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# **ELECTRICITY MULTI-YEAR PRICE DETERMINATION TARIFF METHODOLOGY**

**FOR THE REGULATION & APPROVAL OF TARIFFS, PRICES, AND  
CHARGES IN THE ELECTRICITY SUPPLY INDUSTRY OF ESWATINI**

**2024**

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**GLOSSARY OF TERMS AND ACRONYM**

CAPM	Capital Asset Pricing Model
CPI	Consumer Price Index
CBE	Central Bank of Eswatini
EEC	Eswatini Electricity Company
ERP	Equity Risk Premium
ESI	Electricity Supply Industry
FPA	Fuel Purchase Agreement
IPP	Independent Power Producer
ISO	Integrated System Operator
PPP	Purchasing Power Parity
RAB	Regulatory Asset Base
ROR	Rate of Return
RCA	Regulatory Clearing Account
SOE	State Owned Enterprise
WACC	Weighted Average Cost of Capital
PUGL	Public Utility Generation Licensee
PUDL	Public Utility Distribution Licensee
PUSL	Public Utility Supply Licensee
PUTL	Public Utility Transmission Licensee
MOTRACO	Mozambique Transmission Company
MYPD	Multi-Year Price Determination

## DEFINITIONS

Ring-fenced:	Separation of financials associated with licensed power system activities i.e., Generation, Transmission, Distribution and Supply.
Transfer pricing:	The rules and methods for pricing transactions within the Public Utility ring-fenced Generation, Transmission Distribution and Supply functions.
MYPD:	Framework for the regulation of licensees' tariffs over a period of more than one (1) year. The maximum tariff approval period for MYPD shall not exceed five (5) years.
Public utility Licensee:	The electricity company established in terms of the Swaziland Electricity Company Act, 2007. Its role is to 'serve as a supplier of last resort' and to operate those value chain elements that are typically considered 'natural monopolies' that cannot be duplicated efficiently.
Re-Opener:	A provision that allows for tariff adjustments to be made based on changing circumstances to ensure that the licensee is able to recover its costs and maintain financial stability.
Tariff Period Approval:	Refers to either a single-year tariff or the MYPD approval.

## 1 INTRODUCTION

The Eswatini Energy Regulatory Authority (the “Authority”) was established through the Energy Regulatory Act, 2007 (Act No. 2 of 2007) (the “Energy Regulatory Act”) to regulate the energy sector in the Kingdom of Eswatini (“Eswatini”). A key mandate of the Authority is the administration of the Electricity Act, 2007 (Act No. 3 of 2007) (the “Electricity Act”) with responsibilities of exercising regulation of the generation, import/export, transmission, system operation (embedded in transmission), distribution and supply of electricity in Eswatini.

Under the Electricity Act, the Authority has the jurisdiction to issue licenses for generation, import/export, transmission, system operation, distribution, supply of electricity<sup>1</sup> and regulate electricity tariffs<sup>2</sup>. The Electricity Act specifies that the electricity prices are regulated by the Authority in accordance with a defined and approved Tariff Methodology. The Electricity Act stipulates that the Tariff Methodology shall<sup>3</sup>:

- a) *“Allow a licensee that operates efficiently to recover the full prudent costs of its business activities, including a reasonable return on the capital invested in the business;*
- b) *Provide incentives for the continued improvement of the technical and economic efficiency with which the services are provided;*
- c) *Provide incentives for the continued improvement of quality services;*
- d) *Give consumers proper signals regarding the costs that their consumption imposes on the business of the licensee; and*
- e) *Avoid undue discrimination between consumer and consumer categories”*

The electricity supply industry (“ESI”) in Eswatini is undergoing transformation due to legislative and policy enhancements as well as technological developments in the industry. These changes are anticipated to result in multiple licensees operating within the sector with a greater degree of private sector participation. It is necessary that the Tariff Methodology to be used for regulating the ESI accommodate the evolving needs of the sector.

This document presents the Tariff Methodology to be applied by the Authority for regulating the ESI tariffs. This Tariff Methodology must be employed by the generation,

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<sup>1</sup> Electricity Act, Section 3(2)

<sup>2</sup> Electricity Act, Section 32(1)

<sup>3</sup> Electricity Act, Section 32(4)



transmission, system operation (embedded in transmission), distribution, and supply licensees when making applications to the Authority for tariff adjustments.

## **2 TARIFF METHODOLOGY OBJECTIVES**

The Tariff Methodology objectives represent the requirements of different key stakeholders and inform the analysis and decisions on the most appropriate regulation options and methodologies. The following are key objectives adopted in the development of this tariff methodology and the continued use thereof.

### **2.1 Cost reflectiveness**

Tariffs for electricity services shall reflect true direct and indirect allowable costs that are associated with providing those services to a particular customer. The underlying principle in the design of the Tariff Methodology is that the licensees that operate efficiently shall recover the true cost of providing electricity to consumers while simultaneously meeting socio-economic objectives, without excessive reliance on subsidies from the Government or inter-class cross-subsidy. Cost reflective tariffs have been shown to be the driver of economic efficiency specifically in terms of the allocation of resources.

### **2.2 Affordability**

Although electricity tariffs should be cost reflective and exclude inefficiencies, the average tariffs must be affordable to low income and rural consumers. There should be a balance between cost reflectivity of prices and affordability of prices to low-income and rural consumers. Affordability may, nonetheless, necessitate clearly defined and transparent subsidies or cross-subsidies targeted towards specific consumers.

### **2.3 Encourage efficient use**

Effective regulated tariffs encourage customers to attach value to the electricity services they receive. If the electricity services are to be provided at less than their economic cost, it could encourage wasteful use. The objective of the methodology is to provide price signals to promote the efficient use of electricity by customers.

### **2.4 Reduce implementation and administration costs**

In theory, every customer has a unique cost of supply. However, it is neither practical nor viable to develop a customized set of tariffs for every customer. There is a trade-off between the complexity of tariff structures and cost to administer and implement them. The tariff design seeks to ensure sufficient tariff differentiation to reflect the true cost of supply and provide appropriate pricing signals, without introducing excessive complexity or unjustifiable additional administrative burden.

### **2.5 Provide social and economic support**

Electricity tariffs shall be designed to be consistent with the Government's social and economic policies. Countries in the region have developed mechanisms to provide support for low-income communities (such as lifeline tariffs) and/or high priority economic sectors. It is important to identify and select an approach that is aligned with

both Government policy and the legal framework. For instance, subsidies shall be introduced with the aim of funding the provision of affordable services.

## **2.6 Self Sufficiency in generation capacity**

For strategic reasons, it is important to stimulate investments in the local generation to achieve a greater level of self-sufficiency in generation capacity. The primary reason is to reduce the risks associated with cross-border supplies. This policy has an impact on the tariffs depending on how the program is funded and relative costs of local versus imported power. However, the main focus in tariff design is to stimulate investment in local generation to achieve self-sufficiency in generation capacity and reduce the reliance on imports.

## **2.7 SOEs to be self-funding**

The State-Owned Enterprises (“SOEs”) such as the Eswatini Electricity Company (“EEC” or the “Public Utility”) should be efficiently managed and should not rely on Government support to meet their financial obligations. This then frees up Government funding for other sectors such as education and healthcare that are not self-funded. The Tariff Methodology shall, therefore, take cognizance of the prevailing policy and provide for a self-funded entity.

## **2.8 Meet shareholder’s expectations**

Investors expect to receive returns from the investments they hold in regulated companies. The Tariff Methodology is designed to address the anticipated return on shareholder investments concomitant with the risk they undertake in the investments. The Tariff Methodology shall set out formulae that shall be applied to calculate the return for the Public Utility shareholder(s) and shareholders in private utility licensees.

## **2.9 Non-Discriminatory**

The tariff structure shall be non-discriminatory, except for the objectively justifiable and identifiable differences<sup>4</sup>, as approved by the Authority. Licensees and the Authority shall be required to act in an even-handed way to guard against the tariff determination methods that discriminate unfairly among customers.

## **2.10 Predictability and Stability**

Customers make long-term investment decisions based on the projection of long-term electricity prices. Thus, the design of Tariff Methodologies should seek to ensure predictability and price stability to assist customers in making long term decisions. Predictability and price stability promote confidence amongst customers and potential investors if they observe that the involved authorities actively manage the long-term requirements in the industry. Furthermore, the Authority shall apply the approved

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<sup>4</sup> Electricity Act, Section 32(7)

Tariff Methodology in a consistent and fair manner from one MYPD control period to the next.

### **2.11 Transparency**

The Tariff Methodology is a regulatory tool that sets the framework of applying for the tariff adjustments as a transparent process. This process is accessible to the stakeholders for review, commenting and influencing the tariff adjustments before it is published. The Tariff Methodology provides for this consultation process to facilitate comprehension amongst stakeholders for the tariff applications and to enhance confidence in the fairness of tariff levels.

### **3 KEY FEATURES OF THE TARIFF METHODOLOGY**

The key objective of the Tariff Methodology is to take account of the developments within the ESI and to meet the specific requirements of the Eswatini's evolving market structure, in relation to the regulation of electricity tariffs for ring fenced activities.

Key features of the Tariff Methodology are discussed in the following subsections.

#### **3.1 Evolving market structure**

A key feature of the Tariff Methodology is that it has been developed to take account of the evolving market structure within the electricity sector of the country.

Historically, the Eswatini electricity sector was served almost exclusively by the vertically integrated Public Utility. As a result, the previous methodologies focused entirely on the regulation of the Public Utility's tariffs. Government policy encourages greater private sector participation in the electricity sector and as a result, multiple players are expected to participate in the sector to achieve the various functions of electricity supply within the country.

Competitively procured Independent Power Producers ("IPPs") are expected to play an increasing role in electricity generation within the country. While the functions associated with the transmission of the electricity in Eswatini currently remain predominantly with the Public Utility, distribution licenses have been granted to private parties to service areas where such parties are in a better position to supply these areas than the Public Utility.

The Methodology has been structured to provide tariff regulation principles for the different categories of licensees. This will allow the Authority to apply the appropriate tariff regulation principles suitable for the category of licensees.

##### **3.1.1 Tariff regulation categorization**

Taking account of the evolving market structure, it became evident that the electricity sector participants in Eswatini can be categorized in the following broad categories upon which tariff regulation is required:

##### **Category 1**

This category includes licensees that apply the Allowed Revenue Regulation as the basis of the tariff determination. The licensees consist of (i) the Public Utility and (ii) private players who have a license but are a monopoly. The principles of the methodology for all licensees within this category are effectively similar (i.e. based on a regulated rate of return on assets and allowed costs).

## **Category 2**

This category consists of licensees who have long term Power Purchase Agreements (PPAs) and some form of contracts with the System Operator in the Public Utility. These would include:

- IPPs procured through competitive tendering;
- IPPs historically procured through unsolicited processes;
- Private co-generators supplying electricity for own consumption and exports/purchases the excess/deficits to/from the Public Utility; and
- Private companies owning a transmission network in Eswatini.

The regulation for all licensees in this category is effectively similar and is on the basis of their long term PPAs and/or contracts with the System Operator in the Public Utility.

## **Category 3**

This category includes licensees who also have long term PPAs but with parties other than the Public Utility and consists of willing buyers and willing sellers. Tariff regulation of Category 3 participants shall be dealt with by the Authority on a case-by-case basis.

The Tariff Methodology is dealing explicitly with Category 1 and Category 2 participants.

### **3.2 Regulation by ringfenced functions**

A key feature of the Tariff Methodology is that the regulation principles are provided for each of the functions of Generation, Transmission, System Operation (embedded in transmission), Distribution and Supply for the different licensee categories within the sector. This entails the following:

- a) The tariff regulation principles are categorized at a primary level by the functions of Generation, Transmission, System Operation (embedded in transmission), Distribution, and Supply and at a secondary level by the categories of licensees; and
- b) The tariff regulation for the functions of Generation, Transmission, System Operation (embedded in transmission), Distribution and Supply within the Public Utility is to be performed on the basis of suitably ringfenced activities within the Public Utility business.

The revenue and cost drivers associated with the function of Generation are expected to be similar across different generation licensees and as a result, the key tariff regulation principles are expected to be similar. However, since IPPs are to be procured on a competitive tendering basis, with long term PPAs underpinning the investments, the methodology that is to be applied when regulating the IPPs must, of necessity, be

different compared to the regulation of the Generation function within the Public Utility.

While the Public Utility is a vertically integrated entity combining functions of Generation, Transmission, System Operation (embedded in transmission), Distribution and Supply, the revenue and cost structures that drive each of these functions are different. A Tariff Methodology that provides for the tariff regulation of these functions ringfenced within the Public Utility is expected to result in improved transparency.

The Tariff Methodology was therefore developed to allow the separate tariff regulation to be conducted for ringfenced Generation, Transmission, System Operation (embedded in transmission<sup>5</sup>) Distribution and Supply functions for different categories of licensees,

### **3.3 Multi-Year Price Determination (“MYPD”)**

A key feature of the Tariff Methodology is that, for certain categories of licensees, it is based on obtaining tariff determinations over a multi-year period (Multi-Year Price Determination or “MYPD”). This MYPD approach is applicable to the regulation of the Generation, Transmission, System Operation (embedded in transmission), Distribution and Supply functions performed by the Public Utility and other Distribution licensees. It is not applicable to the IPPs who operate under long term PPAs.

Multi-year tariff applications and approvals can provide improved planning and predictability within the sector, enhance pricing stability and reduce the regulatory burden. MYPD introduces potential risks associated with longer-term projections of assumptions and variables required to determine the revenue requirement. This risk is however mitigated through the introduction of a Regulatory Clearing Account (“RCA”) as described in Section 3.4 below.

The Tariff Methodology was therefore developed to allow for multi-year pricing determination whilst allowing for annual reviews by means of the RCA mechanism. The principles of the Tariff Methodology are also applicable to a single-year price determination. The following shall apply for the MYPD period of application:

- The MYPD period shall be for a minimum of 2 years and maximum 5 years. A licensee can propose a period of any length from 2 years to 5 years, but the ultimate decision rests with the Authority; and
- The Licensee can request for a re-opener (application) before the approved MYPD period elapse if there are significant changes in the environment. The

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<sup>5</sup> Electricity Act 2007, Section 7(1)

Authority can also initiate a re-opener. Section 9.5 deals with the Re-opener threshold.

### **3.4 Regulatory Clearing Account (“RCA”)**

The parameters used in determining the revenue requirements for certain categories of licensees are based on forecasts and assumptions that are made at the time of a tariff application. Some of these key parameters will have a degree of uncertainty associated with them. As a result, there may be material differences between the values assumed at the time of the tariff application and the value actually realized. This exposes licensees to the risk of revenue under/over recovery which may result in material surpluses or deficits.

Correspondingly, consumers will be taking the risk of potentially paying higher or lower prices even when not needed. The introduction of the RCA mechanism that allows the licensee to recover/refund in the subsequent MYPD control period deficits or surpluses arising from the differences in forecasts and assumptions of defined parameters will assist in mitigating this risk to both the licensee as well as consumers. The RCA is applicable to the regulation of the Generation, Transmission, System Operation (embedded in transmission), Distribution and Supply functions performed by the Public Utility and other Distribution licensees. It is not applicable to IPPs who operate under long term PPAs.

In the Tariff Methodology, the regulatory formula for these categories of licensees includes a reconciliation adjustment portion through the RCA mechanism that allows for the adjustments of the revenue requirement by which over- or under-recovery associated with risks that are largely beyond the control of the regulated entity are addressed. The RCA is also a means of appropriately apportioning the risks between the licensees and their customers.

### **3.5 Incentives/penalties**

The methodology introduces the incentives/penalties scheme in order to encourage licensees to improve the technical and economic efficiency in the quality of service to its customers. The objective is to ensure that the provision of good quality services is rewarded, and poor service is penalized. In doing so, licensees must exercise operational efficiency in the expenses related to regulated activities. However, a licensee should not achieve reduced expenditure (and thus earn higher profits) at the expense of deterioration in the quality of service it provides to customers. The performance review and setting of the targets for the licensees shall be done at the beginning of each financial year. The annual performance results shall be used to adjust the revenue requirements for each financial year. The rewards/penalties shall be applied according to the performance achieved by the licensee on the targets set at the beginning of each financial year.



### **3.6 Historical contracts**

The Tariff Methodology takes into account the impact of historical contracts on the revenue requirements of the affected licensees. These are historical contracts entered into before the effective date of the revised Tariff Methodology. The guiding principle is that costs incurred by the licensees due to historical contracts shall be treated as pass-through costs, but the contracting licensees shall, on an ongoing basis, seek mutually agreeable means to improve the operational efficiencies in order to reduce the pass-through costs.

### **3.7 Allocation of corporate overheads**

The Tariff Methodology addresses the allocation of the corporate overheads for licensees that operate vertically integrated businesses. Corporate overheads refer to the costs that are not directly attributed to the specific functions (generation, transmission, system operation (embedded in transmission), distribution or supply) but that are incurred in the operations of the regulated entity as a whole. Corporate overheads should be apportioned between the licensee's operations in a clear and structured manner.

The Public Utility corporate overheads for the tariff application period shall be determined by the Public Utility and apportioned among the ringfenced activities in accordance with the guidelines and principles developed by the Authority. Within private licensees, it is important that customers are protected from operations that are external to the licensee operating obligations. Therefore, revenues and costs that are not part of licensed activities should not be included in the tariffs.

### **3.8 Transfer pricing**

The Tariff Methodology sets rules for the transfer of costs amongst licensees. Transfer pricing is important in this methodology where individual units in vertically integrated entities (such as the Public Utility's Generation, Transmission, Distribution and Supply licensees) are treated and measured as separately run entities. The transfer costs shall be recovered from customers of each regulated activity in accordance with prescribed tariff elements and charges.

## 4 METHODOLOGY FOR GENERATION LICENSEES

This section deals with the methodology for the following generation licensees:

- The Public Utility Generation Licensee (“PUGL”) within Category 1 that applies the Allowed Revenue Regulation as the basis for the tariff determination; and
- Category 2 Generation Licensees who have long term PPAs with the System Operator in the Public Utility comprising:
  - IPPs procured competitively and historically through unsolicited processes; and
  - Co-Generators supplying electricity for own consumption and exports/purchases the excess/deficits to/from the Public Utility grid.

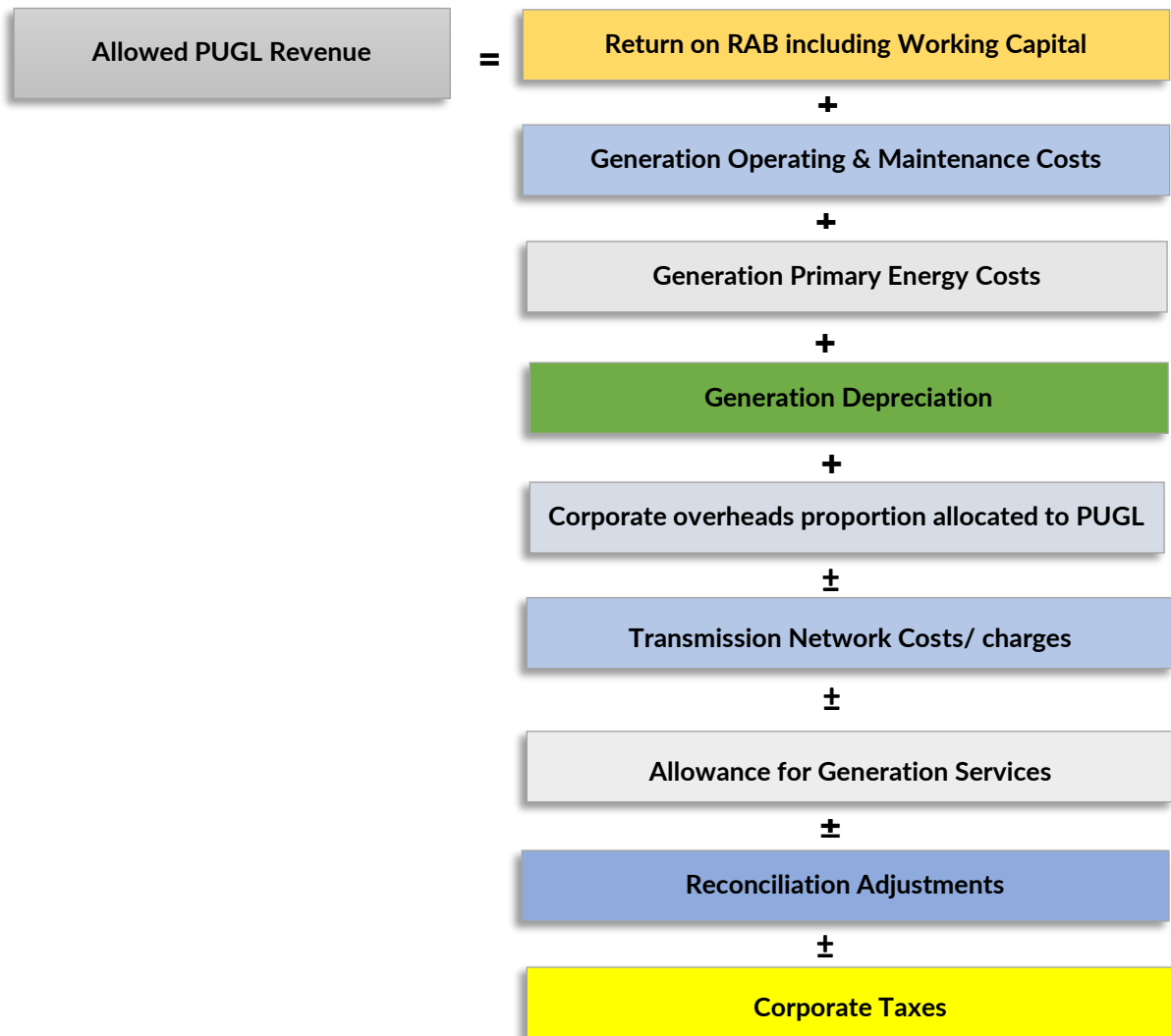
### 4.1 Public Utility Generation Licensee (“PUGL”)

The PUGL falls within Category 1 that applies the Allowed Revenue Regulation as the basis of the tariff determination as described in the subsequent sections.

#### 4.1.1 Allowed revenue – Regulatory formula

Figure 4-1 below depicts the components of the regulatory formula for determining the PUGL Allowed Revenue. The key underlying principle in the PUGL tariff regulation is that the licensee tariff adjustment is determined from an Allowed Revenue. The Allowed Revenue is calculated from a regulatory formula based on a return on the PUGL Regulatory Asset Base (“RAB”), its operating and maintenance costs, depreciation, taxes and other charges imposed on the PUGL.

Figure 4-1: Components of the regulatory formula for determining the PUGL Allowed Revenue



The determination of each of these components is discussed in the following subsections.

#### 4.1.2 Regulatory Asset Base (RAB)

The RAB shall represent assets used to provide regulated services by the PUGL.

##### 4.1.2.1 Criteria for including assets in the RAB of the PUGL

Only assets used in the regulated business of electricity production that meet the following criteria shall be included in the RAB to allow the PUGL to earn a reasonable return on assets as informed by WACC:

- a) Assets that are in a reasonable functional condition to be used for electricity production services (in the long term i.e., exceeding 12 months) within the tariff approval period of the tariff adjustment application;
- b) Major assets refurbishment costs, shall be capitalised and included in the RAB if they meet the criteria for inclusion;
- c) Assets partially funded by the PUGL shall be included on a proportionate basis;
- d) Inventories including materials, spares, and fuel stock holdings; and
- e) Net Working Capital required to fund ongoing operations.

#### **4.1.2.2 Criteria for excluding assets from the RAB of the PUGL**

Assets that shall be excluded from the RAB of the PUGL include the following:

- a) Assets funded by customers;
- b) Assets funded by third parties other than customers (i.e., grants, government contributions);
- c) Stranded or non-productive assets;
- d) Interest During Construction ("IDC"); and
- e) Financial investments, cash, and cash equivalents.
- f) Future assets are excluded from the rate base until they are used and useful (i.e. enter into commercial operation). The methodology proposed incorporates a fair return on investment, which is designed to allow the utility to fund future investments. Earning a return on future assets would undermine economic efficiency.

#### **4.1.2.3 Asset valuation approach on the RAB of PUGL**

The value of the non-current assets included in the RAB in each of the tariff year(s) being considered in the application shall be calculated as follows:

$$DV_i = (AC_i) \times (RL_i/UL_i)$$

where:

$DV_i$  is the depreciated historical value of asset  $i$ ;

$AC_i$  is the historical value of asset  $i$ ;

$RL_i$  is the remaining economic useful life of asset  $i$ ; and

$UL_i$  is the total economic useful life of asset  $i$ .

The total asset value of PUGL is the sum  $DV_i$  across all assets included plus working capital.

Depreciated historical cost takes into consideration the historical cost of an asset as well as the accumulated depreciation over time. The rationale for this approach is that

- a) The approach is simple, transparent and there's established precedent in the application of the valuation approach
- b) Inflation outlook for Eswatini is relatively low which means that price changes in electrical equipment from year to year are modest. This removes the need to adopt current cost accounting or the replacement costing approach.
- c) The weighted average cost of capital (WACC) is in nominal terms which is inclusive of inflation. A nominal WACC is applied on real asset values, which in this case is the historical cost. Where current cost or replacement cost (which is the nominal assets values) is used, then the WACC is in real terms to avoid double counting.
- d) Technological advances in the power sector are relatively gradual compared with the information, computer and telecommunications (ICT sector). Hence there is no overriding rationale to adopt either the current cost accounting or the replacement costing approach.

#### 4.1.3 Net Working Capital

Working capital is the funding that the licensees need to have at hand at all times to meet its day-to-day short-term obligations as they fall due. The balance sheet method shall be used to calculate the net working capital that is added to the RAB.

Using the balance sheet method, the net working capital will be calculated as follows:

$$\text{Net working capital} = \text{Accounts Receivable} + \text{Inventory} - \text{Accounts Payable}$$

Where:

Accounts receivable, is the amounts of collectibles owed by customers for the licensed activity

Inventory, is the operating and maintenance materials held for use in the licensed activity

Accounts payable, is the amounts payable (excluding provisions) to creditors for supplies made to the licensed activity

The net working capital required shall be adjusted downwards where customers are on pre-paid metering.

#### 4.1.4 Allowed Rate of Return on RAB

The rate of return on the RAB for purposes of the PUGL tariff methodology shall be the weighted average cost of capital (WACC):

##### 4.1.4.1 *The Weighted Average Cost of Capital*

The weighted average cost of capital (**WACC**) is a calculation of a firm's cost of capital in which each category of capital, in the firm's funding structure, is proportionately weighted. An entity's capital comes from two main sources; debt (which includes, bonds and other long-term debt) and equity (common stock and preferred stock).

The WACC is calculated as a nominal after-tax figure and is determined according to the following formula:

$$WACC = (1 - g)E + g * D(1 - T)$$

where

*WACC* is the weighted average cost of capital;

*E* is the after-tax cost of equity capital;

*D* is the pre-tax cost of debt capital;

*g* is the target gearing of the licensee;

*T* is the applicable corporate tax rate;

##### 4.1.4.2 *Cost of debt*

The cost of debt is a function of a risk-free rate plus a debt premium specific to the licensee:

$$D = (rf + dp)$$

where:

*D* is the nominal pre-tax cost of debt. The Regulator may consider using the licensee's existing weighted cost of debt;

*rf* is the risk-free rate in Eswatini. Unless there is a published risk-free rate in Eswatini, the Central Bank of Eswatini's published near term treasury bill -rate shall be used as a proxy for the risk-free rate. Treasury bills are a better proxy than government bonds due to low credit risk and minimal interest rate risk. Treasury bills are less sensitive to changes in interest rate than government bonds, meaning they are less likely to

experience significant price fluctuations due to changes in interest rates and that helps provide a more stable input into the WACC calculation; and

$dp$  is the debt premium on corporate debt over bonds which is required by lenders to compensate for the greater risk of default compared to government bonds. The debt premium could also be estimated based on actual existing cost of debt of the licensee.

#### **4.1.4.3 Cost of equity**

PUGL can recover a reasonable return on the capital invested in the business. The cost of equity shall be calculated using the Capital Asset Pricing Model (CAPM):

$$E = rf + (Rm - rf)\beta$$

where:

$E$  is the after-tax cost of equity;

$rf$  is the risk-free rate applicable in Eswatini; Unless there is a published risk-free rate in Eswatini, the Central Bank of Eswatini's published near term treasury bill -rate shall be used as a proxy for the risk-free rate. Treasury bills are a better proxy than government bonds due to low credit risk and minimal interest rate risk. Treasury bills are less sensitive to changes in interest rate than government bonds, meaning they are less likely to experience significant price fluctuations due to changes in interest rates and that helps provide a more stable input into the WACC calculation;

$Rm - rf$  is the market risk premium, which is the average return for the market less risk-free rate; and

$\beta$  is the equity beta, which measures the systematic risk of the asset in comparison to the average stock market.

##### **4.1.4.3.1 Determining elements of the CAPM**

###### **Corporate tax rate**

This shall be the prevailing corporate tax rate in Eswatini, or tax rate applicable to the particular licensee if it differs from the general corporate tax rate for Eswatini.

###### **Market risk premium**

The following alternatives are recommended to be considered as Market Risk Premium estimates:

- a) Based on a study undertaken to determine Market Risk Premium suitable for the licensee,
- b) Use of recent market risk premiums published by credible institutions,
- c) Use of regulatory precedent, which can be either locally, regionally or internationally.

**Equity beta**

Equity beta is a measure of the volatility of a particular stock, relative to the stock market as a whole. It measures the systematic risk of the stock. A company’s beta is generally determined using its share price and the stock market index. In the absence of this, it is recommended that the beta be;

- a) Based on a study undertaken to determine beta suitable for the licensee
- b) Use of regulatory precedent, which can be either locally, regionally or internationally or
- c) Estimated using a benchmark beta of other similar utility companies.

**Target Gearing in WACC Computation:**

The licensee shall maintain an optimum financing structure. The WACC shall be developed in accordance to the optimum financing structure or target gearing. The target gearing can be determined using one of the following approaches, ranked in order of preference:

- a) Based on a study undertaken to determine target gearing suitable for the licensee,
- b) Benchmark with other utilities with similar characteristics to the licensee under consideration,
- c) Use of regulatory precedent, which can be either locally, regionally, or internationally.

**4.1.4.4 Allowed Return on RAB In Monetary terms**

The monetary value of the return on the RAB for purposes of the PUGL tariff methodology shall be calculated as follows:

$$RRAB_{PUGL} = RoR \times RAB$$

where:

$RRAB_{PUGL}$  is the allowed return (in monetary terms) for PUGL;

$RoR$  is the is the rate of return (WACC) on the Regulatory Asset Base for the PUGL; and

$RAB$  is the is the regulated asset base.



#### **4.1.5 Generation operating and maintenance cost**

The PUGL shall recover all prudent operating costs that are reasonably incurred in the production of electricity. These costs include operating expenditures, maintenance costs that are below the threshold for capitalisation into the RAB, manpower costs and overheads that are recoverable within one (1) year. The qualifying criteria for the PUGL operational costs are:

- Expenses must be incurred in the normal production of electricity including expenses incurred to achieve an acceptable level of maintenance and repair. For excessive expenses incurred under abnormal or extraordinary circumstances, consideration shall be given to spreading the expenses over several years to avoid large increases in tariffs;
- Expenses must be incurred in an arm's length transaction;
- Expenses must be prudently and efficiently incurred after careful consideration of available options. Such considerations would include competitive and transparent procurement process for goods and services procured from external parties;
- Allowances for the human resources costs should be at reasonable levels. The Authority may require access to wage settlement documents to verify the reasonableness of these costs.
- Limited expenses for Research and Development (R&D) may be included at the discretion of the Authority and shall cover expenses associated with R&D to improve the generation services to customers; and

PUGL operating expenses that do not comply with the above criteria shall not be allowed. Interest payments are recovered as a component of the rate of return on the RAB and is not recovered as an operating cost.

#### **4.1.6 Generation primary energy costs**

The PUGL shall demonstrate to the Authority that it has applied the most appropriate mix of primary generation energy sources that can be achieved practically in the interest of the customer. The System Operator shall conduct the demand-supply balance which is presented in Section **Error! Reference source not found.**

##### **4.1.6.1 Energy production**

The PUGL shall conduct energy production estimates of all its plants as part of their business planning process. These energy production estimates shall also be provided to the System Operator for purposes of conducting the demand-supply balance.

For energy production forecasts of hydropower plants, the PUGL shall perform hydrological modelling to derive estimates of the hydropower plants production. This shall be based on the following:

- Forecasts of the rainfall for the tariff application periods shall be obtained from independent sources such as the Eswatini Meteorological Services;
- The rainfall forecasts shall be correlated with historical rainfall information and the best estimates of production derived based on past correlation of rainfall and energy production;
- The PUGL shall review the actual production levels compared to the forecasts and identify the causes of any differences; and
- The PUGL shall incorporate any consistent trends observed based on the analysis in future forecasts.

The PUGL shall prepare energy production forecasts of other types of power plants (such as thermal) based on intended usage profiles. Renewable energy ("RE") plants energy forecasts shall be guided by the following:

- Energy yield analysis results for RE plants form part of the project agreements; and
- PUGL shall review the energy yield estimates of RE plants when trends of over or underestimating are observed.

The information used and processes followed in deriving the energy forecast shall be provided to the Authority.

#### **4.1.6.2 Fuel costs**

##### **Local fuel costs**

The licensee shall make the fuel agreements available for the Regulator to review. During the tariff application process, the PUGL shall provide evidence of these fuel costs that shall be in accordance with the FPAs.

##### **Imported fuel costs**

The Authority shall make allowances for variances in imported fuel costs due to variation in international market prices and exchange rate fluctuations. A full pass-through cost shall be allowed where there are such variances by means of the RCA. The PUGL shall provide evidence that the procurement of the imported fuel was based on best practice and complies with the legislation for procuring imported fuel.

#### **4.1.7 Generation asset depreciation**

The PUGL shall recover the depreciated capital costs of the generation assets included in the RAB over the economic useful life of assets. The generation asset depreciation

expense component of the allowed revenue shall be calculated on the historical cost of the generation assets on a straight-line basis over the economic useful life of the asset.

#### **4.1.8 Transmission Network Charges**

The PUGL should recover fully the costs charged to it by the transmission licensee in respect of use-of-system. The level of these charges will be based on the Transmission Licensee approved tariff.

#### **4.1.9 Incentives and penalties**

The regulatory formula allows for adjustments of incentives and penalties. At the beginning of each financial year following consultations with the licensee, performance targets will be set. The annual performance results shall be used to adjust the revenue requirements for each financial year through the RCA mechanism. The rewards/penalties shall be applied according to the performance achieved by the licensee on the targets set at the beginning of each financial year.

#### **4.1.10 Reconciliation adjustments**

It is recognized that the PUGL costs that make up the revenue requirement are based on projections and assumptions that may not match the actual figures that materialize. This exposes the PUGL to the risk of revenue under-recovery or over-recovery and resultant inadequate or excessive returns.

The regulatory formula includes a reconciliation adjustment component that allows for adjustments to the revenue requirement to compensate for the over or under recovery. The RCA presented in Section 9 of this tariff methodology shall apply for reconciliation purposes.

#### **4.1.11 Corporate taxes**

The actual corporate taxes paid or to be paid during the MYPD tariff control period by the licensee, may be included in the determination of revenue allowed. Hence deferred taxes cannot be included in the revenue allowed until such a time that they become actually payable. Similarly, all exempted taxes in the provision of the licenced activity shall not be included in the determination of revenue allowed. Also, tax penalties and interest on tax due shall not be included in the determination of the revenue allowed.

A forecast of the actual corporate tax payable may be calculated using the following formula:

Corporate tax (t) = {Revenue allowed minus all tax deductible expenses/(1-t)}\*t

Where:

t is the prevailing corporate tax rate in Eswatini, or tax rate applicable to the particular licensee if it differs from the general corporate tax rate for Eswatini

A reconciliation will be made annually between the forecast corporate tax payable and the actual corporate tax paid and any variance is transferred to the RCA.

#### 4.1.12 Revenue Streams and Transfer pricing

In order to recover the Allowed Revenue for the PUGL, a transfer pricing derived from the Allowed Revenue reflecting the fixed and variable components to loads shall be provided to the Authority by the PUGL. The fixed component of the PUGL transfer pricing shall be calculated as follows:

##### The capacity charges

The PUGL should recover the fixed capacity costs from the Central buyer using the formular below:

$$GFC_{year} = (AGR_{year} - PE_{year})/CAP_{year}$$

where:

$GFC_{year}$  is the fixed PUGL charge in E/kW;

$AGR$  is the allowed PUGL revenue;

$PE_{year}$  is the primary energy cost; and

$CAP_{year}$  is the installed PUGL generation capacity.

##### The Energy Charge

The energy component of the PUGL transfer pricing, which shall be recovered from the Central Buyer shall be calculated as follows:

$$GVC_{year} = PE_{year}/ENG_{year}$$

where:

$GVC_{year}$  is the variable PUGL charge in E/MWh for the year;

$PE_{year}$  is the primary energy cost; and

$ENG_{year}$  is the PUGL energy forecast supplied to PUTL.

#### **4.1.13 Ancillary Services Charges**

Ancillary services are integral to operating the system in a safe, secure and reliable manner because key technical characteristics of the power system, such as frequency and voltage are controlled through ancillary services. There is therefore a need to determine charges for ancillary services to be paid by market participants in the context of Eswatini's evolving market structure and ringfenced activities. To this end, detailed independent studies will be performed to inform a formula for accurately establishing these ancillary services charges.

#### **4.2 Category 2 Generation Licensees**

This section shall apply to category 2 generation licensees who have long term PPAs with the System Operator in the Public Utility comprising:

- IPPs being procured competitively and historically procured through unsolicited processes; and
- Co-Generators supplying electricity for their own consumption and exports/purchases the excess/deficits to/from the Public Utility grid.

Dedicated assets of category 2 generation licensees (e.g. a transmission line connecting to the grid) shall be considered in the generation licensee's regulatory asset base except if the assets had been ceded to other licensees.

##### **4.2.1 Independent Power Producers (IPPs)**

Based on the prevailing Government policy, new IPP generation capacities are to be procured through competitive bidding processes. The bidding process determines the tariff which is set out in the PPA to be entered into between the IPP and Public Utility. The Authority's role in securing supplies from IPPs shall be as follows:

- a) The IPP shall make the agreements available for the Regulator to review; and
- b) The Authority shall on an ongoing basis review compliance of the IPP licensees with the license conditions.

##### **Historical IPP contracts**

As outlined in section 3.6, costs incurred by the licensees due to historical contracts shall be treated as pass-through costs, but the contracting licensees shall, on an ongoing basis, seek mutually agreeable means to improve the operational efficiencies in order to reduce the pass-through costs. The licensee should also inform the Regulator of any amendments in the PPA contracts.

##### **4.2.2 Co-Generators**

Based on the prevailing Government policy, new Co-generation capacities are to be procured through competitive bidding processes. The bidding process determines the

tariff which is set out in the PPA to be entered into between the IPP and Public Utility. The Authority's role in securing supplies from the Co-generation plants shall be as follows:

- a) The Co-generator shall make the agreements available for the Regulator to review.; and
- b) The Authority shall on an ongoing basis review compliance of the licensees with the license conditions.

**Historical Co-generation contracts**

As outlined in section 3.6, costs incurred by the licensees due to historical contracts shall be treated as pass-through costs, but the contracting licensees shall, on an ongoing basis, seek mutually agreeable means to improve the operational efficiencies in order to reduce the pass-through costs. The licensee should also inform the Regulator of any amendments in the co-generation contracts. The Authority shall on an ongoing basis review the compliance of the IPPs licensees with the terms and conditions in the PPA contracts.

## 5 METHODOLOGY FOR TRANSMISSION LICENSEES

This section deals with the methodology for the following transmission licensees:

- The Public Utility Transmission Licensee (“PUTL”) within Category 1 that has the System Operation and Central buyer function embedded within Transmission, that applies the Allowed Revenue Regulation as the basis for the tariff determination; and
- Other Transmission Licensees within Category 2 who have historical contracts with the Public Utility.

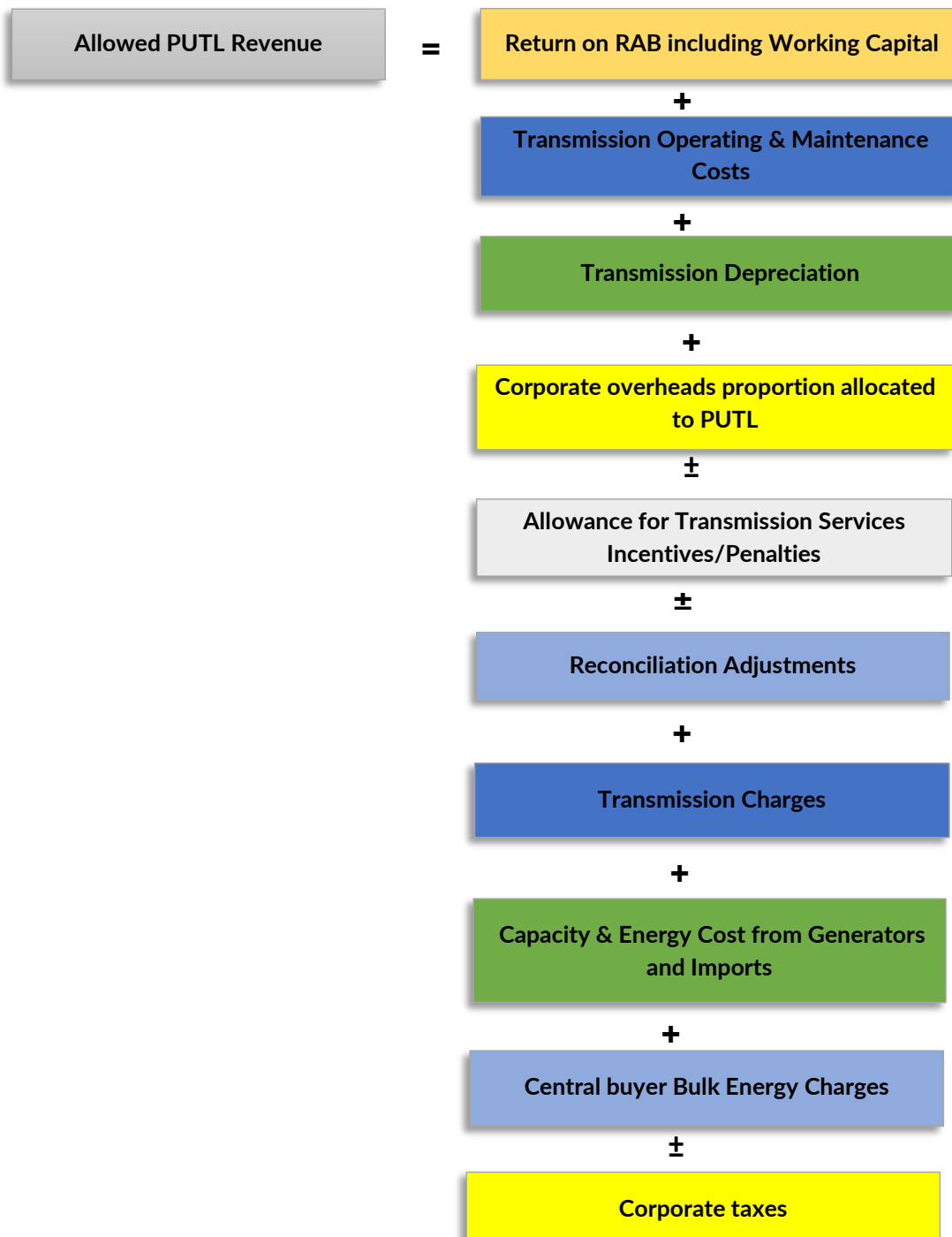
### 5.1 Public Utility Transmission Licensee (“PUTL”)

The PUTL falls within Category 1 that applies the Allowed Revenue Regulation as the basis of the tariff determination as described in the subsequent sections.

#### 5.1.1 Allowed Revenues – Regulatory Formula

Figure 5-1 below depicts the components of the regulatory formula for determining the PUTL Allowed Revenue. The key underlying principle in the PUTL tariff regulation is that the licensee tariff adjustment is determined from an Allowed Revenue. The Allowed Revenue is calculated from a regulatory formula based on a return on the PUTL Regulatory Asset Base (RAB), its operating and maintenance costs, depreciation, levies, taxes and other charges imposed on the PUTL.

Figure 5-1: Components of the regulatory formula for determining the PUTL Allowed Revenue



The determination of each of these components is discussed in the following subsections.

### 5.1.2 Regulatory Asset Base (RAB)

The RAB shall represent assets used to provide regulated service by the PUTL.



### **5.1.2.1 Criteria for including assets in the RAB of the PUTL**

Only assets used in the regulated business of electricity transmission that meet the following criteria shall be included in the RAB to allow the PUTL to earn a reasonable return on assets as informed by WACC:

- a) Assets that are in a reasonable functional condition to be used for electricity transmission services (in the long term i.e., exceeding 12 months) within the tariff approval period of the tariff adjustment application;
- b) Major assets refurbishment costs, shall be capitalised and included in the RAB if they meet the criteria for inclusion;
- c) Assets funded by the PUTL shall be included on a proportionate basis;
- d) Inventories including materials and spares shall be included; and
- e) Net working capital required to fund ongoing operations shall be included.

### **5.1.2.2 Criteria for excluding assets from the RAB of the PUTL**

Assets that shall be excluded from the RAB of the PUTL include the following:

- a) Assets that have been paid for by the transmission users through connection charges (specific customer charges);
- b) Assets funded by third parties other than customers (i.e., grants, government contributions)
- c) Stranded or non-productive assets;
- d) Interest During Construction (IDC); and
- e) Financial investments, cash, and cash equivalents.
- f) Future assets are excluded from the rate base until they are used and useful (i.e., enter into commercial operation). The methodology proposed incorporates a fair return on investment, which is designed to allow the utility to fund future investments. Earning a return on future assets would undermine economic efficiency.

### **5.1.2.3 Asset valuation approach on the RAB of the PUTL**

The value of the non-current assets included in the RAB in each of the tariff year(s) being considered in the application shall be calculated as follows:

$$DV_i = (AC_i) \times (RL_i/UL_i)$$

where:

$DV_i$  is the depreciated historical value of asset  $i$ ;

$AC_i$  is the historical value of asset  $i$ ;

$RL_i$  is the remaining economic useful life of asset  $i$ ; and

$UL_i$  is the total economic useful life of asset  $i$ .

The total asset value of PUTL is the sum  $DV_i$  across all assets included.

Depreciated historical cost takes into consideration the historical cost of an asset as well as the accumulated depreciation over time. The rationale for this approach is that;

- a) The approach is simple, transparent and there's established precedent in the application of the valuation approach.
- b) Inflation outlook for Eswatini is relatively low which means that price changes in electrical equipment from year to year are modest. This removes the need to adopt current cost accounting or the replacement costing approach.
- c) The weighted average cost of capital (WACC) is in nominal terms which is inclusive of inflation. A nominal WACC is applied on real asset values, which in this case is the historical cost. Where current cost or replacement cost (which is the nominal assets values) is used, then the WACC is in real terms to avoid double counting.
- d) Technological advances in the power sector are relatively gradual compared with the information, computer and telecommunications (ICT sector). Hence there is no overriding rationale to adopt either the current cost accounting or the replacement costing approach.

### 5.1.3 Net Working Capital

Working capital is the funding that the licensees need to have at hand at all times to meet its day-to-day short-term obligations as they fall due. The balance sheet method shall be used to calculate the net working capital that is added to the RAB.

Using the balance sheet method, the net working capital will be calculated as follows:

$$\text{Net working capital} = \text{Accounts Receivable} + \text{Inventory} - \text{Accounts Payable}$$

Where:

Accounts receivable, is the amounts of collectibles owed by customers for the licensed activity

Inventory, is the operating and maintenance materials held for use in the licensed activity

Accounts payable, is the amounts payable (excluding provisions) to creditors for supplies made to the licensed activity

The net working capital required shall be adjusted downwards where customers are on pre-paid metering.

#### **5.1.4 Allowed Rate of Return on RAB**

. The rate of return on the RAB for purposes of the PUTL tariff methodology shall be the weighted average cost of capital (WACC):

##### **5.1.4.1 The Weighted Average Cost of Capital**

The weighted average cost of capital (**WACC**) is a calculation of a firm's cost of capital in which each category of capital, in the firm's funding structure, is proportionately weighted. An entity's capital comes from two main sources; debt (which includes, bonds and other long-term debt) and equity (common stock and preferred stock).

The WACC is calculated as a nominal after-tax figure and is determined according to the following formula:

$$WACC = (1 - g)E + g * D(1 - T)$$

where

*WACC* is the weighted average cost of capital;

*E* is the after-tax cost of equity capital;

*D* is the pre-tax cost of debt capital;

*g* is the target gearing of the licensee;

*T* is the applicable corporate tax rate;

##### **5.1.4.2 Cost of debt**

The cost of debt is a function of a risk-free rate plus a debt premium specific to the licensee:

$$D = (rf + dp)$$

where:

*D* is the nominal pre-tax cost of debt. The Regulator may consider using the licensee's existing weighted cost of debt;

$rf$  is the risk-free rate in Eswatini. Unless there is a published risk-free rate in Eswatini, the Central Bank of Eswatini's published near term treasury bill -rate shall be used as a proxy for the risk-free rate Treasury bills are a better proxy than government bonds due to low credit risk and minimal interest rate risk. Treasury bills are less sensitive to changes in interest rate than government bonds, meaning they are less likely to experience significant price fluctuations due to changes in interest rates and that helps provide a more stable input into the WACC calculation; and

$dp$  is the debt premium on corporate debt over bonds which is required by lenders to compensate for the greater risk of default compared to government bonds. The debt premium could also be estimated based on actual existing cost of debt of the licensee.

#### **5.1.4.3 Cost of equity**

PUTL can recover a reasonable return on the capital invested in the business. The cost of equity shall be calculated using the Capital Asset Pricing Model (CAPM):

$$E = rf + (Rm - rf)\beta$$

where:

$E$  is the after-tax cost of equity;

$rf$  is the risk-free rate applicable in Eswatini; Unless there is a published risk-free rate in Eswatini, the Central Bank of Eswatini's published near term treasury bill -rate shall be used as a proxy for the risk-free rate. Treasury bills are a better proxy than government bonds due to low credit risk and minimal interest rate risk. Treasury bills are less sensitive to changes in interest rate than government bonds, meaning they are less likely to experience significant price fluctuations due to changes in interest rates and that helps provide a more stable input into the WACC calculation;

$Rm - rf$  is the market risk premium, which is the average return for the market less risk-free rate; and

$\beta$  is the equity beta, which measures the systematic risk of the asset in comparison to the average stock market.

#### **5.1.4.3.1 Determining elements of the CAPM**

##### **Corporate tax rate**

This shall be the prevailing corporate tax rate in Eswatini, or tax rate applicable to the particular licensee if it differs from the general corporate tax rate for Eswatini.

### **Market risk premium**

The following alternatives are recommended to be considered as Market Risk Premium estimates:

- a) Based on a study undertaken to determine Market Risk Premium suitable for the licensee
- b) Use of recent market risk premiums published by credible institutions,
- c) Use of regulatory precedent, which can be either locally, regionally or internationally.

### **Equity beta**

Equity beta is a measure of the volatility of a particular stock, relative to the stock market as a whole. It measures the systematic risk of the stock. A company's beta is generally determined using its share price and the stock market index. In the absence of this, it is recommended that the beta be;

- a) Based on a study undertaken to determine beta suitable for the licensee
- b) Use of regulatory precedent, which can be either locally, regionally or internationally.
- c) Estimated using a benchmark beta of other similar utility companies.

### **Target Gearing in WACC Computation:**

The Licensee shall maintain an optimum financing structure. The WACC shall be developed in accordance to the optimum financing structure or target gearing. The target gearing can be determined using one of the following approaches, ranked in order of preference:

- a) Based on a study undertaken to target gearing suitable for the licensee,
- b) Benchmark with other utilities with similar characteristics to the licensee under consideration,
- c) Use of regulatory precedent, which can be either locally, regionally or internationally.

#### **5.1.4.4 Allowed Return on RAB In Monetary terms**

The monetary value of the return on the RAB for purposes of the PUTL tariff methodology shall be calculated as follows:

$$RRAB_{PUTL} = RoR \times RAB$$

where:

$RRAB_{PUTL}$  is the allowed return (in monetary terms) for PUTL.

$ROR$  is the rate of return (WACC) on the Regulatory Asset Base for the PUTL; and

$RAB$  is the regulated asset base.

### **5.1.5 Transmission operating and maintenance costs**

The PUTL shall recover all operating costs that are reasonably incurred in the electricity transmission services. These costs include operating expenditures, maintenance costs that are below the threshold for capitalisation into the RAB, manpower and overheads that are recoverable within one (1) year. The qualifying criteria for the PUTL operational costs are:

- Expenses must be incurred in the normal transmission services, including expenses incurred to achieve an acceptable level of maintenance and repair. For excessive expenses incurred under abnormal or extraordinary circumstances, consideration shall be given to spreading the expenses over several years to avoid large increases in tariffs;
- Expenses must be incurred in an arm's length transaction;
- Expenses must be prudently and efficiently incurred after careful consideration of available options. Such considerations would include competitive and transparent procurement process for goods and services by external parties;
- Allowances for the human resources costs should be at reasonable levels. The Authority may require access to wage settlement documents to verify the reasonableness of these costs.
- Limited expenses for Research and Development (R&D) may be included at the discretion of the Authority and shall cover expenses associated with R&D to improve transmission services to customers;

PUTL operating expenses that do not comply with the above criteria shall not be allowed. Interest payments are recovered as a component of the rate of return on the RAB and are not recovered as an operating cost.

### **5.1.6 Transmission asset depreciation**

The PUTL shall recover the depreciated capital costs of the transmission assets included in RAB over the economic useful lifetime of assets. Transmission asset depreciation expense component of the allowed revenue shall be calculated on the

historical costs of assets on a straight-line basis over the economic useful life of the assets.

#### **5.1.7 System Operator's costs**

The Authority has designated the PUTL to be the System Operator. This MYPD methodology provides for the PUTL to recover all reasonable costs connected to the execution of the system operators' functions<sup>6</sup>. To be able to determine the costs to be recovered, the system operator activity costs and revenues must be ring-fenced from those of the transmission activity and itemized separately even if, operationally, they are submitted within the Transmission operations reporting manual (ORM).

#### **5.1.8 Incentives and penalties**

The regulatory formula allows for adjustments of incentives and penalties. At the beginning of each financial year, following consultations with the licensee, performance targets will be set. The annual performance results shall be used to adjust the revenue requirements for each financial year through the RCA mechanism. The rewards/penalties shall be applied according to the performance achieved by the licensee on the targets set at the beginning of each financial year.

#### **5.1.9 Reconciliation adjustments**

It is recognized that the PUTL costs that make up the revenue requirement are based on projections and assumptions that may not match the actual figures that materialize. This exposes the PUTL to the risk of revenue under-recovery or over-recovery and resultant inadequate or excessive returns.

The regulatory formula includes a reconciliation adjustment component that allows for adjustments to the revenue requirement to compensate for over or under recovery. The RCA presented in Section 9 of this tariff methodology shall apply for reconciliation purposes.

#### **5.1.10 Corporate taxes**

The actual corporate taxes paid or to be paid during the MYPD tariff control period by the licensee, may be included in the determination of revenue allowed. Hence deferred taxes cannot be included in the revenue allowed until such a time that they become actually payable. Similarly, all exempted taxes in the provision of the licenced activity shall not be included in the determination of revenue allowed. Also, tax penalties and interest on tax due shall not be included in the determination of the revenue allowed.

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<sup>6</sup> Electricity Act 2007, Section 7(1)(a) to (j)

A forecast of the actual corporate tax payable may be calculated using the following formula:

$$\text{Corporate tax (t)} = \{\text{Revenue allowed minus all tax deductible expenses}/(1-t)\} * t$$

Where:

t is the prevailing corporate tax rate in Eswatini, or tax rate applicable to the particular licensee if it differs from the general corporate tax rate for Eswatini

A reconciliation will be made annually between the forecast corporate tax payable and the actual corporate tax paid and any variance is transferred to the RCA

#### **5.1.11 Revenue Streams and Transfer pricing**

The PUTL shall recover its revenue allowance from the generators and loads using the charges outlined below, as appropriate.

##### **5.1.11.1 Transmission charges**

Transmission charges shall be paid by transmission customers (i.e. generator or customer loads). The transmission charges related to the provision of the transmission services shall include:

- Connection charge;
- Use of system charge which comprises of the following charges:
  - Network charge (transmission infrastructure charge);
  - Losses charge;
  - Reliability charge; and
  - Administrative and service charges.

If a new generator supplies a new load customer using the transmission system, the payment ratio of the transmission charges shall be agreed between generator owners and the customer requiring the supply.

##### **5.1.11.2 Connection charge**

The connection charge shall apply to customers (generators or load customers) and it shall cover efficiently incurred costs to connect new customers to the transmission system. The connection charges shall be regulated in accordance with the Connection Charge Policy developed by the Authority.



### 5.1.11.3 *Use of system charge*

The cost of transmission shall be recovered using system charges from both generators and loads. The costs are to be recovered in this manner since the generators require the transmission system in order to supply the loads. Similarly, the loads require the transmission network in order to access the energy. The Use of system charges shall be regulated in accordance with the Wheeling Framework developed by the Authority. The use of system charges shall comprise.

- Network charge (Transmission infrastructure charge)

The network charge is applicable to generators and customers connected to the transmission system and is designed to cover the costs of transmitting energy from the generators to where distributors and customers are supplied. The charge is for long-term network strengthening to increase capacity as required by the customers.

- Losses charge

The transmission licensee purchases bulk energy from generators to supply the loads. The bulk energy includes losses that need to be paid for. In order to be able to pay for this total energy, losses charge is applied to generators and customers connected to the transmission system

#### Reliability charge

The purpose of reliability charge is to earn revenue to pay for the purchase of ancillary services mainly from generators, and in certain cases, from end-use customers. The total budgeted cost of ancillary services shall be determined by the transmission licensee (as a system's operator), and an energy rate shall be calculated for the reliability services charge to allow the specific amount of budgeted revenue to be collected based on the budgeted amount of energy to be generated and delivered via the transmission system.

- Administrative and service charges

Where the transmission licensee is required to manage connection agreements, the wheeling of energy, metering, settlements and billing adjustments, the costs associated with the customer service and administration shall be recovered from the generators and loads. The administration and service charges that are applicable specifically to generators shall be calculated and submitted to the Authority for approval when the associated costs with generators have been determined.

In addition to the Allowed Revenue for the PUTL, a transfer pricing derived from the Allowed Revenue reflecting the fixed and variable components to retail (supply

licensee) shall be provided to the Authority by the PUTL. The fixed component of the PUTL transfer pricing shall be calculated as follows:

$$TFC_{year} = (TRR_{year} - GEC_{year})/PD_{year}$$

where:

$TFC_{year}$  is the fixed transmission charge in E/kVA;

$TRR_{year}$  is the total transmission revenue requirement including energy purchase cost for the year;

$GEC_{year}$  is the generation energy purchase cost for the year; and

$PD_{year}$  is the forecasted peak demand for the year.

The variable component of the PUTL transfer pricing shall be calculated as follows:

$$TVC_{year} = CLOSS_{year}/ENG_{year}$$

where:

$TVC_{year}$  is the variable transmission charge in E/MWh for the year;

$CLOSS_{year}$  is the transmission energy losses cost incurred on the transmission system; and

$ENG_{year}$  is the energy forecast being supplied to the distribution licensees.

The transmission energy losses cost shall be determined as follows:

$$CLOSS_{year} = GENG_{year} \times TLOSS_{year} \times GVC_{year}$$

where:

$GENG_{year}$  is the energy forecasted units to be purchased from generation source;

$GVC_{year}$  is the variable generation energy purchase cost per unit for the year; and

$TLOSS_{year}$  is the transmission energy loss percentage estimate for the year.

#### **5.1.10 Capacity & Energy Cost from Generators and Imports**

PUTL through the System Operator shall purchase energy from generation sources at the generation prices determined for the generation sources and shall purchase the balance of energy requirements from import sources.

a)It should be noted that electricity purchases from the IPPs and Co-generation suppliers, including capacity/availability payments, energy payments and any other payments as set out in the PPAs, shall be allowed as a full pass-through cost to the off-taker;

b)Use-of-system charges incurred in line with the PPA from by the IPPs shall be allowed as a full pass-through cost;

c)Administration costs of the PPAs shall be reviewed by the Authority to determine the efficiency and prudence with which the costs shall be allowed as a pass-through cost;

d)Variances (the difference between allowed costs and actual incurred costs) and their justification shall be presented to the Authority. After review, the variance shall be debited/credited through the RCA; and

e)Over and above the allowance, pass-through costs shall be reviewed by the Authority to determine the efficiency and prudence under which they have been incurred.

IPPs and Co-generation plants shall provide the System Operator with the energy supply forecast per year for the period under consideration in the tariff application to the Authority. IPPs and Co-generation plants shall also provide the cost of supply of the forecasts which shall be included in the cost of sales tariff application of the System Operator. The Authority shall have insight into these costs to ensure its compliance with the approved tariffs.

The PUTL shall determine the energy mix and derive the total generation cost to meet demand.

#### **5.1.11.1**      *System operator generation prices*

The total generation transfer pricing shall consist of a fixed and variable charge for the total supply from generation. The fixed charge shall consist of the fixed charges from PUGL, IPPs, and Imports.

$$GFGC_{year} = ((AGR_{year} - PE_{year}) + GFIP_{year} + GFIM_{year})/PD_{year}$$

where:

$GFGC_{year}$  is the fixed generation charge in E/kW;

$AGR$  is the allowed Generation revenue

$PE_{year}$  is the primary energy cost;

$GFIP_{year}$  is the IPP fixed (capacity) generation costs;

$GFIM_{year}$  is the import fixed (capacity) generation costs;

$PD_{year}$  is the forecasted peak demand for the year.

The variable charge shall consist of the variable charges from PUGL, IPPs, and Imports.

$$GVGC_{year} = (PE_{year} + GVIP_{year} + GVIM_{year})/ENG_{year}$$

where:

$GVGC_{year}$  is the variable generation charge in E/MWh for the year;

$PE_{year}$  is the primary energy cost;

$GVIP_{year}$  is the IPP variable (energy) generation costs;

$GVIM_{year}$  is the imported variable (energy) generation costs;

$ENG_{year}$  is the energy forecasted supplied to the PUTL.

#### **5.1.11.2 Central buyer Bulk Supply Energy Charges**

The bulk supply energy charges to the PUSL retail function shall be fully regulated in accordance with the tariff methodology. Bulk supply energy charges to contestable can either be regulated or negotiated with the customer. In cases of negotiated tariffs, the Authority shall exercise oversight to ensure that there is no cross-subsidization of charges by potentially monopolistic segments of the public utility business.

## **5.2 Category 2 Transmission Licensees**

This section deals with Category 2 Transmission Licensees 2 who have historical contracts with the Public Utility.

The Authority shall consider terms of the historical contracts to determine their effect on the costs and revenues on the PUTL. The guiding principle is that costs incurred by the transmission licensee due to historical contracts shall be treated as a pass-through cost and the PUTL shall seek to renegotiate the terms of the historical contracts in order to reduce the pass-through costs. In this context historical contracts, amongst others include wheeling contracts, MOTRACO agreements, etc.

## 6 METHODOLOGY FOR DISTRIBUTION LICENSEES

The section deals with the tariff methodology for the following distribution licensees:

- The Public Utility Distribution Licensee (“PUDL”) within Category 1 that applies the Allowed Revenue Regulation as the basis for the tariff determination; and
- Other Distribution Licensees owned by private companies.

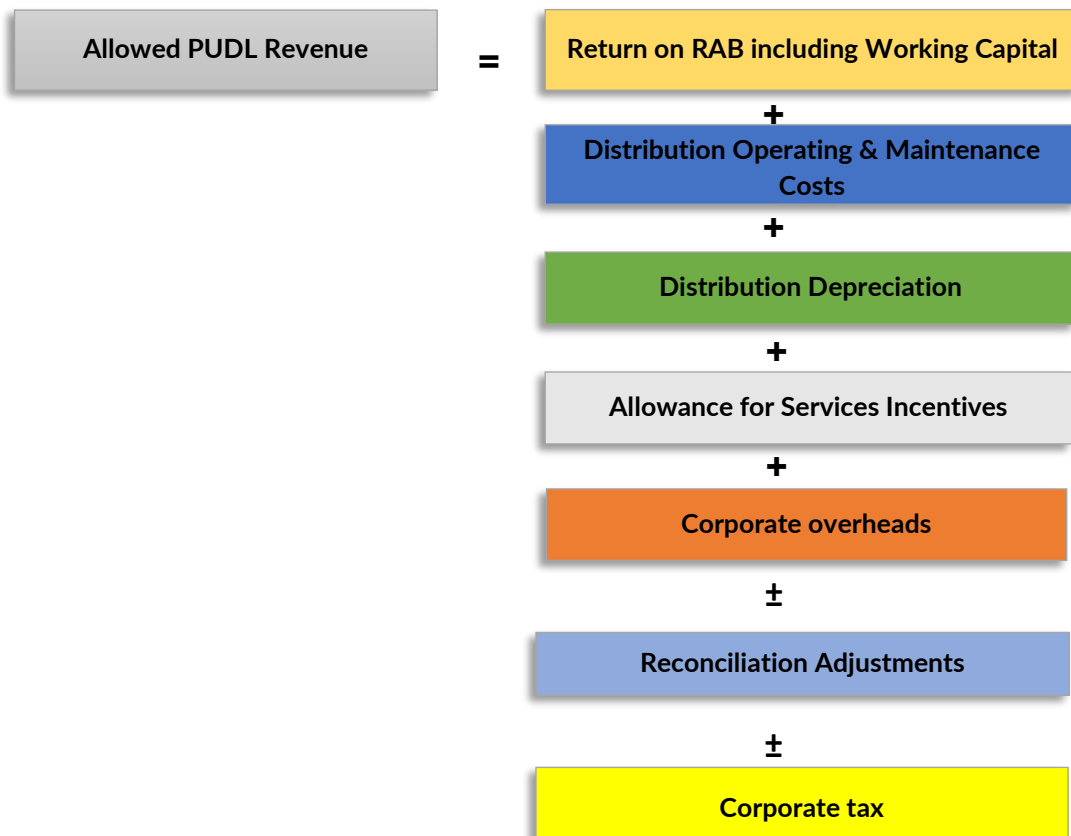
### 6.1 Public Utility Distribution Licensee (“PUDL”)

The PUDL falls within Category 1 that applies the Allowed Revenue Regulation as the basis of the tariff determination as described in the subsequent sections.

#### 6.1.1 Allowed Revenue – Regulatory Formula

Figure 6-1 below depicts the components of the regulatory formula for determining the PUDL Allowed Revenue. The key underlying principle in the PUDL tariff regulation is that the licensee tariff adjustment is determined from an Allowed Revenue. The Allowed Revenue is calculated from a regulatory formula based on a return on the PUDL Regulatory Asset Base (RAB), its operating and maintenance costs, depreciation, levies, taxes and other charges imposed on the PUDL. The determination of each of these components is discussed in the following subsections.

Figure 6-1: Components of the regulatory formula for determining the PUDL Allowed Revenue



### 6.1.2 Regulatory Asset Base (RAB)

The RAB shall represent assets used to provide regulated service by the PUDL.

#### 6.1.2.1 Criteria for including assets in the RAB of the PUDL

Only assets used in the regulated business of electricity distribution that meet the following criteria shall be included in the RAB to allow the PUDL to earn a reasonable return on assets as informed by WACC:

- a) Assets that are in a reasonable functional condition to be used for electricity distribution services (in the long term i.e. exceeding 12 months) within the tariff approval period of the tariff adjustment application;
- b) Major assets refurbishment costs, shall be capitalised and included in the RAB if they meet the criteria for inclusion;
- c) Assets funded by the PUDL shall be included on a proportionate basis;
- d) Inventories including materials and spares shall be included; and
- e) Net working capital required to fund ongoing operations shall be included.

#### 6.1.2.2 Criteria for excluding assets from the RAB of the PUDL

Assets that shall be excluded from the RAB for the PUDL include the following:

- a) Assets that have been paid by distribution users through connection charges (specific customer charges);
- b) Assets funded by third parties other than customers (i.e., grants, government contributions)
- c) Stranded or non-productive assets;
- d) Interest During Construction (IDC); and
- e) Financial investments. cash and cash equivalents.
- f) Future assets are excluded from the rate base until they are used and useful (i.e., enter into commercial operation). The methodology proposed incorporates a fair return on investment, which is designed to allow the utility to fund future investments. Earning a return on future assets would undermine economic efficiency.

### 6.1.2.3 Asset valuation approach

The value of the non-current assets included in the RAB in each of the tariff year(s) being considered in the application shall be calculated as follows:

$$DV_i = (AC_i) \times (RL_i/UL_i)$$

where:

$DV_i$  is the depreciated PUDL asset  $i$  value over its economic life;

$AC_i$  is the historical value of asset  $i$ ;

$RL_i$  is the remaining economic useful life of asset  $i$ ; and

$UL_i$  is the total economic useful life of asset  $i$ .

The total asset value of PUDL is the sum  $DV_i$  across all assets included.

Depreciated historical cost takes into consideration the historical cost of an asset as well as the accumulated depreciation over time. The rationale for this approach is that;

- a) The approach is simple, transparent and there's established precedent in the application of the valuation approach
- b) Inflation outlook for Eswatini is relatively low which means that price changes in electrical equipment from year to year are modest. This removes the need to adopt current cost economic useful or the replacement costing approach
- c) The weighted average cost of capital (WACC) is in nominal terms which is inclusive of inflation. A nominal WACC is applied on real asset values, which in this case is the historical cost. Where current cost or replacement cost (which is

the nominal assets values) is used, then the WACC is in real terms to avoid double counting.

- d) Technological advances in the power sector are relatively gradual compared with the information, computer and telecommunications (ICT sector). Hence there is no overriding rationale to adopt either the current cost accounting or the replacement costing approach.

### **6.1.3 Net Working Capital**

Working capital is the funding that the licensees need to have at hand at all times to meet its day-to-day short-term obligations as they fall due. The balance sheet method shall be used to calculate the net working capital that is added to the RAB.

Using the balance sheet method, the net working capital will be calculated as follows:

$$\text{Net working capital} = \text{Accounts Receivable} + \text{Inventory} - \text{Accounts Payable}$$

Where:

Accounts receivable, is the amounts of collectibles owed by customers for the licensed activity

Inventory, is the operating and maintenance materials held for use in the licensed activity

Accounts payable, is the amounts payable (excluding provisions) to creditors for supplies made to the licensed activity

The net working capital required shall be adjusted downwards where customers are on pre-paid metering.

### **6.1.4 Allowed Rate of Return on RAB**

The rate of return on the RAB for purposes of the PUDL tariff methodology in each of the tariff year(s) being considered in the application shall be the weighted average cost of capital (WACC).

#### **6.1.4.1 The Weighted Average Cost of Capital**

The weighted average cost of capital (**WACC**) is a calculation of a firm's cost of capital in which each category of capital, in the firm's funding structure, is proportionately weighted. An entity's capital comes from two main sources; debt (which includes, bonds and other long-term debt) and equity (common stock and preferred stock).



The WACC is calculated as a nominal after-tax figure and is determined according to the following formula:

$$WACC = (1 - g)E + g * D(1 - T)$$

where

*WACC* is the weighted average cost of capital;

*E* is after tax cost of equity capital;

*D* is the pre-tax cost of debt capital;

*g* is the target gearing of the licensee;

*T* is the applicable corporate tax rate;

#### **6.1.4.2 Cost of debt**

The cost of debt is a function of a risk-free rate plus a debt premium specific to the licensee:

$$D = (rf + dp)$$

where:

*D* is the nominal pre-tax cost of debt. The Regulator may consider using the licensee's existing weighted cost of debt;

*rf* is the risk-free rate in Eswatini. Unless there is a published risk-free rate in Eswatini, the Central Bank of Eswatini's published near term treasury bill -rate shall be used as a proxy for the risk-free rate. Treasury bills are a better proxy than government bonds due to low credit risk and minimal interest rate risk. Treasury bills are less sensitive to changes in interest rate than government bonds, meaning they are less likely to experience significant price fluctuations due to changes in interest rates and that helps provide a more stable input into the WACC calculation; and

*dp* is the debt premium on corporate debt over bonds which is required by lenders to compensate for the greater risk of default compared to government bonds. The debt premium could also be estimated based on actual existing cost of debt of the licensee.

### 6.1.4.3 Cost of equity

PUDL can recover a reasonable return on the capital invested in the business. The cost of equity shall be calculated using the Capital Asset Pricing Model (CAPM):

$$E = rf + (Rm - rf)\beta$$

where:

$E$  is the after- tax cost of equity;

$rf$  is the risk-free rate applicable in Eswatini; Unless there is a published risk-free rate in Eswatini, the Central Bank of Eswatini's published near term treasury bill -rate shall be used as a proxy for the risk-free rate. Treasury bills are a better proxy than government bonds due to low credit risk and minimal interest rate risk. Treasury bills are less sensitive to changes in interest rate than government bonds, meaning they are less likely to experience significant price fluctuations due to changes in interest rates and that helps provide a more stable input into the WACC calculation;

$Rm - rf$  is the market risk premium, which is the average return for the market less risk-free rate; and

$\beta$  is the equity beta, which measures the systematic risk of the asset in comparison to the average stock market.

#### 6.1.4.3.1 Determining elements of the CAPM

##### **Corporate tax rate**

This shall be the prevailing corporate tax rate in Eswatini, or tax rate applicable to the particular licensee if it differs from the general corporate tax rate for Eswatini.

##### **Market risk premium**

The following alternatives are recommended to be considered as Market Risk Premium estimates:

- a) Based on a study undertaken to determine Market Risk Premium suitable for the licensee
- b) Use of recent market risk premiums published by credible institutions
- c) Use of regulatory precedent, which can be either locally, regionally or internationally.

##### **Equity beta**

Equity beta is a measure of the volatility of a particular stock, relative to the stock market as a whole. It measures the systematic risk of the stock. A company's beta is

generally determined using its share price and the stock market index. In the absence of this, it is recommended that the beta be;

- a) Based on a study undertaken to determine beta suitable for the licensee
- b) Use of regulatory precedent, which can be either locally, regionally or internationally.
- c) Estimated using a benchmark beta of other similar utility companies.

### **Target Gearing**

The utility shall maintain an optimum financing structure. The WACC shall be developed in accordance with the optimum financing structure or target gearing. The target gearing can be determined using one of the following approaches, ranked in order of preference:

- a) Based on a study undertaken to determine target gearing suitable for the licensee,
- b) Benchmark with other utilities with similar characteristics to the licensee under consideration,
- c) Use of regulatory precedent, which can be either locally, regionally, or internationally.

#### **6.1.4.4 Allowed Return on RAB In Monetary terms**

The monetary value of the return on the RAB for purposes of the PUDL tariff methodology shall be calculated as follows:

$$RRAB_{PUDL} = RoR \times RAB$$

where:

$RRAB_{PUGL}$  is the allowed return (in monetary terms) for PUDL;

$RoR$  is the is the rate of return (WACC) on the Regulatory Asset Base for the PUDL; and

$RAB$  is the is the regulated asset base.

#### **6.1.5 Distribution Operating and Maintenance Costs**

The PUDL shall recover all operating costs that are reasonably incurred in the distribution of electricity. These costs include operating expenditures, maintenance costs that are below the threshold for capitalisation into the RAB, manpower costs, and overheads that are recoverable within one (1) year. The qualifying criteria for the PUDL operational costs are:

- Expenses must be incurred in the normal distribution services, including expenses incurred to achieve an acceptable level of maintenance and repair. For excessive expenses incurred under abnormal or extraordinary circumstances, consideration shall be given to spreading the expenses over several years to avoid large increases in tariffs.
- Expenses must be incurred in an arm's length transaction;
- Expenses must be prudently and efficiently incurred after careful consideration of available options. Such considerations would include a competitive and transparent procurement process;
- Allowance for the human resources costs should be at efficient and reasonable levels. The Authority may require access to wage settlement documents to verify the reasonableness of these costs.
- Limited expenses for Research and Development (R&D) may be included at the discretion of the Authority and shall cover expenses associated with R&D to improve distribution services to customers; and
- PUDL operating expenses that do not comply with the above criteria shall not be allowed. Interest payments are recovered as a component of the rate of return on the RAB and are not recovered as an operating cost.

#### **6.1.6 Distribution asset depreciation**

The PUDL shall recover the depreciated capital costs of the distribution assets included in RAB over the economic useful lifetime of assets. The distribution asset depreciation expense component of the allowed revenue shall be calculated on the historical costs of the distribution assets on a straight-line basis over the economic useful life of the assets.

#### **6.1.7 Allowance for Service Incentives/penalties**

The regulatory formula allows for adjustments of incentives and penalties. At the beginning of each financial year, following consultations with the licensee, performance targets will be set. The annual performance results shall be used to adjust the revenue requirements for each financial year through the RCA mechanism. The rewards/penalties shall be applied according to the performance achieved by the licensee on the targets set at the beginning of each financial year.

#### **6.1.8 Regulatory adjustments**

It is recognized that the PUDL costs are based on assumptions and projections that may not match the actual figures that materialize. The PUDL will be exposed to risks of revenue under-/over- recovery and resultant inadequate or excessive returns. The procedures for RCA discussed in Section 8 of this tariff methodology shall apply for reconciliation purposes.

### 6.1.9 Corporate taxes

The actual corporate taxes paid or to be paid during the MYPD tariff control period by the licensee, may be included in the determination of revenue allowed. Hence deferred taxes cannot be included in the revenue allowed until such a time that they become actually payable. Similarly, all exempted taxes in the provision of the licenced activity shall not be included in the determination of revenue allowed. Also, tax penalties and interest on tax due shall not be included in the determination of the revenue allowed.

A forecast of the actual corporate tax payable may be calculated using the following formula:

$$\text{Corporate tax (t)} = \{\text{Revenue allowed minus all tax deductible expenses}/(1-t)\} * t$$

Where:

t is the prevailing corporate tax rate in Eswatini, or tax rate applicable to the particular licensee if it differs from the general corporate tax rate for Eswatini

A reconciliation will be made annually between the forecast corporate tax payable and the actual corporate tax paid and any variance is transferred to the RCA

### 6.1.10 Revenue Streams and Transfer Pricing

The revenue allowance for the PUDL shall be recovered through the following charges:

#### **Distribution Use-of-System (DUoS) Charges**

The distribution use of system charge is applicable to generators and customers connected to the distribution system and is designed to cover the costs of distributing energy from the generators to where distributors and customers are supplied. The charge is for long-term network strengthening to increase capacity as required by the customers.

#### **Distribution Losses Charges**

The PUDL licensee wheels bulk energy over the distribution network to the load centres. The bulk energy includes technical losses that need to be paid for. In order to be able to pay for these losses, a losses charge is applied to loads that are wheeled over the distribution system.

#### **Distribution Connection Charges**

The distribution connection charges shall be charged to loads in accordance with the Connection Charge Guidelines.

## 6.2 Category 2 distribution licensees

The regulation framework in Eswatini allows for other private companies to own distribution licenses to services areas where the Public Utility is not in the best position to provide distribution services. This section shall apply to Category 2 distribution licensees who have long term PPAs with the System Operator in the Public Utility and own distribution licenses comprising:

- IPPs being procured competitively and own a distribution license;
- IPPs procured historically through unsolicited processes and own a distribution license;
- Co-Generators supplying electricity for their own consumption and exports/purchases the excess/deficits to/from the Public Utility and own a distribution license;
- Off-grid micro and/or mini-grid systems supplying a community with their electricity needs.

Other distribution entities shall apply for a distribution license and when granted the license, shall comply with the tariff application process which must be approved by the Authority.

The determination of the revenue requirement for other distribution licensees that purchase power from the System Operator shall be applied in the same way as for the PUDL. The costs of each distribution licensee will, however, be different from that of the PUDL. The following differences shall apply across all distribution licensees:

The cost of debt and equity will differ depending on the:

- Equity beta, debt premium and equity risk premium; and
- Allocation of corporate overheads across other divisions/businesses of the licensee.

The Mini grids and Micro grid systems shall be regulated in accordance with the Mini grid and Micro grid guidelines developed by the Authority or Regulations.

### **Historical contracts**

The Authority shall consider the terms of the historical contracts to determine their effect on the revenue requirement of the affected distribution licensees. The guiding principle is that the costs incurred by the licensees due to historical contracts shall be treated as a pass-through cost and the distribution licensee shall seek to renegotiate terms of historical contracts in order to reduce the pass-through costs. In this context,

historical contracts amongst others include wheeling agreements, etc. The licensees shall be required to operate efficiently in providing their services.

## 7 METHODOLOGY FOR SUPPLY LICENSEES

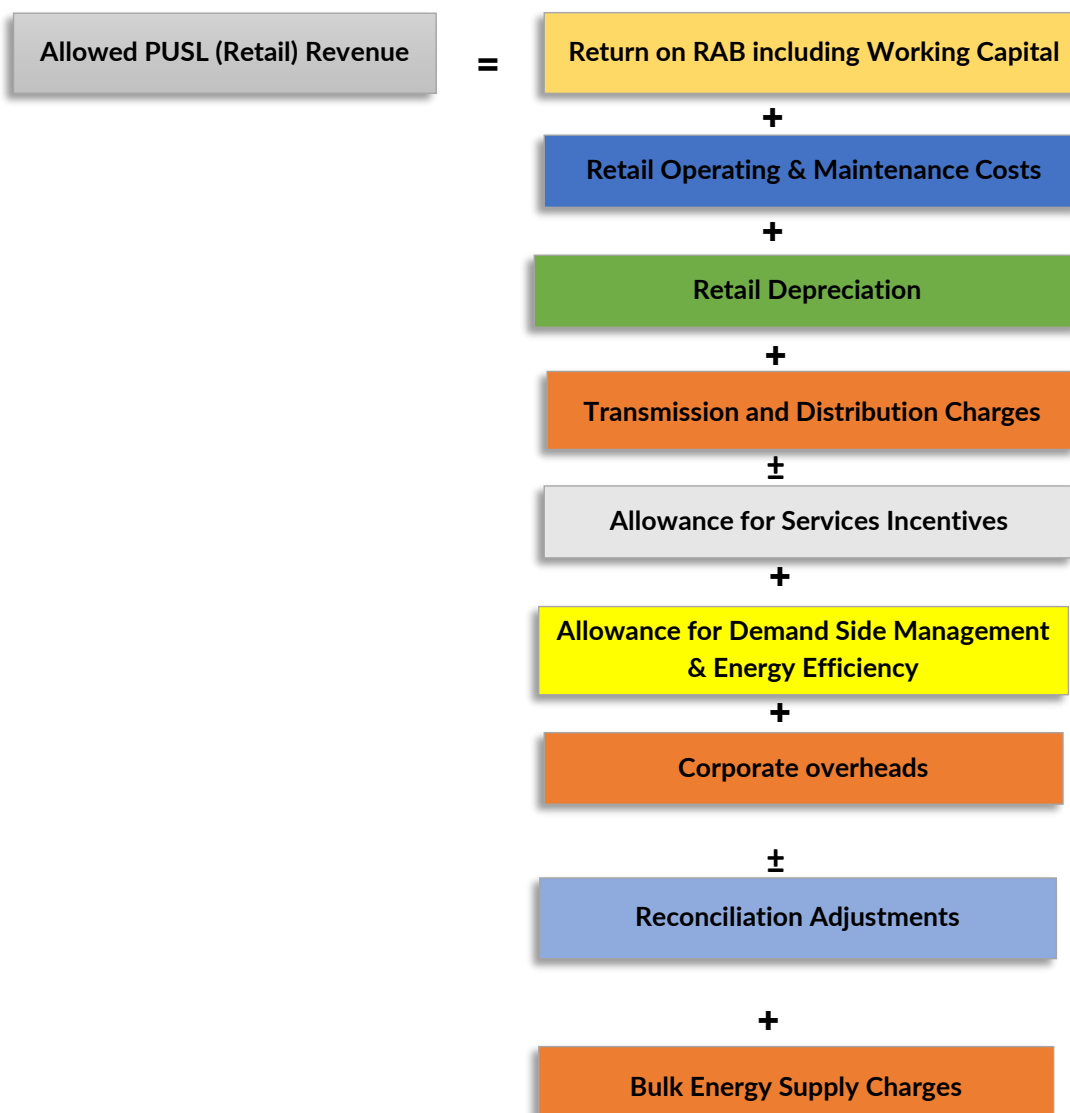
The section deals with the tariff methodology for the following supply licensees:

- The Public Utility Supply Licensee (“PUSL”) within Category 1 that applies the Allowed Revenue Regulation as the basis for the tariff determination; and
- Other Retail Supply Licensees owned by private companies

### 7.1 Public Utility Supply Licensee (“PUSL”)

The PUSL falls within Category 1 that applies the Allowed Revenue Regulation as the basis of the tariff determination as described in the subsequent sections. The PUSL focuses on Retail Supply only

Figure 7-1: Components of the regulatory formula for determining the PUSL- Retail Allowed Revenue





### **7.1.1 Regulatory Asset Base (RAB)**

The RAB shall represent assets used to provide regulated service by the PUSL.

#### **7.1.1.1 Criteria for including assets in the RAB of the PUSL**

Only assets used in the regulated business of electricity distribution that meet the following criteria shall be included in the RAB to allow the PUSL to earn a reasonable return on assets as informed by WACC:

- a) Assets that are in a reasonable functional condition to be used for electricity distribution services (in the long term i.e., exceeding 12 months) within the tariff approval period of the tariff adjustment application;
- b) Major assets refurbishment costs, shall be capitalised and included in the RAB if they meet the criteria for inclusion;
- c) Assets funded by the PUSL shall be included on a proportionate basis;
- d) Inventories including materials and spares shall be included; and
- e) Net working capital required to fund ongoing operations shall be included.

#### **7.1.1.2 Criteria for excluding assets from the RAB of the PUSL**

Assets that shall be excluded from the RAB for the PUSL include the following:

- a) Assets that have been paid by distribution users through connection charges (specific customer charges);
- b) Assets funded by third parties other than customers (i.e., grants, government contributions)
- c) Stranded or non-productive assets;
- d) Interest During Construction (IDC); and
- e) Financial investments. cash and cash equivalents.
- f) Future assets are excluded from the rate base until they are used and useful (i.e., enter into commercial operation). The methodology proposed incorporates a fair return on investment, which is designed to allow the utility to fund future investments. Earning a return on future assets would undermine economic efficiency.

#### **7.1.1.3 Asset valuation approach**

The value of the non-current assets included in the RAB in each of the tariff year(s) being considered in the application shall be calculated as follows:

$$DV_i = (AC_i) \times (RL_i/UL_i)$$

where:

$DV_i$  is the depreciated PUDL asset  $i$  value over its economic life;

$AC_i$  is the historical value of asset  $i$ ;

$RL_i$  is the remaining economic useful life of asset  $i$ ; and

$UL_i$  is the total economic useful life of asset  $i$ .

The total asset value of PUSL is the sum  $DV_i$  across all assets included.

Depreciated historical cost takes into consideration the historical cost of an asset as well as the accumulated depreciation over time. The rationale for this approach is that

- a) The approach is simple, transparent and there's established precedent in the application of the valuation approach
- b) Inflation outlook for Eswatini is relatively low which means that price changes in electrical equipment from year to year are modest. This removes the need to adopt current cost accounting or the replacement costing approach
- c) The weighted average cost of capital (WACC) is in nominal terms which is inclusive of inflation. A nominal WACC is applied on real asset values, which in this case is the historical cost. Where current cost or replacement cost (which is the nominal assets values) is used, then the WACC is in real terms to avoid double counting.
- d) Technological advances in the power sector are relatively gradual compared with the information, computer and telecommunications (ICT sector). Hence there is no overriding rationale to adopt either the current cost accounting or the replacement costing approach.

### 7.1.2 Net Working Capital

Working capital is the funding that the licensees need to have at hand at all times to meet its day-to-day short-term obligations as they fall due. The balance sheet method shall be used to calculate the net working capital that is added to the RAB.

Using the balance sheet method, the net working capital will be calculated as follows:

$$\text{Net working capital} = \text{Accounts Receivable} + \text{Inventory} - \text{Accounts Payable}$$

Where:

Accounts receivable, is the amounts of collectibles owed by customers for the licensed activity

Inventory, is the operating and maintenance materials held for use in the licensed activity

Accounts payable, is the amounts payable (excluding provisions) to creditors for supplies made to the licensed activity

The net working capital required shall be adjusted downwards where customers are on pre-paid metering.

### **7.1.3 Allowed Rate of Return on RAB**

The rate of return on the RAB for purposes of the PUSL tariff methodology in each of the tariff year(s) being considered in the application shall be the weighted average cost of capital (WACC).

#### **7.1.3.1 The Weighted Average Cost of Capital**

The weighted average cost of capital (**WACC**) is a calculation of a firm's cost of capital in which each category of capital, in the firm's funding structure, is proportionately weighted. An entity's capital comes from two main sources; debt (which includes, bonds and other long-term debt) and equity (common stock and preferred stock).

The WACC is calculated as a nominal after-tax figure and is determined according to the following formula:

$$WACC = (1 - g)E + g * D(1 - T)$$

where

*WACC* is the weighted average cost of capital;

*E* is after-tax cost of equity capital;

*D* is the pre-tax cost of debt capital;

*g* is the target gearing of the licensee;

*T* is the applicable corporate tax rate;

#### **7.1.3.2 Cost of debt**

The cost of debt is a function of a risk-free rate plus a debt premium specific to the licensee:

$$D = (rf + dp)$$

where:

$D$  is the nominal pre-tax cost of debt. The Regulator may consider using the licensee's existing weighted cost of debt;

$rf$  is the risk-free rate in Eswatini. Unless there is a published risk-free rate in Eswatini, the Central Bank of Eswatini's published near term treasury bill -rate shall be used as a proxy for the risk-free rate. Treasury bills are a better proxy than government bonds due to low credit risk and minimal interest rate risk. Treasury bills are less sensitive to changes in interest rate than government bonds, meaning they are less likely to experience significant price fluctuations due to changes in interest rates and that helps provide a more stable input into the WACC calculation; and

$dp$  is the debt premium on corporate debt over bonds which is required by lenders to compensate for the greater risk of default compared to government bonds. The debt premium could also be estimated based on actual existing cost of debt of the licensee.

### 7.1.3.3 Cost of equity

PUDL can recover a reasonable return on the capital invested in the business. The cost of equity shall be calculated using the Capital Asset Pricing Model (CAPM):

$$E = rf + (Rm - rf)\beta$$

where:

$E$  is the after- tax cost of equity;

$rf$  is the risk-free rate applicable in Eswatini; Unless there is a published risk-free rate in Eswatini, the Central Bank of Eswatini's published near term treasury bill -rate shall be used as a proxy for the risk-free rate. Treasury bills are a better proxy than government bonds due to low credit risk and minimal interest rate risk. Treasury bills are less sensitive to changes in interest rate than government bonds, meaning they are less likely to experience significant price fluctuations due to changes in interest rates and that helps provide a more stable input into the WACC calculation;

$Rm - rf$  is the market risk premium, which is the average return for the market less risk-free rate; and

$\beta$  is the equity beta, which measures the systematic risk of the asset in comparison to the average stock market.

#### **7.1.3.3.1 Determining elements of the CAPM**

##### **Corporate tax rate**

This shall be the prevailing corporate tax rate in Eswatini, or tax rate applicable to the particular licensee if it differs from the general corporate tax rate for Eswatini.

##### **Market risk premium**

The following alternatives are recommended to be considered as Market Risk Premium estimates:

- a) Based on a study undertaken to determine Market Risk Premium suitable for the licensee,
- b) Use of recent market risk premiums published by credible institutions
- c) Use of regulatory precedent, which can be either locally, regionally or internationally.

##### **Equity beta**

Equity beta is a measure of the volatility of a particular stock, relative to the stock market as a whole. It measures the systematic risk of the stock. A company's beta is generally determined using its share price and the stock market index. In the absence of this, it is recommended that the beta be;

- a) Based on a study undertaken to determine beta suitable for the licensee
- b) Use of regulatory precedent, which can be either locally, regionally or internationally.
- c) Estimated using a benchmark beta of other similar utility companies.

##### **Target Gearing in WACC Computation:**

The utility shall maintain an optimum financing structure. The WACC shall be developed in accordance with the optimum financing structure or target gearing. The target gearing can be determined using one of the following approaches, ranked in order of preference:

- a) Based on a study undertaken to determine target gearing suitable for the licensee,
- b) Benchmark with other utilities with similar characteristics to the licensee under consideration,
- c) Use of regulatory precedent, which can be either locally, regionally, or internationally.

#### 7.1.3.4 Allowed Return on RAB In Monetary terms

The monetary value of the return on the RAB for purposes of the PUDL tariff methodology shall be calculated as follows:

$$RRAB_{PUDL} = RoR \times RAB$$

where:

$RRAB_{PUGL}$  is the allowed return (in monetary terms) for PUDL;

$RoR$  is the is the rate of return (WACC) on the Regulatory Asset Base for the PUDL; and

$RAB$  is the is the regulated asset base.

#### 7.1.4 Supply Operating and Maintenance Costs

The PUSL shall recover all operating costs that are reasonably incurred in the distribution of electricity. These costs include operating expenditures, maintenance costs that are below the threshold for capitalisation into the RAB, manpower costs, and overheads that are recoverable within one (1) year. The qualifying criteria for the PUSL operational costs are:

- Expenses must be incurred in the normal distribution services, including expenses incurred to achieve an acceptable level of maintenance and repair. For excessive expenses incurred under abnormal or extraordinary circumstances, consideration shall be given to spreading the expenses over several years to avoid large increases in tariffs.
- Expenses must be incurred in an arm's length transaction;
- Expenses must be prudently and efficiently incurred after careful consideration of available options. Such considerations would include a competitive and transparent procurement process;
- Allowance for the human resources costs should be at efficient and reasonable levels. The Authority may require access to wage settlement documents to verify the reasonableness of these costs.
- Limited expenses for Research and Development (R&D) may be included at the discretion of the Authority and shall cover expenses associated with R&D to improve distribution services to customers; and
- PUSL operating expenses that do not comply with the above criteria shall not be allowed. Interest payments are recovered as a component of the rate of return on the RAB and are not recovered as an operating cost.

### **7.1.5 Supply asset depreciation**

The PUSL shall recover the depreciated capital costs of the distribution assets included in RAB over the economic useful lifetime of assets. The distribution asset depreciation expense component of the allowed revenue shall be calculated on the historical costs of the distribution assets on a straight-line basis over the economic useful life of the assets.

### **7.1.6 Bulk Energy Supply Charges**

The PUSL (retail) shall recover the costs associated with the energy and capacity sourced from the non-exclusive central buyer. The level of costs included in the revenue allowance would be determined by the cost level and approved tariff of the central buyer.

### **7.1.7 Transmission Network Charges**

The PUSL should recover fully the costs charged to it by the transmission licensee in respect of use-of-system. The level of these charges will be based on the Transmission Licensee's approved tariffs.

### **7.1.8 Distribution Network Charges**

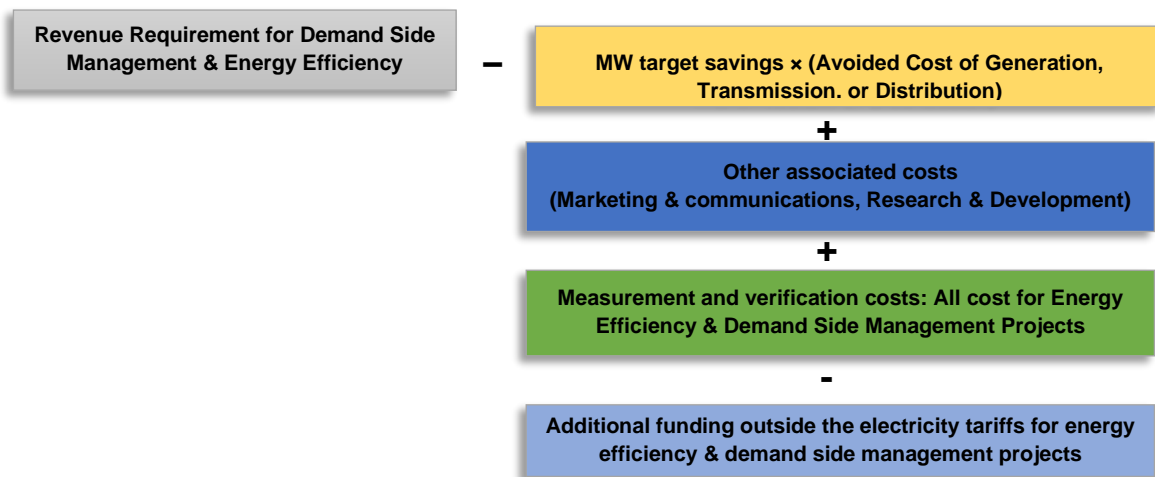
The PUSL should recover fully the costs charged to it by the distribution licensee in respect of use-of-system, The level of these charges will be based on the Distribution Licensee's approved tariff.

### **7.1.9 Allowance for Service Incentives/penalties**

The regulatory formula allows for adjustments of incentives and penalties. At the beginning of each financial year following consultations with the licensee, performance targets will be set. The annual performance results shall be used to adjust the revenue requirements for each financial year through the RCA mechanism. The rewards/penalties shall be applied according to the performance achieved by the licensee on the targets set at the beginning of each financial year.

### **7.1.10 Allowance for Demand Side Management & Energy Efficiency**

The PUSL shall be allowed for revenue requirement to support demand-side management programmes and promoting energy efficiency to encourage consumers to reduce their electricity usage and shift their usage to another time period. The allowed revenue for demand-side management and energy efficiency programmes shall be based on the project plans submitted by the PUSL. The following formula shall be applied to determine the revenue requirement for demand-side management and energy efficiency:



The following rules shall apply for determining the allowance:

- The MW target savings and breakdown per technology are determined by the PUSL based on their project plans which will be reviewed and approved by the Authority;
- The avoided cost applicable to demand-side management and energy efficiency projects shall be determined by the PUSL which will be reviewed and approved by the Authority. The avoided cost determined should match the duration effect of the demand side measure undertaken. If the effect is permanent the avoided long run marginal cost should be used. If the effect is temporary i.e., from an hour to maybe few years, the short run marginal cost should be used;
- Over achievement of demand-side management and energy efficiency target shall be rewarded based on an E/MW amount that is determined by the Authority;
- Under achievement of demand-side management and energy efficiency target shall be clawed back using the same E/MW as for overachievement; and
- Any additional funding received from other donors on demand-side management and energy efficiency shall be subtracted from the total revenue requirement for demand-side management and energy efficiency required by the distribution licensee.

### 7.1.11 Regulatory adjustments

It is recognized that the PUSL costs are based on assumptions and projections that may not match the actual figures that materialize. The PUSL will be exposed to risks of revenue under-/over- recovery and resultant inadequate or excessive returns. The procedures for RCA discussed in Section 9 of this tariff methodology shall apply for reconciliation purposes.



### 7.1.12 Corporate taxes

The actual corporate taxes paid or to be paid during the MYPD tariff control period by the licensee, may be included in the determination of revenue allowed. Hence deferred taxes cannot be included in the revenue allowed until such a time that they become actually payable. Similarly, all exempted taxes in the provision of the licenced activity shall not be included in the determination of revenue allowed. Also, tax penalties and interest on tax due shall not be included in the determination of the revenue allowed.

A forecast of the actual corporate tax payable may be calculated using the following formula:

$$\text{Corporate tax (t)} = \{\text{Revenue allowed minus all tax deductible expenses}/(1-t)\} * t$$

Where:

t is the prevailing corporate tax rate in Eswatini, or tax rate applicable to the particular licensee if it differs from the general corporate tax rate for Eswatini

A reconciliation will be made annually between the forecast corporate tax payable and the actual corporate tax paid and any variance is transferred to the RCA.

### 7.1.13 Revenue Streams and Transfer Pricing

The supply licensees shall recover the below costs;

#### 7.1.13.1 *Retail Charges*

Revenue recovery streams should, as a matter of principle, reflect cost behaviour. The revenue allowance for PUSL shall be recovered through one or more of the following charges, with consideration for administrative costs, administrative burden and cost-reflectivity:

##### i. Capacity Charges

These should be used to recover the network fixed costs and costs of generation capacity employed in delivering electricity services to the final consumers. Capacity costs should also signal the long-run marginal costs exerted by each customer on the entire system.

##### ii. Customer Charges

These should recover the costs associated with metering, billing and administering customer queries and other customer-driven costs.

### iii. Energy Charges

These should recover the variable cost of energy, including costs for energy imported and fuel used to generate each unit supplied.

In setting end-user tariffs, consideration should be made of the cost-of-servicing each customer class, as well as administration costs and burden. Tariff design shall be done by the licensee and approved by the regulator, taking into consideration findings of tariff and cost-of-service studies, as well as socio-economic considerations.

#### **7.1.14 Inclining/declining block tariffs**

Inclining/ declining block tariffs rarely reflects cost behaviour, however, these may be considered in such cases where socio-economic, environmental, demand side management, as well as administrative matters permit its use.

#### **7.1.15 Time-of-Use Pricing**

Where economically and administratively practicable, tariffs should reflect the costs behaviour associated with seasonality and time-of-the-day usage.

#### **7.1.16 Connection charges**

The connection charges will be regulated in accordance with the Connection Charge guidelines approved by the Authority.

### **7.2 Category 2 supply licensees**

The regulation framework in Eswatini allows for other private companies to own supply licenses to service areas where the Public Utility is not in the best position to provide supply services. This section shall apply to other supply licensees within Category 2 who have long term PPAs with the System Operator in the Public Utility and own supply licenses comprising:

- IPPs being procured competitively and own a supply license;
- IPPs procured historically through unsolicited processes and own a supply license;
- Co-Generators supplying electricity for their own consumption and exports/purchases the excess/deficits to/from the Public Utility and own a supply license;

- Off-grid micro and/or mini-grid systems supplying a community with their electricity needs.

Other electricity suppliers shall apply for a supply license and when granted the license, shall comply with the tariff application process which must be approved by the Authority.

The determination of the revenue requirement for Category 2 supply licensees that purchase power from the Central Buyer and other IPPs shall be applied in the same way as for the PUSL. The costs of each supply licensee will, however, be different from that of the PUSL. The following differences shall apply across all supply licensees:

The cost of debt and equity will differ depending on the:

- Equity beta, debt premium and equity risk premium; and
- Allocation of corporate overheads across other divisions/businesses of the licensee.

The Mini grids and Micro grid systems shall be regulated in accordance with the Mini grid and Micro grid guidelines developed by the Authority or Regulations

#### **Historical contracts**

The Authority shall consider the terms of the historical contracts to determine their effect on the revenue requirement of the affected supply licensees. The guiding principle is that the costs incurred by the licensees due to historical contracts shall be treated as a pass-through cost and the supply licensee shall seek to renegotiate terms of historical contracts in order to reduce the pass-through costs. In this context, historical contracts amongst others include wheeling agreements, etc. The licensees shall be required to operate efficiently in providing their services.

## **8 CORPORATE OVERHEADS**

Corporate overheads refer to costs that are not directly attributed to the specific functions (generation, transmission, system operation, distribution or supply) but incurred in the operations of a regulated entity as a whole. These costs do not have an identifiable causal relationship with the main service offered by the licensees. These costs include central administration or head office general expenses which include water and electricity, rent and administrative staff salaries. Corporate overheads shall be apportioned between the licensee's services in a clear and structured manner.

### **8.1 Public Utility Licensee**

Certain services are provided centrally across the Public Utility generation, transmission, distribution and supply ring-fenced functions. The corporate overheads for the tariff period shall be determined by the Public Utility and apportioned among the ring-fenced entities in accordance with the guidelines and principles as developed by the Authority.

All the various categories accounted for in the overhead allowed revenue requirement shall be allocated based on the ring-fenced functions using the following formulas as ratios applied to the category for every year of the MYPD:

#### **8.1.1 Operating and Maintenance Costs and Revenues**

The allocation of operating and maintenance costs and revenues shall follow the general rule that each cost or revenue must be allocated to the activity that caused the cost or revenue to arise. Thus, costs (or revenues) that are solely incurred (or generated) in the undertaking of a particular regulated activity shall be allocated to the relevant regulated activity under the specific power system activity on this direct causal relationship. However, it is recognized that there are costs (or revenues) that cannot be attributed to a specific regulated activity through a verifiable cause and effect relationship. Examples of unattributable costs include the common pool of costs such as corporate overheads and other centrally provided administrative, logistics and support services. Thus, in the allocation of costs and revenues, shared between power system activities the following shall be applied:

- a) Costs and revenues related to the provision of financial and economic services shall be allocated based on the number of financial or accounting operations for each of the companies compared to the total number of transactions.
- b) Costs and revenues related to Information Technology services shall be allocated based on the number of system users for each of the recipients of the service.
- c) Costs and revenues related to the provision of Human Resources services shall be allocated based on the number of personnel for each of the recipients of the service.

- d) Cost and revenues related to the provision of Legal Services shall be allocated based on the number of personnel for each of the recipients of the service.
- e) Costs and revenues related to the provisions of Public Relations Services shall be allocated based on the number of requests for such services made from each of the recipients of the services.
- f) Any other costs and revenues not attributable to points (a) to (e), above, shall be allocated based on the number of personnel for each of the recipients of the service.

### 8.1.2 Asset-related costs and revenues

The allocation of asset-related costs and revenues shall follow the general rule that each cost or revenue must be allocated to the activity that caused the cost or revenue to arise. Thus, costs (or revenues) that are solely incurred (or generated) in the undertaking of a particular regulated activity shall be allocated to the relevant regulated activity under the specific power system activity on this direct causal relationship. However, it is recognized that there are costs (or revenues) that cannot be attributed to a specific regulated activity through a verifiable cause and effect relationship. Examples of unattributable costs include the common pool of costs such as corporate overheads and other centrally provided administrative, logistics and support services. Thus, in the allocation of costs and revenues, shared between power system activities the following shall be applied:

- a) Costs and revenues associated with corporate value of allowed asset base shall be allocated based the value the assets of each regulated power activity to the total value of allowed assets as follows:

Corporate value of allowed asset base (book value):

$$\frac{\text{Value of the allowed asset base of the licensee (PUGL, PUTL, PUSL and PUDL)}}{\text{Total value of the allowed asset base of the licensees}}$$

- b) Costs and revenues associated with corporate assets depreciation shall be allocated based on the asset value of each regulated power activity to the total value of allowed assets as follows:

Corporate depreciation allowed for revenue:

$$\frac{\text{Value of the allowed asset base of the licensee (PUGL, PUTL, PUSL and PUDL)}}{\text{Total value of the allowed asset base of the licensees}}$$

- c) Costs and revenues associated with corporate interest on debt shall be allocated based on the asset value of each regulated power activity to the total value of allowed assets as follows;

Corporate interest on debt allowed for revenue:

$$\frac{\text{Value of the allowed asset base of the licensee (PUGL, PUTL, PUSLand PUDL)}}{\text{Total value of the allowed asset base of the licensees}}$$

The budget for corporate social investment and expenses on any charitable donations allowed in the revenue requirement, shall be directed to initiatives that are of direct benefit to electricity consumers and/or the electricity supply industry. This does not however preclude licensees to fund CSI initiatives of a general socio-economic nature from their own profits or reserves.

## 8.2 Cross – Subsidies, Levies, and Surcharges

The Government imposes certain taxes and levies that are payable by the Utility:

- Levies are any charges that the Government may impose and are payable by Utility arising from its licensed activity; and
- Surcharges are any amount arising from an enacted legislation that the Government may require the Public Utility to pay which amount will be calculated in terms of such legislation unless such surcharges can be precisely traced to one of the regulated licensees.

Any levies and surcharges imposed in accordance with the relevant legislation (Electricity Act of 2007) on the Public Utility shall be included as a corporate overhead cost.

## 8.3 Other licensees

The allocation of costs, revenues and assets follow the general rule that each cost, revenue or asset must be allocated to the activity that caused the cost or revenue to arise, or the asset to be acquired. Thus, costs (or revenues or assets) that are solely incurred (or generated or acquired) in the undertaking of a particular regulated activity shall be allocated to the relevant regulated activity under the specific power system activity on this direct causal relationship. However, it is recognized that there are costs (or revenues or assets) that cannot be attributed to a specific regulated activity through a verifiable cause and effect relationship. Examples of unattributable costs include the common pool of costs such as corporate overheads and other centrally provided administrative, logistics and support services. Thus, in the allocation of costs, shared between power system activities the following shall be applied:

- a) Costs related to the provision of financial and economic services shall be allocated based on the number of financial or accounting operations for each of the companies compared to the total number of transactions.

- b) Costs related to Information Technology services shall be allocated based on the number of system users for each of the recipients of the service.
- c) Costs related to the provision of Human Resources services shall be allocated based on the number of personnel for each of the recipients of the service.
- d) Cost related to the provision of Legal Services shall be allocated based on the number of personnel for each of the recipients of the service.
- e) Costs related to the provisions of Public Relations Services shall be allocated based on the number of requests for such services made from each of the recipients of the services.
- f) Any other costs not attributable to points (a) to (e), above, shall be allocated based on the number of personnel for each of the recipients of the service.

## **9 REGULATORY CLEARING ACCOUNT (RCA)**

The Regulatory Clearing Account (RCA) shall be applied to the Public Utility generation, transmission, system operation, distribution and supply ring-fenced functions and other category 1 licensees and not to the IPPs who operate under long-term PPAs with the System Operator.

The RCA mechanism allows for regulated licensees to recover in the subsequent MYPD control period surpluses or deficits arising from the differences in forecasts and assumptions of defined parameters to maintain the economic sustainability of regulated licensees.

Surpluses and deficits that can be directly linked to the licensee being more (or less) efficient or productive shall not be recovered to or from the electricity consumers but shall be a benefit (or a penalty) accruing to the licensee. For avoidance of any doubt, allowable adjustments shall be the ones that meet the criteria set in Section 9.1.

### **9.1 Allowable Adjustments for Cost of Sales, and Operating and Maintenance Expenditure**

The (RCA) mechanism shall take account of adjustments of revenue requirement variances to account for the differences in:

- a) Forecasted and actual energy generated from hydropower stations due to water levels;
- b) Forecasted and actual energy yields from solar and wind plants;
- c) Forecasted and actual energy purchases from private generation sources;
- d) Forecasted and actual energy imports;
- e) Forecasted and actual tariff applied on imports;
- f) Forecasted and actual sales volumes and customer numbers;
- g) Economic and financial planning parameters such as inflation, foreign currency and exchange rate forecasts and actual rates;
- h) WACC
- i) Any variances between forecast and actual of any other parameters of revenues allowed that have not been covered above
- j) Unplanned events of plant failure do occur resulting in additional costs. The licensee shall keep a separate account for unplanned maintenance and plant failure, which will be analysed in parallel with the RCA account to enable recoupment of justified expenditure not taken care of in the reconciling factors outlined above.



## **9.2 Allowable Adjustments for Capital Expenditure**

Capital expenditure on project infrastructure shall be part of the allowed revenue once the asset enters service. However, the Authority shall have oversight of budgets for capital expenditure projects. Licensees shall provide the capital budgets to the Authority for infrastructure if the expenditure is planned for the MYPD tariff control period.

Capital Expenditure variances shall be addressed in accordance with the RCA mechanism.

The Authority shall consider these changes after a thorough analysis and may impose limits on capital expenditure adjustments after extensive discussion with the affected licensee.

Capex reconciliation shall take into account the following differences:

- a) Economic and financial planning parameters such as inflation, foreign currency and exchange rate forecasts and actual rates,
- b) Approved capital projects in contrast to actually undertaken projects,
- c) Approved costs in contrast with actual costs incurred under procurement that complies with local procurement regulations for public enterprises,
- d) Degree of completion for approved projects.

## **9.3 Exceptional Events and Maintenance Account**

The Licensee shall keep a separate account for exceptional events and maintenance where all costs due to exceptional events, outside the control of the Licensee shall be recorded. The exceptional events account should be kept for each ring-fenced activity of the licensee.

This account is for tracking and recording events with negative financial impact, which would otherwise not have been reasonably anticipated under the normal operations of the licensee. For avoidance of any doubt, the licensee is expected to budget for its planned (or routine) maintenance and unplanned (non-routine) maintenance, with the latter being estimated based on past experience of the level of such costs. Unplanned (or non-routine) maintenance occurs due to faults in the system or due to recurring seasonal events (events occurring every year in almost the same time, e.g. winds in July, thunder and rain in the summer and hence they are normally expected to occur).

However, exceptional events are random (or abnormal) events, like tornados, earthquakes, terrorist attacks, etc, which may cause destruction to the electricity supply assets. They are non-recurring and cannot be reasonably anticipated. These

events shall be reported to the regulator, in writing, within five days of occurrence, together with cost estimates. The Regulator has a duty to carry out inspection of the extent of the damage and verify if estimates, and eventually, actual costs are reasonable. After the fact, the reasonable costs shall be allowed to be recovered from the electricity customers.

The account must provide the following information:

- a) Date event occurred;
- b) A brief description of the nature of the event;
- c) Description of equipment or property affected;
- d) Estimated Book Value of the equipment affected; and
- e) Estimated replacement value of the assets affected, including equipment cost and labor costs clearly separated.
- f) Any amounts recoverable from third parties, such as insurance compensation, disaster funds, towards offsetting some of the replacement costs in (e) above).

The Licensee shall notify the Regulator, in writing, of any exceptional events that will lead to costs within 5 working days of the event, outlining the nature of the event, brief description of property affected, estimated costs of the equipment affected.

Once an extensive assessment of the extent of the damage has been done, the Licensee shall update the Exceptional Events and Maintenance Account and shall periodically submit the account to the Regulator, together with the RCA.

An event or maintenance qualifies as unplanned if it meets all of the following criteria:

- a) It is a result of force majeure,
- b) It is outside the control of the licensee,
- c) It is not as a result of negligence on the part of the Licensee's personnel or agent employed by the Licensee,
- d) It could not have been reasonably anticipated to occur under normal operations of the licensee,

#### **9.4 Liquidation of the Regulatory Clearing Account and Re-opener**

The following rules should apply to the review of the RCA and to a tariff filing re-opener:

- a) A full review of the audited RCA shall be conducted six (6) months after the end of the financial year and within a period not exceeding 3 months.
- b) If RCA balance is significant, or there are issues that are potentially of significance to other stakeholders, the Authority can invite stakeholder inputs.
- c) An approved RCA balance should ideally be liquidated in accordance with the thresholds set in section 9.5. The thresholds stipulate the level of RCA balances

that can be liquidated within the current MYPD period, in the next MYPD period and for a re-opener.

- d) A re-opener can be triggered where the balance is in excess of 10% of the revenue allowance, the operating environment is turbulent, and the licensee requests that the RCA balance be liquidated prior to the end of the MYPD period, after a full stakeholder consultation.
- e) A re-opener can be initiated by the Licensee and approved by the Regulator if (d) applies or if there is acceptable evidence that assumptions upon which future regulatory periods were based on have significantly changed and will negatively impact on the operations of the licensee. The change in economic and business variables or assumptions should have a potential of causing variances in excess of 10% of the revenue allowance.
- f) In cases of a licensee filing re-opener, the normal tariff review processes shall apply.

### **9.5 Re-opener Thresholds**

In order to provide certainty to the consumers on the price path while at the same time maintaining the financial health of the licensee the regulator will treat the annualised variance from allowed revenue as follows:

- 1) Variance of up to 5% - is a carry-over to subsequent MYPD tariff period
- 2) Variance from 5% to 10% - adjustment is made to the tariff within incumbent MYPD period, one year in arrears.
- 3) Variance of more than 10% - is the threshold for a re-opener that will entail a full stakeholder consultation.

## 10 PLANNING PARAMETERS

Determination of electricity tariffs depends on various economic parameters where uncertainties should be considered to maintain the economic sustainability of regulated licensees. Such parameters include:

- a) Inflation Rate;
- b) Foreign Currency; and
- c) Exchange rate

It is important that the uncertainties of these planning parameters be considered in the tariff setting.

### 10.1 Inflation Rate

Inflation adjustment must be based on the appropriate inflation indices as approved by the Authority. The Production Price Index (PPI) shall be used as a measure of inflation in the industry if information can be provided by the Central bank of Eswatini. As an alternative, the Consumer Price Index (CPI) shall be used as a measure of inflation in industry.

The Central bank of Eswatini forecasted indices shall be used, In the event that future projections are not done for the entire period of tariff application the following can be considered for the remaining period:

- a) Long term inflation expectation in South Africa is estimated from the differences between the Nominal Bonds and Inflation-Linked Bonds
- b) The inflation outlook for South Africa is used as a proxy for the inflation outlook in Eswatini.

### 10.2 Foreign currency and Exchange Rate

Foreign currency presents a risk due to the variations in the exchange rates. Goods and services purchased in foreign currency by the regulated licensee shall be converted from foreign currency to local currency using the actual foreign exchange (FX) rate at the time the purchase payment is made or as may be directed by regulator on the data sources.

The purchasing power parity (PPP) approach will be used to forecast exchange rates over the MYPD tariff control period. The following is the PPP formula to be applied

$$S_t = S_0 \left[ \frac{1 + \text{inflation}_A}{1 + \text{inflation}_B} \right]^t$$

$S_0$  = initial spot rate  
 $t$  = periods into the future  
 $S_t$  = estimate future spot rate

- The initial spot rate will be taken from [Exchangerates.org.uk](http://Exchangerates.org.uk)

- Inflation rates will be sourced from the South African Reserve Bank (SARB) and the Federal Reserve. The South African inflation will be used because Lilangeni is pegged to the Rand and the determining inflation for exchange rate is the South African inflation rate.

## **11 TARIFF APPLICATION AND APPROVAL PROCESS**

Having set out the approach for determining the Allowed Revenue Requirement and established tariff structure guidelines, the final aspect of the tariff methodology revolves around the review and approval of tariffs to be charged to end customers. In addition, it is important to set out the timeframes for Multi Year Price Determination application submission, review, approval and implementation of revised tariffs.

### **11.1 Review and Approval**

The licensees shall submit an application for a revenue requirement which shall be reviewed and approved by the Authority using the principles and guidelines provided in this document. As electricity tariffs, best serve the public interest, the tariff application and approval process must be transparent, accountable and participatory.

- The revenue requirement and tariff review process shall be based on information submitted by the regulated licensees in accordance with the applicable licensee conditions;
- The regulated licensees shall submit its proposed tariff schedule together with the projected sales and demonstrate that this matches the revenue requirement applied for. The Operating Reporting Manual (ORM) data template provided by the Authority shall make provision for this;
- The Authority shall ensure that the proposed tariffs comply with the tariff structure guidelines and tariff level changes are relatively evenly balanced across individual customers or tariff categories (i.e. there are no radical tariff changes in any individual tariff); and
- In approving the tariffs to be charged to customers the Authority shall verify that the revenues from proposed tariffs and projected sales per customer and tariff category match the allowed revenue requirement.

### **11.2 Review and Approval Timeframes**

The changing industry has resulted in significantly more intricate process of tariff regulation. In order to facilitate a timely and rigorous process for revenue requirement application, review and tariff approval, and provide end-customers with sufficient notice of tariff changes, the timeline to be applied is three and a half months.

- a) The regulated licensee shall submit its revenue and tariff application by the 15<sup>th</sup> October of the year prior to the first year of the multi-year tariff period. Regulated entities are obliged to file for tariffs for each period to which tariffs will be applicable to customers. This therefore implies that the licensee has no discretion on whether or not to file for tariff review. If the regulated entity does not submit an application for the revenue requirement by the 15<sup>th</sup> October, the

Regulator will use the previous years (immediate) revenue requirement to charge tariffs.

- b) The Authority shall have 3.5 months up to 1<sup>st</sup> February to review and approve the application. Such review may entail some interactive engagement with the regulated entities if adjustments are to be made and should take cognizance of the December holiday period.
- c) The approved revenue requirement and revised tariffs shall be published by 1<sup>st</sup> February, thereby giving end-customers 2 months' notice before new tariffs are implemented.

### **11.3 Tariff Filing Roles and Responsibilities**

The Authority has defined the minimum filing requirements. These will be updated on an ongoing basis. Applicants shall acquire the document and comply with the requirements provided in this document and prepare their submissions accordingly. The roles of all participants in the tariff adjustment application are presented in the following subsections.

#### **11.3.1 The Applicant**

The licensees and other Category 1 applicants' role are as follows:

- Licensees shall submit their application as per the submission deadline defined in the Tariff Methodology with the supporting documents and tariff models as per the minimum filing requirements defined by the Authority;
- Licensees shall discuss confidentiality of the information provided to the Authority and agree what information should be kept confidential;
- On request from the Authority, the licensees shall make a formal presentation of its filing to stakeholders. The purpose of the presentation is for the licensees to explain their proposal including the justification for tariff adjustments;
- Licensees shall respond to data requests by the Authority within five days of the request for purposes of tariff application;
- Licensees should be able to present their positions on the Authority's recommendations on their tariff application formally to the Authority; and
- Licensees shall file updated tariffs based on the Authority's approved revenue allowed.

#### **11.3.2 The Authority**

The Authority's responsibilities are as follows.

- Once the licensees submit a filing, the filing should be entered in the Authority's website, without the confidential information, to inform public and it should be available for the public to view along with any supporting documents;
- Would analyse the filing, critically reviewing the data, assumptions and calculations;
- Would have the right to send data requests to the licensee to seek information on the filing;
- Would seek input from the public in the form of comments submitted to the Authority;
- The Authority would form its position based on its analysis and input from stakeholders and
- Based on the determination, the Authority would issue a formal decision. The board's final decision (Tariff Order), the licensee responses, and the comments from stakeholders will be posted on the Authority's website.

#### **11.4 Acts of Misconduct During the Tariff Review Period**

Acts of Misconducts shall be dealt with in accordance with the relevant legislation. All participants in the tariff adjustment application process shall act responsibly within the conditions of their license and abide by the process described in this tariff methodology and should not withhold information or deliberately provide incorrect information.

#### **11.5 Appealing the Tariff Decision**

An appeal to the tariff decision shall be dealt with by the Electricity Disputes Tribunal in accordance with the Electricity Act.

#### **11.6 Implementation of Tariff**

Based on the determination, the Authority would issue a formal decision. The board's final decision should be posted on the Authority's website.