occur; and

- By assuring the regulated entities a fair return on their investments, the Regulator takes away investment risk from an investor which results in a lower required return on capital and therefore lower prices of electricity.

3.4 Disadvantages of Using the ROR Methodology

- Because the methodology is based on the cost plus method of determining revenues required, it does not give any incentives for the regulated entity to reduce costs. Utilities are ñassuredò revenue equal to costs incurred (efficiently or inefficiently), *plus* a fair return on their investment (also assured). This ñassuranceò gives no signals to utility management to efficiently manage costs and investments;

- There is an incentive for the regulated entity to overstate their costs and their RAB.

    - Because the higher the costs, the higher the revenue required by the entity, there is an incentive for the entity to overstate costs to obtain a higher price increase.
    - Also, because the assets determine the money amount of the return on investment, management may have an incentive to overvalue their assets. It is a worldwide problem when this methodology is applied that there is usually disagreement on which asset valuation methodology to use when determining the regulatory asset base (i.e. historical cost, modern equivalent

asset valuation, optimised depreciated replacement cost, current cost, etc.).
  - Utilities could also be tempted to capitalise operating expenses or vice versa.
  - The methodology may also lead to some gold-plating (i.e. excessive investment in unwanted assets);

- It is a complex task to determine a ñfairò rate of return. There is always disagreement on what a fair rate of return should be from the utilityôs and other stakeholders/consumersô perspective. The utilityôs management argues for a high rate of return while the consumers/other stakeholders argue for this return to be minimised. It is therefore important for the Regulator to determine the rate of return based on widely accepted cost of capital determination methods, together with a previously accepted set of weighted regulatory objectives;

4 PRACTICAL APPLICATION OF RATE OF RETURN REGULATION FOR LARGE MUNICIPAL ELECTRICITY DISTRIBUTORS IN SOUTH AFRICA

4.1 Treatment of the Regulatory Asset Base (RAB)

The regulatory asset base (RAB) means all productive assets employed by the utility in the production and supply of electricity. This is the amount of capital that is used by the utility in providing its service. The RAB will thus consist of allowable fixed assets and working capital. Whilst the former category is made up of physical productive assets, the latter is an allowance for the capital needed to finance the time lag in the payment and receipt cycle.

4.1.1 *Qualifying criteria for assets*

All assets included in the regulatory asset base should be used in the generation (where a municipality has generating assets) or distribution of electricity or related electricity supply activities. All other assets are excluded.

The electricity industry is a capital intensive business. Thus, one would expect property, plant and equipment to be a significant component of assets. The actual nature of these assets will differ depending on the nature of the business. Distribution has two main components, namely, wires and retail businesses. The wires component has significant assets in the form of distribution lines and substations. A unique feature of the retail business is that it does not have a significant asset base like the generation and wires (transmission and distribution) businesses.

The opening balance that will be used to determine the RAB will be obtained from the starting regulatory asset base (SRAB) study conducted by NERSA. The values are as at 30 June 2009. The appropriate index will be used to write-up the RAB values going forward. The appropriate index will be specified in the SRAB study, that is, Consumer Price Index (CPI).

Comment # 4.1.1: Stakeholders are requested to comment on the criteria proposed by NERSA.

4.1.1.1 Treatment of specific assets:

1. **Mothballed assets** - Mothballed assets will be **excluded from the RAB and should be disclosed separately**. Mothballed assets can only be included in the RAB if the municipality can provide reasonable evidence of future re-commissioning plans to show that it should be included.. The reason for excluding mothballed assets is the premise that mothballed stations result from poor investment decisions. A utility should not be rewarded for making such poor decisions and the regulatory methodology should encourage investments to be made at the appropriate time. That is, if investments are made before they are required and then not used; the

utility cannot be expected to earn a return on this. However, since some mothballed stations may be re-commissioned in future, maintenance on such stations should be allowed. This will be done in conjunction with the plans within the National Integrated Resource Plan (NIRP) as developed by the Department of Energy.

2. **Impaired Assets** - Assets affected by impairment will be **included in the RAB and adjusted** by the amount of impairment losses/loss reversals for the specific period. Substantial impairments may be recorded in a deferral account and apportioned to tariffs over a period determined by the regulator to allow tariff smoothing.

3. **Strategic/special stores**. - We recommend firstly that in accordance with the Regulatory Reporting Manual Volume 2 that electric plant held for future use should be excluded from the RAB until commissioned and that plant equipment **held for emergencies should be included in the RAB**. Secondly it is important that the municipalities ensure that strategic store items are **clearly identifiable from** electric plant held for future use. Strategic/special stores are included because they are necessary to ensure security of supply.

4. **Zero book valued / Long lived assets** - Zero book valued / long lived assets should be included in the SRAB **at the revaluation amount** as calculated from the adjusted useful life determined in the SRAB report.

5. **Capital Projects / Construction Work in Progress (CWIP)** - In accordance with the Regulatory Accounting Manual Volume 2, work orders should be cleared from the CWIP account as soon as practicable after completion of the project and recognised as an asset and included in the RAB. CWIP is included when calculating the regulatory asset base. The advantage of allowing assets to be included whilst they are being constructed is that this prevents a sudden increase of the RAB when the plant is commissioned, that would result in price spikes. Allowing the asset to be capitalised over time smoothes the price increase shocks. However, care should be taken to ensure that interest during construction is excluded from these assets to avoid double counting of returns for the same assets.

6. **Assets shared with other departments/institutions -** Shared assets should be included in the SRAB on an **apportionment basis** as calculated for each specific asset that is shared. Where assets are shared between the electricity department and other departments of the municipality, it must be ring-fenced. If considered an electricity asset, its usage must be charged to the municipality at commercial rates and vice-versa. See RRM Volume 1 on affiliate transactions.

7. **Assets procured by the municipality but not owned / controlled by the municipality**.- Declare the asset(s) separately at a value applicable to the specific type of asset(s) but exclude it from the RAB

8. **Grant funded assets -** Grant funded assets should be **included in the RAB** at cost or at the revaluation amount. GAMAP/GRAP treats all assets similar irrespective of how the asset was funded. Paragraph 108 of the Regulatory Accounting Manual Volume 2 states that information/records, such as purpose and amount of the grant should be kept. Because municipalities are directly responsible for the provision of services to the community, the government through the Department of Energy (DOE) and other provincial departments contribute towards the funding of new electrification assets and the refurbishment of existing electrification infrastructure.

   For the purpose of calculating the RAB, all assets funded by national and/ or provincial government departments will be included. This means that these assets will be allowed to earn a return. This is premised on the requirement for the Municipality to maintain these grant funded assets while they are in use and replace these grant funded assets at the end of their useful life.

9. **Standby generators** - standby generators held by municipalities should be **included in the RAB** as they are ñused and usableò and form a critical ñinsuranceò on the security of supply.

10. **Street lighting assets** ï these assets should **not be included in the RAB** as they are owned by the municipality and not the electricity departments. However, maintenance costs should be allowed (this is addressed under expenses in detail).

Comment # 4.1.1.1: Stakeholders are requested to comment on the treatment of specific assets as proposed by NERSA.

4.1.2 Valuing the Regulatory Asset Base (RAB)

There are several asset valuation methodologies, the most common of which are:

- Indexed Historical cost (IHC)
- Current/Replacement cost (variations include inflation-indexed)
- MEAV-based Depreciated Replacement Costs (DRC)

Each of these has distinct advantages and disadvantages, and the selection by the Regulator is based on the level of appropriateness for the electricity supply industry in South Africa.

4.1.2.1 Indexed Historical Cost method (IHC)

This complies with the standard accounting convention and the asset is recorded at its purchase price. The value does not evolve over time. The IHC is widely used by regulators internationally.

- The IHC presents the following advantages:

- Valuation method is consistent with general accounting conventions;
- The values are in general objective, easy to ascertain and relatively non-contentious;
- Compliance cost is low;
- Most common used approach due to the ease of administration, practicality and ability to attract capital;
- It's a reflection of the current cost of production when you have low/steady inflation and for same technology
- It is a transparent; and
- It is consistent with the concept of economic "fair" value and cost-reflective tariff setting.

- The IHC presents the following disadvantages:
  - Assets are understated during periods of high inflation;
  - Assets are overstated when there is significant technology advancements; and
  - Requires information dating back to when the oldest in service asset were first commissioned and the relevant information might not be readily available.

There has been both significant technological progress in the ESI sector as well as high inflation in South Africa over the past three decades. These changes work in opposing directions. It is possible, that the overall effect of having both high inflation and rapid technological change is neutral when assessing this method. However, this cannot be proven.

4.1.2.2 Current cost valuation

Current/replacement cost is determined by finding current market prices for assets i.e. the price one would pay in the current period for the asset. Alternatively, inflation-indexed costs, are determined by applying an annual inflation factor (usually one plus an appropriate inflation index), to the asset on an annual basis. Note that the current/replacement cost may equal the inflation-indexed cost, but it is highly likely that they will differ. The difference between the two will depend on a number of variables including, but not limited to:

- The nature of the asset
- The annual rate of inflation
- The choice of inflation index (CPI, PPI)
- The rate of technological change between the purchase date of the asset and the current period.

- Replacement cost valuation has the following advantages:
  - It matches the economic value when inflation is high;
  - It gives an indication of capital costs to potential market entrants.

- Replacement cost valuation has the following disadvantages:
  - It is subjective, because current prices may be difficult to determine, especially if purchasing is done through contracts;

- It may not take into account technological change and, if it does, the methodology of compensating for technological change may be subjective. It may therefore overstate the actual economic value;
- The regulator may depend on the utility to determine the replacement/inflation-indexed cost. This figure is not usually audited. The principles applied may be tested/reviewed by the auditors.

4.1.2.3 MEAV-based Depreciated Replacement Cost (DRC) method

The Municipal Finance Management Act [1]defines in the Municipal Asset Transfer Regulation[2] the DRC value as:

"an amount equivalent to the cost to replace the capital asset on the date of transfer adjusted by a deemed depreciated cost at the date of the transfer taking into account the age and condition of the asset"

The MEAV-based Depreciated Replacement Cost is defined as the current cost of acquiring a present day asset (a õmodern equivalent asset ö) that could provide a similar level of service to the asset in question.

MEAV focuses on valuing the cost of assets needed to provide the equivalent service being provided by the existing assets. For example, rather than replacing a transformer of a specific technology, the focus would be on supplying the same level and quality of transformer service, using the most cost efficient technology, which may differ from the existing technology.

MEAV Replacement Cost is therefore based on the technology of the day at current market values.

- The MEAV_based DRC presents the following advantages:
  - Valuation method is consistent with general accounting conventions and international standards when consistently applied;
  - It is based on the current market values of current technologies in market;
  - It ös a reflection of the current cost of production which discourages wasteful consumption/investment; and
  - It better tracks the economic value when inflation is high.
- The MEAV_based DRC presents the following disadvantages:
  - It requires periodic expert involvement for estimating the current prices making it a more expensive process and very time consuming
  - It is more subjective and hence less reliable in providing comparable estimates of the Regulatory Asset Base either over time and/or across different regulated utilities.

1 Municipal Finance Management Act 56 of 2003

2 Municipal Asset Transfer Regulation as published in Government Notice R878 in Government Gazette 31346 of 22 August 2008

- It is more suitable to industries with declining long-run marginal cost, hence it has not been used extensively by energy regulators world wide; and
- Tariffs based on this type of current cost valuations do not necessarily result in optimal prices or resource allocation.

4.1.2.4 Selection of the valuation methodology

As can be seen, each of the methodologies has several advantages and disadvantages. The appropriateness of each methodology is a function of the unique circumstances in each country. In South Africa, these circumstances include:

- The valuation methodology must be in line with the Electricity Pricing Policy (EPP). Policy 1 of the EPP states that the regulator, after consultation with stakeholders, must adopt an asset valuation methodology that accurately reflects the replacement value of those assets such as to allow the electricity utility to obtain reasonably priced funding for investment; to meet Government defined economic growth.
- The restructuring of the electricity distribution industry and the level of uncertainty around the form, timing etc;
- The national policy of inflation targeting;
- The need to send appropriate investment signals;
- The need for future generation capacity;
- The need for market-players to earn appropriate returns on investment.

4.1.2.5 Conclusion:

Network assets:
For the starting regulatory asset based (SRAB) determination, MEAV-based DRC valuation methodology is to be applied to all network assets. Further to that, the assets will be adjusted for condition of asset. For the subsequent tariff periods, the MEAV-based DRC values in the SRAB will be indexed annually using the Consumer Price Index (CPI). The starting value of the RAB should not be changed except in accordance with the rules for updating ï reflecting inflation, depreciation, new investments and decommissioning. The DRC is in line with the EPP.

Non-network assets:
For starting and annual valuations, the IHC valuation methodology is to be used, based on verifiable cost prices and acquisition dates by the municipality and indexed using the CPI. Only assets to which the municipality can provide verifiable cost prices and acquisition dates will be included in the regulatory asset base (RAB).

For both network and non-network assets, periodically e.g. every 5 years, market testing be conducted to establish alignment/misalignment between

current cost replacement values in the market versus IHC values used in RAB. Energy Regulator will then make a decision on how any misalignment is to be dealt with. However, before adopting this approach how the Energy Regulator needs to consider this fundamental economic principle. What is the investor being compensated for with this replacement cost valuation?

- Is it for the time value of money for the initial investment (i.e. sufficient return to recoup initial investment in real terms); - in which case indexing is sufficient; or
- Is it to give the investor just any return so long as it is sufficient to replace the old asset with a new one? ï in which case periodic adjustments to MEAV-based replacement cost is necessary.

Comment 4.1.2.5: Stakeholders are requested to comment on the proposed way of valuing assets

4.1.3 *Allowance for Working Capital*

Working capital forms part of the regulatory asset base (RAB). It is the amount of capital which is readily available to an organisation. Thus, working capital is the difference between resources in cash or readily convertible into cash (Current Assets) and organisational commitments for which cash will soon be required (Current liabilities). Working capital can also be defined as the measure of both a company's efficiency and its short-term financial health. Working capital also gives investors an idea of the company's underlying operational efficiency.

Working capital = Current assets ï Current liabilities

Current assets include, but are not limited to, the following:

- Liquid Assets (cash and bank deposits);
- Inventory;
- Debtors/ accounts receivables.

Current liabilities include:

- Bank overdraft;
- Creditors/ accounts payables;
- Other short-term liabilities.

If a municipality is operating with more working capital than is necessary, it means that it is operating inefficiently. If a utility's current assets do not exceed its current liabilities, it is illiquid therefore; it may find it difficult to pay back creditors in the short-term. The worst case scenario will be bankruptcy.
For regulatory purposes, liquid assets (cash and bank deposits) are not allowed to earn a return. Reason being that they can easily be invested in the capital and/ or financial institutions and earn a return. This means that if working capital is properly managed then cash will be in bank deposits for as long as and in the largest amounts possible, thereby maximising the interest earned. The calculated working capital is thus added to the net asset to calculate the regulatory asset base on which a return will be earned.

Comment # 4.1.2: Stakeholders are requested to comment on the proposed way of treating working capital

4.1.4 Depreciation of the Regulatory Asset Base (RAB)

There are two main ways in which assets can be depreciated, namely the straight-line basis and the diminishing balance method. The former results in the depreciation of the asset over a fixed term at a constant amount (in nominal terms) per annum. Thus, an asset that is purchased at R100 and depreciated over 5 years (or 20%) will result in a depreciation figure of R20 p.a.

When using the diminishing balance method, the depreciation is calculated on the net book value, which is decreasing over time, not at a constant nominal value, but at a constant rate. Thus, depreciating an asset that is purchased at R100 and depreciated at 20%, will result in a depreciation figure of R20 in the first year. In the second year, depreciation will be calculated on the net book value of R80 (i.e. R100 less R20), and this will result in a depreciation figure of R16 in the second year. Similarly, in the third year depreciation will be calculated on the new net book value of R64 (R80 less R16).

The diminishing balance is not used as extensively as the straight-line method. For historical valuation, depreciation is usually over a fixed period, in equal nominal amounts, i.e. on a straight-line basis.

Distribution asset lives are generally between 15 and 25 years. Therefore a period of 20 years shall be used to depreciate municipal distribution assets. This period is justifiable because it is within the range. In the application of the methodology specific circumstances of each municipality will be considered and appropriate adjustments to asset lives (with reason) may be necessary if it is informed by the sustainability of the utility and the industry. RRM Vol. 2 specifies the basis on which to re-estimate asset economic useful lives.

Existing generation assets will be treated the same as distribution assets.

Comment # 4.1.4: Stakeholders are requested to comment on the Depreciation policy proposed by NERSA.

4.1.5 Connection charges

Where customers have paid for the full connection to the network, such payments will be excluded from the RAB.

Comment # 4.1.5: Stakeholders are requested to comment on the treatment of connection charges as proposed by NERSA.

4.1.6 Capital Expenditure

Municipalities will be expected to send their CAPEX plans to NERSA together with their financial information. The plans should be able to highlight the

reasons for the necessity of the project to be implemented, the urgency of the project, highlight the risks if a particular project is not implemented, impact on community or quality of service and security of supply. The municipal electricity supply should also be able to state whether the proposed project is driven by the Integrated Development Plan (IDP) or not.

Comment # 4.1.6: Stakeholders are requested to comment on the treatment of capital expenditure as proposed by NERSA.

4.1.7 Rules on the Regulatory Asset Base:

Rule 1.1 *Fixed assets must be long-term (long-lived) in nature and must be "used or usable." Mothballed stations and other fixed assets that are not in a "used or usable" form will therefore be excluded from the RAB.*

Rule 1.2 *Used or usable means that assets should be in a condition that makes it possible to satisfy electricity demand in the short term typically less than a year.*

Rule 1.3 *The exception to rule 1.2, however, is with regard to work under construction, that is capitalised as and when construction costs are incurred will be included in RAB.*

Rule 1.4 *An allowance for working capital shall be included in the regulatory asset base and shall be calculated as follows:*

Inventory at year-end
***Plus**: closing accounts receivable (excluding debtors impairments)*
***Less**: Accounts payable at year end*
***Equals**: working capital allowance*

The working capital allowance will be set at the current asset/current liability position for the year (excluding cash balances) after making provisions for all long outstanding debts.

Rule 1.5 *Starting Regulatory Asset Values shall be valued on the MEAV-based DRC. Subsequently the Assets will be indexed by CPI*

Rule 1.6 *Assets shall be depreciated over their useful lives, on a straight line basis.. The assets write-up from CPI indexation will also be amortised on a straight line basis over the asset's remaining useful live.*

4.2 The Rate of Return

There is an evident backlog in infrastructure development at municipal level. The municipal debt market is weak on both demand and supply sides. Investors have substantial reluctance to lend to municipalities, leading to inadequate supply of funds. Within this investment environment, it means that the municipalities will need to channel capital funds to infrastructure projects and will have to be credit worthy to obtain debt funding. This implies that:

- Municipalities must have adequate revenue to cover borrowing;
- Municipalities need to have management and financial capacity and experience to make wise borrowing decisions;
- Municipalities need to have financial and technical expertise to expedite infrastructure projects.

Municipalities will start attracting capital based on the financial viability of infrastructure projects and not on their social desirability. Socially desirable projects will have to be funded from grants and surpluses. Municipalities will have to limit long-term debt to capital investment in Property, Plant and Equipment (PPE).Municipalities need to bear in minds that there are uncertainties within capital markets. Therefore, the municipalities need to consider the cost of borrowing the funds in terms of the future need to repay and make sound expenditure decisions.

4.2.1 Issues around the Rate of Return

Consideration must be given to whether municipalities should be classified into groups in terms of their credit worthiness. Internationally, borrowers are classified through various classification mechanisms, based on assessment of their credit worthiness. The real issue is the cost of capital for the entire municipality as compared to the cost of capital for the electricity service department (the entity). The issue is whether the municipalities are going to create electricity entities (ring-fenced department) to provide electricity service and empower them with powers to raise capital against their own revenues. The argument for such entities is that they allow services to be delivered by an appropriately crafted entity, with targeted taxes, fees and charges. These entities become very important in developing infrastructure.

4.2.2 Ring fencing and municipal revenues

An understanding of municipal revenues becomes important in evaluating municipal capacity to service capital. The success of the rate of return is dependent on the ring-fenced financial information, both capital planning and operating expenditure planning with a forward looking approach. It is therefore important that the electricity services be totally ring-fenced from the entire municipal operation. Ideally, the ring-fenced electricity entity should have all the powers vested in it to conduct its operations.

4.2.3 Calculation of the rate of return

The rate of return represents the compensation (quoted as a percentage) needed to induce the investors to invest in an asset. The fundamental principle is that the more exposure to risk, the more returns will be required by investors. The regulatorôs objective is to set the rate of return at an appropriate level which allows the regulated business a sufficient compensation for capital without allowing excess cash flow. The regulated entity should have the incentive to finance its business more efficiently, for the benefit of its shareholders initially and ultimately also for the benefit of customers.

The rate of return is a function of the Cost of Debt (K_d), Cost of Equity (K_e), Gearing and results in a Weighted Average Cost of Capital (WACC), which are discussed below:

Note that all calculations first done in nominal pre-tax. The conversion is then made of the calculated WACC from nominal pre-tax to real pre-tax.

4.2.3.1 Cost of Debt (K_d)

The cost of debt measures the cost of financing the business through long-term borrowings at a determined interest rate.

The formula for calculating the cost of debt is:

$K_d = (R_f + D_P)$

Where:

R_f = Government of South Africa risk free rate

D_p = Debt premium

And:

- The Government of South Africa risk free rate is represented by a simple average of monthly returns (yields) over 25 years for a basket of liquid government of South Africa bonds with 5 to 10 years to maturity as published by South African Reserve Bank (SARB).
- The debt premium is a premium over and above the risk free rate for the additional risk taken by providers of debt for putting their funds into a specific entity. An indicator to be used is the spread between the Rf or the benchmark government of South Africa bond and outstanding liquid South African corporate bonds of similar maturity (i.e. 5 to 10 years to maturity)

A supplementary/alternative approach to the above will use each Municipalityôs embedded cost of debt. The embedded cost of debt is the weighted average cost of debt of all the outstanding debt borrowed by the Municipality for the electricity business. Where the Municipalityôs borrowings

are centralised, the outstanding borrowings will be allocated as specified in the RRM Volume 1 on loans/affiliate transactions and the appropriate embedded weighted average cost determined thereon.

As an additional check, the Energy Regulator may conduct a reasonableness check with lenders and credit rating agencies in South Africa to ensure that the cost of debt awarded to the Municipality for the Electricity Supply business is sufficient to attract providers of debt funding for the electricity operations.

4.2.3.2 Cost of Equity (K_e)

The cost of equity is the required return by investors in share capital to compensate for the variability of the bottom line profits. It is equivalent to a cost of capital which includes both business risk (arising from variability of operating cash flows), and the financial risk (arising from the variability of residual cash flows after interest payments out of uncertain profits). The cost of equity may be calculated using several methodologies, among which are the following:

- Dividend Growth Model;
- Capital Asset Pricing Model (CAPM);
- Price/Earnings Ratio (P/E);
- Arbitrage pricing theory.

For most of these models like the Dividend Growth Model, P/E Ratio and the Arbitrage pricing theory to be applied, the firmôs share price or its dividend is required upfront. Because none of the utilities in the ESI are listed on the stock exchange, NERSA staff is precluded from using these models. The CAPM is therefore the selected methodology for the determination of the cost of equity.

The Capital Asset Price Model (CAPM)

The CAPM is relatively simple to apply in theory. Besides, it is a widely used and accepted procedure for estimating the cost of equity. Over the years, it has received the support of the industry and market participants. It is applied by regulatory agencies to determine and estimate the cost of equity for regulated industries in the USA and the UK, among other countries. The CAPM is applied by following three basic steps**:**

- Determine what an investor may expect to earn on the market as a whole;
- Determine the utilityôs risk premium (i.e. the utilityôs risk compared to the market risk);
- Adjust the expected market return to reflect the utilityôs risk.

The formula for calculating the cost of equity (Ke) is as follows:

$K_e = R_f + E_b (MR_P)$

Where:

R_f = Risk free rate

E_b = Equity beta

MR_P = Market risk premium

And

- The risk free rate is the compensation for the risk that an investor within a certain country is exposed to. This will be determined as a simple average of monthly returns (yields) over 25 years of a basket of liquid Government of South Africa bonds of 5 to 10 years maturity as published by SARB.;
- Equity beta is determined as a measure of a utilityôs risk profile in comparison to the market as a whole. The value of Beta ranges from zero to one. A Beta of one implies the companyôs risk is the same as the market risk to market share and revenue to repay the debt. A Beta of zero implies that the company risk is the same as the countryôs risk profile and guaranteed debt repayment. Risk is a measure of uncertainty. Some risk can be diversified (systematic risk) while other risk may not be diversified (unsystematic risk). Beta measures the risk that cannot be diversified evenly in a well-balanced or diversified portfolio. The beta will be determined using a proxy of electricity network and distribution providers quoted in a stock exchange. The Energy Regulator will make appropriate adjustments to the beta to reflect company size, project risk, etc for the entity (municipality)
- The market risk premium is the premium over the risk free rate for all investors participating in a market. It is calculated by taking the average long-term earning of the market as a whole and deducting the risk free rate. The market risk premium will be determined as the simple average of the monthly total market returns of the Johannesburg Stock Exchange All Share Index less the corresponding risk free rate over a 25 year period.

4.2.3.3 Gearing

Gearing represents the capital structure of the company between debt and equity. For any given entity, it is difficult to precisely determine the optimal capital structure. However, a better comparison can be made about the relative optimal levels of debt when given a number of entities. In our environment, the optimal amount of debt will be used to increase the amount of tangible assets as long as a good balance is made with the cost of distress. What is important is that assets must be easy to value and to liquidate. Therefore, the municipalities need to consider the cost of borrowing the funds in terms of the future need to repay and make sound expenditure decisions.

The international practice normally determines optimal gearing for regulated utilities in monopoly business at 60% debt and 40% equity. Preference is

given to debt rather than to equity because of signalling effects of debt versus equity and noting that equity is avoided because of the negative reaction of the financial markets. A final view on gearing cannot be reached until the investment and cost profile is better understood. The rate of return determination is attached to Regulatory Asset Base of regulated entities. For the rate of return, determination the level of Gearing shall be set at 50%.

Comment # 4.2: Stakeholders are requested to comment on the way in which the rate of return will be calculated.

4.2.3.4 Rules on the Cost of Capital

Rule 2.1 *The rate of return shall be calculated using the weighted average cost of capital (WACC) in the following formula:*

$$WACC = \left[\left(\frac{\mathrm{E}}{Dt + \mathrm{E}}\right) * \mathrm{K}e\right] + \left[\left(\frac{Dt}{Dt + \mathrm{E}}\right) * \mathrm{K}d\right]$$

Where

E = the equity of the licensee
Dt = the debt of the licensee
Ke = the cost of equity which is the rate of return available on alternative equity investments of comparable risk
Kd = the actual cost of debt incurred by the Licensee

Rule 2.2 *For regulatory purposes, the optimal capital structure shall be used when calculating the WACC (a need for phasing in may be necessary);*

Rule 2.3 *The cost of debt shall be determined by adding an appropriate debt premium to the Government of South Africa risk free rate (R_f);*

Rule 2.4 *The risk free rate (R_f) shall be determined by a simple average of returns over 25 years for a basket of liquid government of South Africa bonds with 5 to 10 years to maturity;*

Rule 2.5 *The Capital Asset Pricing Model (CAPM) shall be used in determining the cost of equity (K_e). The applicable formula is as follows:*

$Ke = R_f + E\beta\ (MR_p)$

Where: R_f = Risk free rate (from 2.4 above)
$E\beta$ = Equity beta; and
MR_p = Market risk premium

Rule 2.6 *An appropriate equity beta (E_b) shall be used; The beta will be determined using a proxy of electricity network and distribution providers quoted in a stock exchange. Appropriate adjustments will be made to the beta to reflect company size, project risk, etc for the entity*

Rule 2.7 *The Market risk premium shall be determined by deducting the R_f from the Market Return (MR_e); .This will be a simple average over 25 years of the monthly total market returns of the Johannesburg Stock Exchange All Share Index less the corresponding risk free rate.*

Rule 2.8 *An appropriate Market Return (MRe) shall be used based on .a simple average over 25 years of the monthly total market returns of the Johannesburg Stock Exchange All Share Index.*

Rule 2.9 *WACC pre-tax Nominal is converted to WACC pre-tax Real using the formula:*

WACC pre-tax real = {(1+WACC pre-tax nominal)/(1+CPI)} - 1

Where CPI is the simple average of historical CPI for the corresponding 25 years over which the Rf and MRe and MRp are calculated

Rule 2.10 *The inflation figures to be used to convert nominal WACC to real WACC should be taken from National Treasury or Bureau of Economic Research (BER) or from Statistic South Africa*

4.3 The Regulated Expenses

Cost to supply means all efficiently incurred expenses that are directly or indirectly incurred in the production and supply of electrical energy. This would mean that any expense that cannot reasonably be associated with the supply of electricity would not be included in calculating the price to be paid for that electrical energy. Such expenses include, amongst others, electricity purchase costs, electricity production costs, operating and maintenance costs, manpower costs and depreciation of property, plant and equipment utilised in the production and supply of electricity. Other expenses that are not regarded as directly or indirectly involved in the production and supply of electricity will not form part of the ñcost to supplyò electricity.

The above definition of ñcost to supplyò is a very generic definition and is subject to various interpretations from the various interested parties. The risk for the Energy Regulator is that regulated entities may include expenses that

may not be directly attributed to the production and supply of electricity or may incur such expenses at costs higher than their market value in order to lower the cost of other unregulated services of the regulated entity. Such practices result in incorrect and disproportionate cost allocation.

The next section deals with how the Energy Regulator will decide on which expenditure to allow or disallow for inclusion in the calculation of the revenue requirement of the electricity distribution department and at what value to be included. Expenses with subsidiaries of the utility and sister companies are also discussed.

4.3.1 Qualifying criteria for expenses

In determining the qualifying criteria for expenses, the Energy Regulator must identify all the risks that are inherent in expenses included in the calculation of the revenue requirement by the regulated entity. These risks include, inter alia, the following:

- The potential that expenses may be incurred at costs above the market rates;
- Certain expenses may not be necessary for, or related to, the production and supply of electricity;
- Certain expenditures may be incurred without careful consideration of available and more efficient options; and;
- Other expenses may be of a non-recurring or once-off nature.

In order to mitigate these risks the Energy Regulator shall allow only those expenses that conform to the following criteria:

Comment # 4.3.1: Stakeholders are requested to comment on the criteria proposed by NERSA.

4.3.2 Expenses to be funded by the municipality/ shareholder

In a competitive environment, an entity is free to fund social activities and to donate to social organisations. However, in a regulated environment, expenses to social activities and social organisations are not allowed to be recovered from the electricity tariffs. Municipalities shall fund all social obligations from their profits. The Regulator does not discourage municipalities from funding such activities, but wishes to caution that such activities should be funded from appropriate sources. This is also the case in a competitive environment where the shareholder would bear such costs and not the customers of the entity.

Comment # 4.3.2: Stakeholders are requested to comment on the expenses to be funded by the municipality/stakeholder proposed by NERSA.

4.3.3 Street lighting

NERSA acknowledges that in certain instances, the cost of street lighting is allocated to the costs incurred by the electricity distribution departments within municipalities. This practice is found in both cases where the electricity distribution has been ring-fenced and in cases where it is not. These costs may include the maintenance of the street lighting infrastructure and also the cost of the energy used for the actual lighting. Street lighting is a service provided by the municipality, as a local authority, to the public within the area of that local municipality. Therefore the cost associated with the provision of such a municipal service and the infrastructure cost must be borne by the municipality as a local authority. This means that street lighting, as a municipal cost should be charged to the municipality concerned and the cost of energy provided by the electricity department be recovered from the municipality. This will ensure transparency in the allocation of costs between the municipality and the electricity department. This is a norm in other international jurisdiction, including the UK, where street lighting is treated like other municipal services such as water and sewage services. The cost of such services are normally recovered through a municipal tax or levies/surcharges imposed by the local authority.

Further, NERSA recognises that there will be other costs associated with street lighting; these include the cost of repairs and maintenance and also the upgrade or building of new street lighting infrastructure. In dealing with the former, it is recommended that these costs are shared between the municipality and the electricity department and the costs allocated to the electricity department are reported separately. The Energy Regulator will have the prerogative to decide on whether or not these costs will be allowed using the Rules on qualifying expenses and also applying the prudence standard.

Regarding the investment in street lighting infrastructure, it is understood that this is the responsibility of the municipality concerned and that the cost of such infrastructure will not be included in the regulatory asset base of the electricity distribution department to avoid double counting. Double counting will arise in a situation where street lighting is treated as an asset belonging to the electricity department thus earning a return, whilst at the same time the costs are recovered from the tariff as operating expenditure.

NERSAôs view is that the cost of street lighting would be better reflected as a municipal cost and the electricity department recovers the cost of providing energy [for street lighting] from the municipality. Therefore, for the purpose of the proposed methodology and also taking into account transitional factors, street lighting costs will be treated as follows:

- In the first year of the implementation of the ROR methodology, NERSA will allow the recovery of operating costs associated with the street lighting as part of electricity business operating expenditure
- Street Lighting Infrastructure costs will be disallowed;

- In year two, consideration will be made in cases where the funding of this expenditure is sourced from various organisations, i.e. the municipal infrastructure grant (MIG), Eskom, etc and where the electricity department still undertakes the provision of street lighting. This process will be undertaken by careful analysis of the information submitted by the municipalities. After performing the analysis, the process will culminate in the allowance of only those costs that would have been directly incurred by the municipality and the disallowance of all those costs that would be funded by outside stakeholders/organisations.

  To undertake this process, NERSA will require the submission of detailed information from the electricity department to ensure proper analysis. In the cases where insufficient information is provided, NERSA will disallow these costs on the basis that street lighting is a municipal service to be provided by the municipality, as a local authority; and

In the third year of implementation,, the full costs (including repairs and maintenance and infrastructure costs) associated with street lighting will be disallowed and the electricity department will be encouraged to recover these costs from the municipality.

Comment # 4.3.3: Stakeholders are requested to comment on the treatment of street lighting as proposed by NERSA.

4.3.4 Shared costs

The Electricity departmentôs business forms part of the municipality. There are services that are being shared within the municipality e.g. centralised human resource department. There are also departments that do not generate revenue. This necessitates those departments that generate revenue to cross-subsidise by transfer funds to non-revenue generating departments.

The treatment of shared services by the regulator shall be that:

- Municipalities to submit to the Regulator all shared services.
- Municipalities to split the ratio of utilisation between different departments.
- The Regulator will only include the percentage allocated to the electricity business. For assets, only the percentage of utilisation by the electricity department shall be allowed to earn a return.

Expenses incurred by other departments but recovered through electricity tariffs shall not be allowed if it is not a service to the electricity department at market rates. Municipalities shall be requested to fund transfers to other departments from their profits.

Comment # 4.3.4: Stakeholders are requested to comment on whether the split of the ratio of utilisation is reasonable. Stakeholders are also requested to comment on whether transfers to other departments should be funded from profits or from electricity tariffs.

4.3.5 Repairs and Maintenance

Municipalities are expected to quantify their maintenance backlog so that they can be able to estimate the budget needed to clear the backlog. The maintenance budget should be based on the maintenance backlog submitted by the municipality. The Energy Regulator will check the technical audits that were conducted by NERSA and also consult EDI Holdings on their Approach to Distribution Asset Management (ADAM) framework. The conclusion is that the normal repairs and maintenance budget should be submitted to NERSA together with the maintenance backlog.

Comment # 4.3.5: Stakeholders are requested to comment on the proposed way of treating repairs and maintenance.

4.3.6 Bad Debt Provision

Bad debt is the amount of money owed to the municipality by its customers and is likely not to be collected. There are two ways / methods to treat the bad debts;

- Direct write off charged to income statement as an expense; and
- As an allowance, that is an estimate of amount of bad debts at the end of the financial year.

Municipalities should budget for 0.5% of their total revenue towards bad debt provision. The basis for 0.5% is from the Eskomôs Multi year price determination (MYPD) decision. Municipalities are also expected to do the following to improve their credit control:

1. Implement a credit control and debt collection policy which debtors must adhere to.
2. Ensure that all money due and payable are collected efficiently and promptly
3. Terminate services when payments are not received at a specified period and customers must pay for reconnection fees before being connected.
4. Encourage customers to make arrangements for the repayment of amounts due and at times consider giving discounts as a way of reducing bad debt.

Comment # 4.3.6: Stakeholders are requested to comment on the proposed way of treating bad debt provision.

Rules on Qualifying Expenses

Rule 3.1 *Expenses must be efficiently incurred on the normal operations of production and supply of electricity, including reasonable maintenance costs for mothballed plants and decommissioning costs;*

Rule 3.2 *Expenses must be prudently incurred after careful consideration of all available options;*

Rule 3.3 *Expenses must be incurred in an arms length transaction. The utility must have a competitive procurement policy and demonstrate to the Regulator that it has been strictly adhered to in its procurement processes;*

Rule 3.4 *For all expenses incurred under abnormal or extraordinary circumstances (that is circumstances beyond management's control), consideration shall be given to spreading the expense over a number of years to limit the impact on customers;*

Rule 3.5 *While corporate social investments and expenses on charitable donations and broad social development activities may be understandable and even desirable, these cannot be included as qualifying (regulated) expenses and would need to be funded from below the bottom-line or by the shareholder. Expenses on advertising not related to the core business of supplying electricity will also be disallowed;*

Rule 3.6 *Certain expenses on energy efficiency and demand-side management investments and activities will be allowed, provided they fit the criteria outlined in the Regulator's policy on energy efficiency and demand-side management;*

Rule 3.7 *Core research and development activities, including demonstration relating to the production and supply of electricity, that is likely to benefit customers may be allowed, depending on criteria to be agreed upon between government, the Regulator and the utility;*

Rule 3.8 *The regulated entity shall have the onus to justify to the Regulator that the expenses incurred conform to the above criteria; and*

Rule 3.9 *The regulator shall have the final discretion in allowing or disallowing any expense based on the above criteria.*

4.4 Claw-back of Revenues

The key purpose of applying claw-back is to ensure that regulated entities do not gain or lose out from discrepancies between forecasts made at the time of the price review and actual figures on the outturn capital expenditure, costs and sales figures as contained in the electricity supply entity's audited financial statements.

The effect of applying claw-back is that annual deviations from the rate of return approved by the Regulator that are caused by reasonable forecasting errors are corrected through adjustments made to allowed revenues in subsequent years. In cases where the forecasts were understated, the claw-back will only be allowed where costs where prudently incurred and the licensee is able to demonstrate that they were prudently incurred. In cases where the licensee over-estimated, the benefit will go to the customers by way of lower increases and where the licensee extracted efficiencies by improving business processes, the benefit of that will either be held in the licensee's coffers or the licensee will opt to pass it on the customers by way of lower increases in the subsequent years.

Where there have been significant deviations between forecasts made at the time of the review and outturn costs and revenues, claw-back can be significant.

Comment # 4.3.5: Stakeholders are requested to comment on the proposed way of dealing with clawback.

4.4.1 Rules on Claw-back

Rule 4.1 *Over/under-recovery shall be clawed-back/paid-back in the following financial years from/to the regulated entity based on the actual figures for the previous year. The difference between the allowed revenues based on the forecasts and the audited financial statements will be accounted for in the other financial year;*

Rule 4.2 *In calculating the claw-back/pay-back, the following formula shall be used:*

Allowed return on actual regulatory asset base
***Plus**: actual reported expenses*
***Minus**: non-prudent expenditure*
***Equals**: revised allowed revenue*
***Less**: actual earned revenue*
Equals: amount to be clawed back

Rule 4.3 *Only prudently incurred costs will be allowed in the calculation of claw-back in cases of under-forecasting by the licensee*

Rule 4.4 *Should the licensee extract efficiencies and demonstrate to the Energy Regulator as such, the licensee may opt to either keep the benefit in its coffers or pass it on to the customers by way of lower increases in the following years..*

4.5 Volumes adjustments

NERSA uses volumes to calculate an average price increase to be charged by the regulated entity (municipal electricity supplier). This is done by dividing the revenue calculated with the forecasted volume (MWh sales) provided by municipalities.

For the purposes of calculating the average price increase using the rate of return, it has been discovered that utilities tend to understate/overstate their volumes. This result in them being allowed a higher/lower price in c/kWh. NERSA follows a validation process stipulated in the rules below to ensure that the volume forecast is reasonable.

Comment # 4.3.5: Stakeholders are requested to comment on the proposed way of dealing with volumes.

4.5.1 Rules on volumes

Rule 5.1 *Annual growth on volumes will be analysed based on the current information available to NERSA; and*

Rule 5.2 *Any unexpected deviations from the growth trend will require the municipality to demonstrate factors that have led to these deviations.*

Comment # Stakeholders are requested to comment on the document as a whole.

Glossary

1. Economic efficiency

Regulated utilities are to produce electricity in a manner that they achieve economic efficiency. Economic efficiency covers both allocative and productive efficiency. Allocative efficiency refers to the optimization of output given a set of resources. On the other hand, productive efficiency deals with the minimization of costs during the production of electricity.

2. Large municipalities

NERSA categorise municipalities in terms of their sales per year. All municipalities with the highest sales are regarded as large municipalities. When developing the framework, 19 municipalities were identified as large municipalities. These municipalities include all metros. It is believed that they have capacity and their electricity accounts are ring-fenced or in a process of being ring-fenced.

3. Prudent costs

Prudent costs are reasonable costs that the utility has to incur to run its operations.