



**Rate Setting Guidelines  
For  
Natural Gas Transmission**

## TABLE OF CONTENTS

|        |  |                                     |
|--------|--|-------------------------------------|
| PART 1 | PURPOSE, SCOPE, APPLICATION AND REVISION .....                       | 3                                   |
|        | PURPOSE .....  | 3                                   |
|        | SCOPE AND APPLICATION .....  | 3                                   |
|        | EFFECTIVE DATE, REVIEW, ADDITIONS AND AMENDMENTS .....               | 3                                   |
|        | ENFORCEABILITY .....   | 3                                   |
|        | CONTENT AND STRUCTURE OF DOCUMENT .....                              | 4                                   |
|        | DEFINITIONS.....   | 5                                   |
|        | EQUATION PARAMETERS.....   | 6                                   |
| PART 2 | TARIFF PHILOSOPHY .....  | 7                                   |
| 2.1    | Preamble .....   | 7                                   |
| 2.2    | Statutory Provisions.....  | 7                                   |
| 2.3    | Principles Underlying the Rate Setting Guidelines.....               | 8                                   |
| 2.4    | Objectives of the Rate Setting Guidelines .....                      | 8                                   |
| PART 3 | METHODOLOGY FOR NATURAL GAS TRANSMISSION TARIFF DETERMINATION .....  | 9                                   |
| 3.1    | Hybrid Tariff Methodology.....                                       | 9                                   |
| 3.2    | Annual Revenue Requirement of Natural Gas Transmission Utility ..... | 9                                   |
| 3.2.1  | Value of Regulatory Asset Base (RAB).....                            | 9                                   |
| 3.2.2  | Value of Mid-Year Regulated Asset Base .....                         | 9                                   |
| 3.2.3  | Depreciation .....   | 10                                  |
| 3.2.4  | Gearing and Allowable Rate of Return on Regulated Asset Base .....   | 10                                  |
| 3.2.5  | Return on Regulatory Asset Base.....                                 | 11                                  |
| 3.2.6  | Operation and Maintenance Costs.....                                 | 11                                  |
| 3.2.7  | Regulatory Working Capital.....                                      | 12                                  |
| 3.2.8  | Corporate Tax .....  | 12                                  |
| 3.2.9  | Variable Operation and Maintenance Costs .....                       | 12                                  |
| 3.2.10 | System Operation and Ancillary Services Costs .....                  | 12                                  |
| 3.3    | Recovery/Allocation of Revenue Requirement .....                     | 12                                  |
| 3.3.1  | Two-part Tariff Structure .....                                      | 12                                  |
| 3.3.2  | Three-part Tariff Structure.....                                     | 13                                  |
| 3.3.3  | Periodic Gas Transmission Tariff Adjustment .....                    | 14                                  |
| 3.4    | Natural Gas Transmission Service Charge.....                         | 14                                  |
| PART 4 | TARIFF DETERMINATION/SETTING PROCESS .....                           | 15                                  |
| 4.1    | Pre-filing Notification.....   | <b>Error! Bookmark not defined.</b> |
| 4.2    | Preliminary Review .....   | <b>Error! Bookmark not defined.</b> |
| 4.2.1  | Rejection and Re-filing .....  | <b>Error! Bookmark not defined.</b> |
| 4.3    | Public Hearing .....   | <b>Error! Bookmark not defined.</b> |
| 4.4    | Formal Hearing.....  | <b>Error! Bookmark not defined.</b> |
| 4.5    | PURC Decision and Publication of Rates .....                         | <b>Error! Bookmark not defined.</b> |
| 4.6    | Petitions.....   | <b>Error! Bookmark not defined.</b> |
| 4.7    | Communication .....  | <b>Error! Bookmark not defined.</b> |
| 4.7.1  | Pre-Tariff Approval Communication.....                               | <b>Error! Bookmark not defined.</b> |
| 4.7.2  | Post-Tariff Approval Communication.....                              | <b>Error! Bookmark not defined.</b> |

## **PART 1 PURPOSE, SCOPE, APPLICATION AND REVISION**

### **PURPOSE**

The purpose of these guidelines is to set out the principles, methodology and processes for approval of natural gas transmission tariffs by the Public Utilities Regulatory Commission (PURC). The guidelines aim to provide PURC with the information it needs to make decisions on natural gas transmission tariff adjustments. Finally, the guidelines provide industry participants with information to facilitate tariff application and approval processes.

### **SCOPE AND APPLICATION**

The guidelines apply to a Public Utility licensed or authorised under any law to own or operate Natural Gas Transmission assets or to provide natural gas transmission services in the regulated gas market in Ghana.

### **REVIEW, ADDITIONS AND AMENDMENTS**

- i. These guidelines revoke all guidelines previously issued by PURC for natural gas transmission utility.
- ii. PURC reserves the right to review or add to the guidelines periodically. Review or addition to the guidelines shall be done in consultation with stakeholders and in accordance with the Act.
- iii. Amendments, additions and relaxations to the guidelines may be made only with the approval of the Commission.

### **ENFORCEABILITY**

These Guidelines are issued as an Order of the Commission and are enforceable in accordance with the Public Utilities Regulatory Commission Act, 1997 (Act 538) and Energy Commission Act, 1997 (Act 541).

**Approved by the Commission on the..... Day of ..... 2020**

Signed.....  
Chairman, PURC

Signed.....  
Executive Secretary, PURC

## **CONTENT AND STRUCTURE OF DOCUMENT**

This document issued by the Public Utilities Regulatory Commission (PURC) constitutes the approved Rate Setting Guidelines for Natural Gas Transmission in Ghana. The document is organized as follows:

- Part 1- This Part sets out the Purpose, Scope, Application and Revision of the Guidelines, Definitions and Equation Parameters.
- Part 2- This Part sets out the Tariff Philosophy of the Rate Setting Guidelines.
- Part 3- This Part deals with Tariff Methodology for Natural Gas Transmission.
- Part 4- This Part deals with the Tariff Determination Process

**DEFINITIONS**

| <b>Term</b>                                      | <b>Definition</b>  |
|--|--|
| <b>Bulk Customer</b>                             | Means a customer that purchases or receives natural gas of an amount or level specified by the Energy Commission for consumption and not for delivery or resale to others.   |
| <b>Customer</b>                                  | Means a person that purchases or receives natural gas for consumption and not for delivery or resale to any other person.  |
| <b>Demand Charge</b>                             | Means costs which are incurred by Gas Transmission Utility in providing peak load of customer at any given time during the month.  |
| <b>Equity Beta</b>                               | Means Benchmark Asset Beta as established for global gas distribution utilities under incentive-based regulation. This Benchmark Asset Beta shall be re-levered using Hamada Conversion.   |
| <b>Gas Commodity Cost</b>                        | Means costs which are directly incurred in purchasing natural gas from the supplier and varies depending upon the amount of natural gas actually consumed by the customer.   |
| <b>Ghana Market Return</b>                       | Means Ghana's market return data as published by an independent international rating agency (Moody's) or financial market reporting company such as Bloomberg or a similar service.  |
| <b>Ghana Market Risk Premium</b>                 | Means Ghana's market risk premium data as published by an independent international rating agency (for example Moody's) or financial market reporting company such as Bloomberg or a similar service.  |
| <b>Ghana Country Risk Premium</b>                | Means country risk premium data for Ghana as published by an independent international rating agency (for example Moody's) or financial market reporting company such as Bloomberg or a similar service.   |
| <b>Ghana Country Default Spread</b>              | Means Ghana's country default spread as published by an independent international rating agency (for example Moody's) or financial market reporting company such as Bloomberg or a similar service.  |
| <b>Hybrid Tariff Methodology</b>                 | Means a tariff setting approach which combines rate of return regulation and incentive regulation, incorporating rewards, penalties and tests of prudence and efficiency in the determination of costs and the revenue requirement for public utilities including natural gas distribution and supply utilities. |
| <b>Natural Gas</b>                               | Includes the hydrocarbon fuels which are gaseous under normal atmospheric conditions and wet gas, dry gas and residue after the extraction of liquid hydrocarbon fuels from wet gas.   |
| <b>Natural Gas Transmission Utility/ Utility</b> | Means a person granted the transmission licence as a public utility under section 23 of the Energy Commission Act, Act 541, 1997 to operate the national interconnected transmission system for the transmission of Natural Gas.   |
| <b>Revenue Requirement</b>                       | Means total amount required or needed by the Natural Gas Transmission Utility to meet all costs of operations during a one-year period, which shall be known as "test year".   |
| <b>Risk Free Rate</b>                            | Means the yield on Ghana Government 5-year Eurobond Debt instrument.   |

|  |   |
|--|---|
| <b>Service Charge</b>                        | Means a charge intended to recover operational costs of the Utility pertaining to system operations costs, regulatory costs and customer costs such as the monthly fixed costs of meter reading, billing and collections, which costs are incurred regardless of the amount of natural gas that the customer uses.  |
| <b>Working Capital</b>                       | Means various regulatory asset base funding requirements (other than utility plant in service) or the amount of funds that the Natural Gas Distribution Utility needs to maintain supply inventories, meet prepayment obligations, and to meet operational cash needs between the time the Gas Transmission Utility renders service and when it collects revenues for those services. |
| <b>Weighted Average Cost of Capital WACC</b> | Means the rate at which a company is expected to pay on average to all its security holders to finance its assets. In other words, WACC is the average of the cost of equity and debt, weighted by the proportions of equity and debt which an efficiently financed company can be expected to use to fund its activities.  |

#### **EQUATION PARAMETERS**

|   |   |
|---|---|
| <b>Allowable Rate of Return</b>         | As calculated pursuant to section 3.2.4.2                 |
| <b>Cost of Equity</b>                   | As calculated pursuant to section 3.2.4.2.1               |
| <b>Cost of Debt</b>                     | As calculated pursuant to section 3.2.4.2.2               |
| <b>Revenue Requirement</b>              | As calculated pursuant to Section 3.2                     |
| <b>Return on Regulated Asset Base</b>   | As calculated pursuant to 3.2.5                           |
| <b>Regulatory Working Capital</b>       | As calculated pursuant to Section 3.2.8                   |
| <b>Regulated Asset Base</b>             | As calculated pursuant to Section 3.2.1 and Section 3.2.2 |
| <b>Weighted Average Cost of Capital</b> | As calculated pursuant to Section 3.2.4.2                 |

#### **Interpretation**

These Guidelines shall be interpreted in accordance with the Public Utilities Regulatory Commission Act 1997, (Act 538) and Energy Commission Act 1997, (Act 541).

Capitalized terms used shall have the meanings assigned in the definitions.

Capitalized terms used but not defined shall have the meanings assigned in Act 538 and Act 541 where the context demands.

## PART 2 TARIFF PHILOSOPHY

### 2.1 Preamble

The Government of Ghana (GoG), keen on developing its indigenous hydrocarbon resources to foster economic growth and improve the quality of life of its population, is undertaking major infrastructure investments to establish a viable gas industry.

In exercise of the powers conferred on the Public Utilities Regulatory Commission (PURC) under sections 3(a), (b) and 16 of Act 538, section 23 of Act 541 and regulations thereunder<sup>1</sup>, these Rate Setting Guidelines for Natural Gas Transmission are issued. The Guidelines set out the principles, methodologies and processes by which natural gas distribution and supply tariffs shall be determined and approved by PURC.

### 2.2 Statutory Provisions

The following provisions of the PURC Act specifically require PURC, in preparing guidelines and approving rates, to take into consideration the objectives below:

| Relevant Section of Act 538 | Objective  |
|-----------------------------|--|
| 16 (3) (a)                  | Consumer interest  |
| 16(3) (b); 3(c)             | Investor / Utility interest                                |
| 16(3)(c)                    | Assuring reasonable cost of production of the service      |
| 16(3)(d)                    | Assurance of the financial viability of the Public Utility |
| 20(1)                       | Uniformity of prices throughout the country                |
| 20(1)(b)                    | Best use of natural resources                              |
| 20(1)(c)                    | Economic development of the country                        |
| 20(2)                       | Different rates for different consumer classes             |

The processes and methodologies provided in these guidelines are informed by the above objectives in satisfaction of the statutory requirements, as explained more fully below:

- **Consumer interest:** Assurance of value for money in terms of price, quality and reliability; maintaining an optimum balance between affordability and availability of service; fair apportionment of total cost of supply to various classes of consumers; provision of a minimum level of service (lifeline supply) at an affordable price to a specified category of residential customers; ensuring long term availability of service.
- **Investor/Utility interest:** Allowance for an appropriate rate of return on investments to ensure ability of the Utility company and its investors to recover operational and capital expenditure and earn a reasonable return.
- **Reasonable cost of production:** Examination of the cost of production against agreed key performance indices and efficiency benchmarks to exclude unreasonable or inefficient costs.
- **Financial viability:** Allowance for prudent costs as pass-through costs with provision for reasonable return on investment. This includes prudent power purchase costs and provision of adequate revenue for sustainability of the business.
- **Uniformity of prices and population distribution:** Allowance for a tariff structure which incorporates uniform rates for all customers within a particular category of consumers

---

<sup>1</sup> LI 1911, 2007, LI 1912, 2007 and LI 1913, 2007

regardless of geographic location, and incorporates different rates for different consumer categories in accordance with cost of service.

- **Economic development of the country:** Allowance for “special rates” for priority consumers whose activities may enhance economic development.

In addition, sections 23 and 24 of the Energy Commission Act, 1997, (Act 541) provides for the establishment of a National Interconnected Natural Gas Transmission System to be operated by a Natural Gas Transmission Utility with the condition that charges for its services shall be subject to approval by the Public Utilities Regulatory Commission.

### **2.3 Principles Underlying the Rate Setting Guidelines**

These Rate Setting Guidelines are based on the following general principles.

1. Guaranteed non-discriminatory access to use of transmission infrastructure
2. Transparent information, procedures and transactions in gas transmission services
3. Provision of options to consumers/producers/suppliers to buy/sell gas and infrastructure capacity, on a level playing field basis, thereby contributing to competition objective

### **2.4 Objectives of the Rate Setting Guidelines**

These Rate Setting Guidelines are intended to achieve the following objectives.

1. Use tariffs as an economic instrument to ensure efficiency in the utilisation of and management of Natural Gas Interconnected Transmission System (NGITS).
2. Enhance financial sustainability of the Natural Gas industry.
3. Foster the provision of safe and reliable Natural Gas service at fair tariffs levels.
4. Separate the regulated and non-regulated business costs.
5. Create necessary conditions for the attraction of needed capital to the sector, at reasonable costs, for system upgrade and efficient expansion.
6. Encourage efficient utilisation of Natural Gas by each customer class.
7. Ensure transparency and non-discriminatory tariff regime.



## PART 3 METHODOLOGY FOR NATURAL GAS TRANSMISSION TARIFF DETERMINATION

### 3.1 Hybrid Tariff Methodology

The PURC shall employ a hybrid tariff methodology as defined in these guidelines.

### 3.2 Annual Revenue Requirement of Natural Gas Transmission Utility

The Annual Revenue Requirement (ARR) of a Natural Gas Transmission Utility shall be determined using the following formula:

$$\text{ARR} = \text{DepRAB} + \text{RtnRAB} + \text{OpEx} + \text{WCA} + \text{CorpTax} + \text{VOMC}$$

Where

|         |   |
|---------|---|
| ARR     | Is Annual Revenue Requirement   |
| DepRAB  | Is Depreciation on Regulated Asset Base calculated in accordance with Section 3.2.3 |
| RtnRAB  | Is Return on Regulated Asset Base calculated in accordance with Section 3.2.5       |
| OpEx    | Is Operating Expenses calculated in accordance with Section 3.2.6                   |
| WCA     | Is Working Capital Allowance calculated in accordance with Section 3.2.7            |
| CorpTax | Is Corporate Taxes calculated in accordance with Section 3.2.8                      |
| VOMC    | Is Variable Operation and Maintenance Cost in accordance with Section 3.2.9         |

#### 3.2.1 Value of Regulatory Asset Base (RAB)

The value of regulatory asset base at any particular tariff period shall be determined using the **replacement value approach**. In other words, inflation-adjusted historical cost of regulated assets less accumulated depreciation for the period under consideration plus net working capital. PURC shall keep a comprehensive and detailed Assets Register with respect to Natural Gas Transmission which shall be assessed regularly. The following formula shall be used to determine the value of the regulatory asset base:

$$\text{RAB} = V - d + \text{nwc}$$

Where

|     |   |
|-----|---|
| V   | Is Value of usable regulated assets at commencement of tariff period under review |
| d   | Is Accumulated depreciation at commencement of tariff period under review         |
| nwc | Is Net Working Capital  |

#### 3.2.2 Value of Mid-Year Regulated Asset Base

Where a project for which the Commission has approved Capital Expenditure is completed and commissioned in the course of the Regulatory Year, the value of such Assets shall be treated under the Mid-Year Regulated Asset Base of the Natural Gas Transmission Utility using the following methodology.

$$\text{MidYearRAB}_t = \text{OpeningRAB}_t + 0.5 (\text{CapEx}_t - \text{Depn}_t - \text{Disp}_t)$$

Where

|                         |  |
|-------------------------|--|
| MidYearRAB <sub>t</sub> | Is Mid-Year Regulated Asset Base in Regulatory Year (t)                          |
| OpeningRAB <sub>t</sub> | Is Opening Regulated Asset Base in Regulatory Year (t)                           |
| CapEx <sub>t</sub>      | Is Capital Expenditure Related to Completed Capital Works in Regulatory Year (t) |
| Depn <sub>t</sub>       | Is Depreciation in Regulatory Year (t)   |
| Disp <sub>t</sub>       | Is Disposition Proceeds in Regulatory Year (t)                                   |

### 3.2.3 Depreciation

Depreciation expense shall be determined in accordance with the International Financial Reporting Standards (IFRS) and calculated on Net Re-valued Fixed Assets which are used and useful in providing gas service. Similar to the annual adjustments to the RAB, annual depreciation expense shall be appropriately adjusted to reflect changes in the Ghana Cedi U.S. Dollar exchange rate.

### 3.2.4 Gearing and Allowable Rate of Return on Regulated Asset Base

#### 3.2.4.1 Gearing

When calculating the cost of capital, the PURC shall make assumptions on the gearing level of the Natural Gas Transmission Utility. Such assumptions shall be based on optimal level of gearing which an efficient Natural Gas Transmission Utility shall expect or deemed to have, rather than on actual level of gearing of the utility.

#### 3.2.4.2 Allowable Rate of Return on Regulated Asset Base

The allowable rate of return shall be set equal to the estimated Weighted Average Cost of Capital (WACC). The PURC shall determine the WACC, by calculating the cost of debt and equity and the proportions of debt and equity which should be employed in an efficiently financed Natural Gas Transmission Utility using the following formula.

$$\text{WACC} = \left[ \frac{E}{(D+E)} * K_e \right] + \left[ \frac{D}{(D+E)} * K_d \right]$$

Where:

|       |  |
|-------|--|
| E     | Is Equity  |
| D     | Is Debt  |
| $K_e$ | Is Cost of Equity Using the Capital Asset Pricing Model (CAPM) |
| $K_d$ | Is Cost of Debt  |

#### 3.2.4.2.1 Cost of Equity

The PURC shall adopt the following methodology to determine the Cost of Equity.

$$R_e = R_f + \text{CDS} + \text{Beta} * (\text{USP})$$

Where:

|       |  |
|-------|--|
| $R_e$ | Is Required Rate of Return on Equity   |
| $R_f$ | Is Ghana's Risk Free Rate (Ghana Eurobond Rate Coinciding with Multi-Year Major Tariff Review Test Year) |
| CDS   | Is Ghana's Country Default Spread  |
| Beta  | Is Global Natural Gas Transmission Utility Asset Beta in relation to US Market Index                     |
| USP   | Is US Premium  |

#### 3.2.4.2.1.1 Equity Beta

To determine Equity Beta for purposes of computing Cost of Equity, PURC shall adopt the Methodology stated as follows:

$$\beta_L = \beta_U * [1 + (1-T)D/E]$$

Where:

|           |  |
|-----------|--|
| $\beta_L$ | Is Levered Beta (Equity Beta) <sup>2</sup> |
| $\beta_U$ | Is Unlevered Beta (Asset Beta)             |
| T         | Is Corporate Tax                           |
| D         | Is Market Value of Debt                    |

---

<sup>2</sup> Refers to Corporate Entities which have Debt as part of their Capital Structure. The Commission's Benchmark Debt Component in the Capital Structure is 70%. However, where the Cost of Debt is determined by the Commission to be significantly lower than the Average Market Cost of Debt, the Commission may opt for a higher Debt Proportion beyond the 70% in the Capital Structure.

E Is Market Value of Equity

### 3.2.4.2.2 Cost of Debt

The PURC shall adopt the following methodologies to determine the Cost of Debt.

#### 3.2.4.2.2.1 Pre-Tax Cost of Debt

$$\text{PrCoD} = R_{fUS} + \text{CDS}$$

Where:

PrCoD Is Pre-Tax Cost of Debt

$R_{fUS}$  Is US Risk Free Rate (US Treasury Note Rate Coinciding With Multi-Year Major Tariff Review Test Year)

CDS Is Ghana's Country Default Spread

#### 3.2.4.2.2.2 Post-Tax Cost of Debt

$$\text{PoCoD} = (R_{fUS} + \text{CDS}) * (1 - T)$$

Where:

PoCoD Is Post Tax Cost of Debt

$R_{fUS}$  Is US Risk Free Rate (5-Year US Treasury Note Rate)

CDS Is Ghana's Country Default Spread (Risk of Default on Debt Obligation)

T Is Corporate Tax Rate

### 3.2.5 Return on Regulatory Asset Base

The Return on Regulatory Asset Base shall be calculated as follows:

$$\text{RtnRAB} = \text{RAB} * \text{WACC}$$

Where:

RtnRAB Is Return on Regulated Asset Base

RAB Is Regulated Asset Base calculated pursuant to Section 3.2.1

WACC Is Weighted Average Cost of Capital calculated pursuant to Section 3.2.4.2

### 3.2.6 Operation and Maintenance Costs

The Commission shall undertake Operation and Maintenance (O&M) cost efficiency analysis upon receipt of operating cost projections from the Natural Gas Transmission Utility taking into account whether such projected/incurred cost is prudent and efficient. In addition, revenue expenditure in respect of newly commissioned projects approved by the Commission shall be recognised in determining the Total Operation and Maintenance Expenses for the Natural Gas Transmission Utility as per the following methodology.

$$\text{O\&M}_{t+1} = \text{O\&M}_t + (\text{O\&M}_t * \alpha) + (\text{VNCA} * \mu)$$

Where:

$\text{O\&M}_{t+1}$  Is Forecast Operation and Maintenance Expenses of Natural Gas Transmission Utility

$\text{O\&M}_t$  Is Base Year Operation and Maintenance Expenses of Natural Gas Transmission Utility

$\alpha$  Is Projected Average Inflation Defined as  $(\text{CPI}_{t+1} - \text{CPI}_t) / \text{CPI}_t^3$

VNCA Is Value of Newly Commissioned Assets

---

<sup>3</sup> $\text{CPI}_{t+1}$  is Defined as Projected US Average Consumer Price Index for the Next Quarter;  $\text{CPI}_t$  is Defined as Base US Average Consumer Price Index

$\mu$  Is Percentage of Value of Newly Commissioned Transmission Assets Dedicated to Operation and Maintenance Expenses as Approved by the Commission

### 3.2.7 Regulatory Working Capital

The Working Capital Allowance for the Regulatory Year (t) shall be calculated as follows:

$$WCA_t = \frac{(\text{Lag (days)}_t - \text{Lead (days)}_t) * \text{OpEx}_t * \text{WACC}}{365}$$

Where:

$WCA_t$  Is Working Capital Allowance calculated for Regulatory Year (t)  
 Lag Days Is Average Debtor Days calculated for Regulatory Year (t)  
 Lead Days Is Average Creditor Days calculated for Regulatory Year (t)  
 $OpEx_t$  Is Sum of Operating Expenses calculated for Regulatory Year (t)  
 WACC Is Weighted Average Cost of Capital

### 3.2.8 Corporate Tax

Corporate Tax, shall be treated as an expense in accordance with the provisions of Applicable Tax Laws and included in determination of Annual Revenue Requirement (Transmission).

### 3.2.9 Variable Operation and Maintenance Costs

The Commission shall undertake Variable Operation and Maintenance Cost (VOMC) upon receipt of such cost projections from the Natural Gas Transmission Utility taking into account whether the projected VOMC is prudent and efficient.

### 3.2.10 System Operation and Ancillary Services Costs

The level of these costs shall be determined by the PURC in consultation with the Natural Gas Transmission Utility.

## 3.3 Recovery/Allocation of Revenue Requirement

Having determined the Total Revenue Requirement of the Natural Gas Transmission Utility, the Commission shall recover same through either of the following Tariff Structures. It must however be stated that tariffs recovered under either of the two Tariff Structures are average tariffs.

### 3.3.1 Two-part Tariff Structure

The two-part tariff structure which is based on Interruptible Gas Transmission Capacity Purchase and Sale Agreement shall consist of Commodity Usage Charge (volumetric or energy content) and a Service Charge both of which are intended to recover Total Transmission Revenue Requirement. It shall be determined as Total Gas Transmission Revenue Requirement divided by Total Projected Gas Volume to be transmitted and a Service Charge unrelated to Projected Gas Transmission Volume as determined by the Commission as fixed amount per customer per month.

#### 3.3.1.1 Commodity Usage Charge (Volumetric or Energy Content)

Commodity Usage Charge (USD/MMBtu) is determined as follows.

$$CUC_t = \text{TGTRR}_t / \text{TPGTV}_t$$

Where

$CUC_t$  Is Commodity Usage Charge in USD/MMBtu  
 $TGTRR_t$  Is Total Gas Transmission Revenue Requirement in Million USD  
 $TPGTV_t$  Is Total Projected Gas Transmission Volume in MMBtu

### 3.3.1.2 Service Charge

The Service Charge shall be determined on the basis of Gas Transmission Utility monthly fixed costs such as meter reading, billing and collection and total number of customers.

$$SC_t = TFC_t/TC_t$$

Where

|                  |                                       |
|------------------|---------------------------------------|
| SC <sub>t</sub>  | Is Service Charge in USD/MMBtu        |
| TFC <sub>t</sub> | Is Total Fixed Cost in Million USD    |
| TC <sub>t</sub>  | Is Total Number of Customers in MMBtu |

### 3.3.2 Three-part Tariff Structure

The three-part tariff structure which is based on Non-Interruptible Gas Transmission Capacity Purchase and Sale Agreement consists of a Demand Charge (Capacity Reservation Charge), a Commodity Usage Charge (volumetric or energy content) and a Service Charge. These charges are intended to recover Total Transmission Revenue Requirement. It shall be determined as the Total Transmission Revenue Requirement divided by Projected Gas Volume to be transmitted and a Service Charge unrelated to Projected Natural Gas Transmission Volume as determined by the Commission as fixed amount per customer per month as captured in the following formulae.

#### 3.3.2.1 Demand Charge (Capacity Reservation Charge)

Demand Charge or Capacity Reservation Charge (USD/MMBtu) is computed as follows.

$$DC/CRC_t = TGTCRR_t/TCMGD_t$$

Where

|                     |   |
|---------------------|---|
| DC/CRC <sub>t</sub> | Is Demand Charge or Capacity Reservation Charge in USD/MMBtu          |
| TGTCRR <sub>t</sub> | Is Total Gas Transmission Capacity Revenue Requirement in Million USD |
| TCMGD <sub>t</sub>  | Is Total Contracted Maximum Gas Demand in MMBtu                       |

#### 3.3.2.2 Commodity Usage Charge (Volumetric or Energy Content)

Commodity Usage Charge (USD/MMBtu) is determined as follows.

$$CUC_t = TVOMR_t/TPGTV_t$$

Where

|                    |  |
|--------------------|--|
| CUC <sub>t</sub>   | Is Commodity Usage Charge in USD/MMBtu                             |
| TVOMR <sub>t</sub> | Is Total Variable Operation and Maintenance Revenue in Million USD |
| TPGTV <sub>t</sub> | Is Total Projected Gas Transmission Volume in MMBtu                |

#### 3.3.2.3 Service Charge

The Service Charge shall be determined on the basis of Natural Gas Transmission Utility monthly fixed costs such as meter reading, billing and collection and total number of customers.

$$SC_t = TFC_t/TC_t$$

Where

|                  |                                       |
|------------------|---------------------------------------|
| SC <sub>t</sub>  | Is Service Charge in USD/MMBtu        |
| TFC <sub>t</sub> | Is Total Fixed Cost in Million USD    |
| TC <sub>t</sub>  | Is Total Number of Customers in MMBtu |

### **3.3.3 Periodic Gas Transmission Tariff Adjustment**

The Periodic Natural Gas Transmission Tariff Review shall be carried out in accordance with PURC's Quarterly Review of Natural Gas, Electricity and Water Tariffs.

### **3.4 Natural Gas Transmission Service Charge**

The Natural Gas Transmission Service Charge as determined and approved by the PURC shall be passed on to end-users as part of the Total Natural Gas Delivered Cost.

## **PART 4 TARIFF DETERMINATION/SETTING PROCESS**

### **5.1 Filing Requirements for Major Review**

Gas tariffs shall be set at least once in every five years to be effective from the month of January billing cycle.

### **5.2 Pre-filing Notification**

The Natural Gas Transmission Utility shall file a pre-filing notification with the PURC at least 60 days prior to the intended effective date.

### **5.3 Filing of Tariff Review Proposal**

Within 14 days after serving a pre-filing notification, the Utility shall file its tariff review proposal with PURC in accordance with the PURC Filing Forms. The proposal shall be signed, and each page of the proposal and annexures initialled, by the principal officer of the Utility or authorised representative of the principal officer. The proposal and all required data shall be submitted in one package, notwithstanding the size of the package.

### **5.4 Preliminary Review**

Upon receipt of a tariff proposal, PURC shall review it for compliance with the Filing Forms and information requirements.

### **5.5 Rejection and Re-filing**

PURC shall accept or reject the proposal and notify the Utility of its comments or reasons for rejection. Where a filing is rejected, the Utility shall re-file within a maximum period of fourteen (14) calendar days for consideration by the PURC.

### **5.6 Publication and Hearings**

Where the PURC accepts the filing of the Natural Gas Distribution/Supply Utility, the Commission shall organise “public hearings” to give opportunity to Stakeholders to be heard and comment on the proposals/submissions. Prior to any public hearing, the Natural Gas Distribution/Supply Utility shall publish its tariff proposal/submission in the print media. The publication of the proposed tariffs shall be done at least 14 days before the “public hearings”.

### **5.7 Formal Hearing**

Following public hearings, the PURC shall investigate the tariff proposals submitted by the Gas Distribution/Supply Utility. The investigations shall be conducted by staff of the PURC and other experts or representatives of stakeholders.

### **5.8 PURC decision and Publication of Rates**

PURC shall inform the Utility of the tariff decision and cause its decision to be published in the Gazette and the print media.

### **5.9 Petition for Review of Tariff Review Decision**

Upon publication of a PURC tariff decision a Utility may, if aggrieved by the decision, file a petition requesting review of the decision. The petition shall be filed within ten calendar days following the date of publication.

A petition shall be heard in accordance with the PURC Formal Hearing procedures and shall be resolved within 20 working days from its filing, after which all administrative remedies are exhausted.

### **5.7 Communication**

The Utility shall undertake public pre-tariff approval and post-tariff approval communication on key issues relating to gas distribution and supply tariff reviews.

**5.7.1 Pre-Tariff Approval Communication**

As part of pre-tariff approval communication, the Utility shall engage the public through various media including both electronic and print on issues regarding proposals submitted to the Commission for consideration, and review of tariffs, including reasons and justification for the proposal.

**5.7.2 Post-Tariff Approval Communication**

As part of a post-tariff approval communication, the Utility shall constantly engage consumers on the level of tariffs granted by the Commission, highlighting key areas where revenues from tariffs approved by the Commission shall be used to address or improve quality of service delivery.