



Rate Setting Guidelines
for
Natural Gas Gathering, Processing, Transmission and
Weighted Average Cost of Gas

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PART 1 PURPOSE, SCOPE, APPLICATION AND REVISION

PURPOSE

The purpose of these guidelines is to set out the principles, methodology and processes for the approval of Natural Gas Gathering, Processing and Transmission Tariffs by PURC. The guidelines aim to provide PURC with the information it needs to make decisions on Natural Gas Gathering, Processing and 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 Gathering, Processing and Transmission assets or to provide natural gas gathering, processing and transmission services in the regulated gas market in Ghana.

EFFECTIVE DATE, REVIEW, ADDITIONS AND AMENDMENTS

- i. These guidelines shall take effect from August 2025 and revoke all guidelines previously issued by PURC for natural gas gathering, processing and 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 29TH Day of AUGUST 2025

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 Gathering, Processing and Transmission in Ghana. The document is organized as follows:

- Part 1 – This Part deals with the Purpose, Scope, Application and Issues relating to Revision of the Guidelines as well as 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 Gathering.
- Part 4 - This Part deals with Tariff Methodology for Natural Gas Processing.
- Part 5 - This Part deals with Tariff Methodology for Natural Gas Transmission.
- Part 6 - This Part deals with Tariff Methodology for Weighted Average Cost of Gas.
- Part 7 - This Part deals with Tariff Determination/Setting Process

DEFINITIONS

Term	Definition
Bulk Customer	This shall mean 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.
Customer	This shall include a person that purchases or receives natural gas for consumption and not for delivery or resale to any other person.
Demand Charge	This shall mean costs which are incurred by Gas Transmission Utility in providing peak load of customer at any given time during the month.
Gas Commodity Cost	This shall mean costs which are directly incurred in purchasing the natural gas from the supplier and vary depending upon the amount of natural gas actually consumed by the customer.
Gas Gathering Cost	This shall mean costs associated with gathering of Natural Gas produced from various production fields through pipelines to processing plants.
Gas Processing Cost	This shall mean costs or expenses relating to extraction of embedded natural gas liquids and removal of water vapour and other contaminants at processing plant.
Gas Service Cost	This shall mean costs associated with gas management activities including gas aggregation, nomination and related services as well as levies and charges.
Gas Transmission Service Cost	This shall mean expenses or costs incurred in transportation of processed gas from a processing plant to distribution centres, storage facilities and Bulk Customers.
Hybrid Tariff Methodology	This shall mean a tariff setting approach which combines rate of return regulation as well as incentive regulation incorporating rewards, penalties and tests of prudence and efficiency in the determination of costs hence revenue requirement for Public Utilities including Natural Gas Transmission Utility.
Natural Gas	This shall mean any hydrocarbon or a mixture of hydrocarbons and other gases, which at a temperature of sixty degrees Fahrenheit and at atmospheric pressure are predominantly in gaseous state.
Natural Gas Transmission Utility	This shall mean a person granted the transmission licence as a public utility under section 23 of the Energy Commission Act, 1997 (Act 541) to operate the national interconnected transmission system for the transmission of Natural Gas.
Revenue Requirement	This shall mean total amount required or needed by the Natural Gas Gathering, Processing or Transmission Utility to meet all costs of operations.

Service Charge	This shall mean cost intended to recover other operational costs pertaining to System Operations Costs, Regulatory Costs/Levies, customer costs such as the monthly fixed costs that GTU incurs in reading meters, billing and collections, which costs are incurred regardless of the amount of natural gas that the customer uses.
Working Capital	This shall mean various regulatory asset-base funding requirements other than utility plant in service or the amount of funds that the Gas Transmission Utility needs to maintain supply inventories, meet prepayment obligations, and to meet cash needs for operating expenses between the time the Gas Transmission Utility renders service and when it collects revenues for those services.
Weighted Average Cost of Capital	This shall mean 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.

Interpretation

These Guidelines shall be interpreted in accordance with PURC Act 1997, (Act 538) and EC Act 1997, (Act 541). Capitalized terms used but not defined shall have the meanings assigned in these Guidelines.

EQUATION PARAMETERS

Allowable Rate of Return	As calculated pursuant to Sections 3.2.5.2, 4.2.5.2 & 5.2.5.2
Operation and Maintenance Costs	As calculated pursuant to Sections 3.2.1, 4.2.1 & 5.2.1
Revenue Requirement	As calculated pursuant to Sections 3.2, 4.2 & 5.2
Return on Regulated Asset Base	As calculated pursuant to Sections 3.2.6, 4.2.6 & 5.2.6
Regulatory Working Capital	As calculated pursuant to Sections 3.2.8, 4.2.8 & 5.2.8
Regulated Asset Base	As calculated pursuant to Sections 3.2.2, 4.2.2 & 5.2.2
Weighted Average Cost of Capital	As calculated pursuant to Sections 3.2.5.2, 4.2.5.2 & 5.2.5.2
Weighted Average Gas Commodity Charge	As calculated pursuant to Section 6.1.1
Weighted Average Gas Gathering Charge	As calculated pursuant to Section 6.1.2
Weighted Average Gas Processing Charge	As calculated pursuant to Section 6.1.3
Weighted Average Gas Transmission Service Charge	As calculated pursuant to Section 6.1.4
Weighted Average Gas Services Charge	As calculated pursuant to Section 6.1.5
Weighted Average Cost of Gas	As calculated pursuant to Section 6.1.6

PART 2 TARIFF PHILOSOPHY

2.1 Preamble

The Government of Ghana (GoG), keen on developing its indigenous hydrocarbon resources including natural gas resources to foster economic growth and improve the quality of life of its citizenry, is undertaking major infrastructure investments to establish both a viable gas industry and also efficiently exploit same.

In line with PURC's regulatory oversight responsibilities as per PURC Act 1997 (Act 538) and the EC Act 1997 (Act 541) including associated rules and regulations (LI 1911, 2007, LI 1912, 2007 and LI 1913, 2007), the Rate Setting Guidelines for Natural Gas Transmission are issued. These Guidelines set out the principles, objectives and methodologies by which Natural Gas Transmission 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 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 25 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 and the condition that charges for its services to Distribution Companies 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 tariff 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 GATHERING 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 Gathering Utility

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

$$\text{ARR(NGGath)}_t = \text{OpEx(LegNGGathAs)}_t + \text{OpEx(NewNGGathAs)}_t + [\text{RtnRAB(LegNGGathAs)} + \text{DepRAB(LegNGGathAs)} + \text{CRP(NewNGGathNIs)}]$$

Where:

ARR (NGGath) _t	means Annual Revenue Requirement in respect of Natural Gas Gathering Operations commencing Regulatory Year ‘t’
OpEx(LegNGGathAs) _t	means Operating Expenses in respect of Legacy Natural Gas Gathering Assets for Regulatory Year ‘t’ calculated in accordance with Section 3.2.1
OpEx(NewNGGathAs) _t	means Operating Expenses in respect of Legacy Natural Gas Gathering Assets for Regulatory Year ‘t’ calculated in accordance with Section 3.2.2
DepRAB(LegNGGathAs) _t	means Depreciation on Legacy Natural Gas Gathering Regulated Asset Base for Regulatory Year ‘t’ calculated in accordance with Section 3.4
RtnRAB(LegNGGathAs) _t	means Return on Legacy Natural Gas Gathering Regulated Asset Base for Regulatory Year ‘t’ calculated in accordance with Section 3.7
CRP(NewNGGathNIs) _t	means Capital Recovery Payments in respect of New Natural Gas Gathering Investments calculated in accordance with Section 3.8

3.2 Operation and Maintenance Expenses

The PURC shall determine operating expenses for both Legacy Natural Gas Gathering Network Assets (LegNGGathNAs) and New Natural Gas Gathering Network Investments (NewNGGathNIs) for first regulatory year and subsequent regulatory years in a Regulatory Control Period. The Commission shall disaggregate human resource expenses, operation and maintenance expenses, customer service expenses, and administration and general expenses, and ringfence human resource expenses as standalone expense.

3.2.1 Legacy Natural Gas Gathering Network Assets – First Regulatory Year

Operating Expenses relating to Legacy Natural Gas Gathering Network Assets shall be determined with respect to first regulatory year in Regulatory Control Period as follows.

3.2.1.1 Human Resource Expense

For determination of human resource expense for first regulatory year in Regulatory Control Period, the Commission shall ring-fence human resource Expense in consultation with the Natural Gas Gathering Utility. Where human resource expense is projected, such projections shall be supported by relevant documentation.

3.2.1.2 Other Operating Expense

For determination of other operating expense categorised into operation and maintenance expense, administration and general expense for the first regulatory year in Regulatory Control Period, the following methodology shall be applied.

$$\text{OpEx}_t = \text{PANGGNAV} * \gamma$$

Where:

OpEx _t	means First Regulatory Control Period Operating Expenses defined as Test Year of the Regulatory Control Period
PANGGNAV	means PURC Approved Test Year Natural Gas Gathering Regulatory Network Asset Value
γ	means PURC Approved Operating Expense Efficiency Benchmark Percentage

3.2.2 Legacy Natural Gas Gathering Network Assets – Subsequent Regulatory Years

Operating expenses relating to Legacy Natural Gas Gathering Assets shall be determined with respect to subsequent regulatory years in a Regulatory Control Period as follows.

3.2.2.1 Human Resource Expense

For subsequent regulatory years in Regulatory Control Period, the Commission shall approve human resource expense in consultation with the Natural Gas Gathering Utility taking into consideration all relevant documentation approved by the Board of the Natural Gas Gathering Utility.

3.2.2.2 Other Operating Expense

For subsequent regulatory years, the Commission shall determine other operating expenses using the following formula.

$$\text{OpEx}(\text{LegNGGathNAs})_{t+1} = \text{OpEx}(\text{LegNGGathNAs})_t + (\text{VNC}(\text{LegNGGathNAs}) * \mu)$$

Where:

OpEx(LegNGGathNAs) _{t+1}	means Forecast Operating Expenses of Natural Gas Gathering Utility in respect of Legacy Natural Gas Gathering Network Assets
OpEx(LegNGGathNAs) _t	means Base Year Operating Expenses of Natural Gas Gathering Utility in respect of Legacy Natural Gas Gathering Network Assets
VNC(LegNGGathNAs)	means Value of Newly Commissioned Legacy Natural Gas Gathering Network Assets
μ	means Percentage of Value of Newly Commissioned Legacy Natural Gas Gathering Assets Dedicated to Operating Expenses as Approved by the Commission

3.2.3 New Gathering Network Investments - First Regulatory Year

Operating Expenses such as human resource expense, operation and maintenance expense, customer services expense, administration and general expense relating to Newly Commissioned Natural Gas Gathering Network Investments shall be determined with respect to First Regulatory Year and Subsequent Regulatory Year in Regulatory Control Period as follows.

3.2.3.1 Human Resource Expense

PURC shall assess and approve human resource expense dedicated to operating Newly Commissioned Natural Gas Gathering Network Investments for first regulatory year in Regulatory Control Period in consultation with the Natural Gas Gathering Utility taking into consideration all relevant documentation approved by the Board of the Natural Gas Gathering Utility.

3.2.3.2 Other Operating Expense

Other Operating Expense as categorised (excluding Human Resource Expense) for first regulatory year in a Regulatory Control Period in respect of New Natural Gas Gathering Network Investments undertaken by Natural Gas Gathering Utility, shall be determined by the PURC using the following formula.

$$\text{OpEx}(\text{NewNGGathNIs})_t = \text{VNCNGGathNIs} * \mu$$

Where:

$\text{OpEx}(\text{NewNGGathNIs})_t$ means Base Year Operation and Maintenance Expenses in respect of New Natural Gas Transmission Network Investments undertaken by Natural Gas Gathering Utility

VNCNGGathNIs means Value of Newly Commissioned Natural Gas Gathering Network Investments undertaken by Natural Gas Gathering Utility

μ means Percentage of Value of Newly Commissioned Natural Gas Gathering Network Investments dedicated to Operating Expenses as approved by the Commission

3.2.4 New Natural Gas Gathering Network Investments - Subsequent Regulatory Years

Operating expenses relating to New Natural Gas Gathering Network Investments shall be determined with respect to subsequent regulatory years in a Regulatory Control Period as follows.

3.2.4.1 Human Resource Expense

The Commission shall assess and approve human resource expense dedicated to operating newly commissioned Natural Gas Gathering Network Investments for subsequent regulatory years in consultation with the Natural Gas Gathering Utility taking into consideration all relevant documentation approved by the Board of the Natural Gas Gathering Utility.

3.2.4.2 Other Operating Expense

For subsequent regulatory years in Regulatory Control Period, PURC shall determine other operating expenses of a Natural Gas Gathering Utility using the following formula.

$$\text{OpEx}(\text{NewNGGathNIs})_{t+1} = \text{OpEx}(\text{NewNGGathNIs})_t + (\text{VNCNGGathNIs}) * \mu$$

Where:

$\text{OpEx}(\text{NewNGGathNIs})_{t+1}$ means Forecast Operation and Maintenance Expenses in respect of New Natural Gas Gathering Network Investments of Natural Gas Gathering Utility

$\text{OpEx}(\text{NewNGGathNIs})_t$ means Base Year Operation and Maintenance Expenses in respect of New Natural Gas Gathering Network Investments of Natural Gas Gathering Utility

VNCNGGathNIs means Value of Newly Commissioned Gathering Network Investments

μ means Percentage of Value of Newly Commissioned Natural Gas Gathering Network Investments/Assets Dedicated to Operating Expenses as Approved by the Commission

3.3 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 Gathering which shall be assessed regularly. The following formula shall be used to determine the value of the regulatory asset base:

$$\text{RAB} = \text{V} - \text{D} + \text{NWC}$$

Where:

V means Value of usable regulated assets at commencement of tariff period under review

D means Accumulated depreciation at commencement of tariff period under review

NWC means Net Working Capital

3.3.1 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 Gathering Utility using the following methodology.

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

Where:

MidYearRAB_t means Mid-Year Regulated Asset Base in Regulatory Year (t)

OpeningRAB_t means Opening Regulated Asset Base in Regulatory Year (t)

CapEx_t means Capital Expenditure Related to Completed Capital Works in Regulatory Year (t)

Depn_t means Depreciation in Regulatory Year (t)

Disp_t means Disposition Proceeds in Regulatory Year (t)

3.4 Depreciation

Depreciation shall be calculated in respect of both Legacy Natural Gas Gathering Regulatory Asset Base and Newly Commissioned Natural Gas Gathering Investments using the straight-line method of depreciation/amortisation. The depreciation on assets and investments in respect of a Regulatory Year 't' shall equal depreciation, which the Natural Gas Gathering Utility will recognise and approved by PURC during Regulatory Year 't' with respect to the Opening Legacy Natural Gas Gathering Assets as well as Newly Commissioned Natural Gas Investments.

3.5 Gearing

In calculating the allowable Rate of Return on Regulatory Asset Base (RAB) for both Legacy Natural Gas Gathering Assets and New Natural Gas Gathering Network Investments, the Commission shall apply its benchmark gearing level of 30% equity and 70% debt.

3.6 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 post-tax WACC by taking into consideration cost of debt and cost of equity as well as the Commission's benchmark debt and equity ratios using the following formula.

$$\text{WACC} = \left[\frac{E}{D+E} \right] * K_e + \left[\frac{D}{D+E} \right] * K_d * (1-T)$$

Where:

WACC Is Post-tax WACC

E Is Equity

D Is Debt

K_e Is Cost of Equity

K_d Is Pre-tax Cost of Debt

T Is Corporate Tax Rate

3.7 Return on Natural Gas Gathering Network 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 3.3

WACC Is Weighted Average Cost of Capital calculated pursuant to Section 3.6

3.8 Capital Recovery Payments on New Natural Gas Gathering Investments

Capital Recovery Payments in respect of New Natural Gas Processing Investments made by the Natural Gas Processing Utility commencing Regulatory Year 't' shall be the sum of Return and Depreciation on

Newly Commissioned Natural Gas Gathering Investments calculated in accordance with Section 3.7 and Section 3.4

3.9 Natural Gas Gathering Charge

The PURC shall, having determined the total annual revenue requirement for Natural Gas Gathering Operations translate such cost into Gas Gathering Charge using projected gas gathering volume as per the following formula.

$$GGC_t = \frac{ARR(NGGath)_t}{GGV_t}$$

Where:

GGC_t means Gas Gathering Charge for Regulatory Year 't'

$ARR(NGGath)_t$ means Annual Revenue Requirement in respect of Natural Gas Gathering Operations calculated in accordance with Section 3.2 for Regulatory Year 't'

GGV_t means Projected Natural Gas Gathering Volume for Regulatory Year 't'

PART 4 METHODOLOGY FOR NATURAL GAS PROCESSING TARIFF DETERMINATION

4.1 Hybrid Tariff Methodology

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

4.2 Annual Revenue Requirement of Natural Gas Processing Utility

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

$$\text{ARR(NGPros)}_t = \text{OpEx(LegNGProAs)}_t + \text{OpEx(NewNGProAs)}_t + [\text{RtnRAB(LegNGProAs)} + \text{DepRAB(LegNGProAs)} + \text{CRP(NewNGProIs)} + \text{VOMC}_t$$

Where:

ARR (NGPro) _t	means Annual Revenue Requirement in respect of Natural Gas Processing commencing Regulatory Year ‘t’
OpEx(LegNGProAs) _t	means Operating Expenses in respect of Legacy Natural Gas Processing Assets for Regulatory Year ‘t’ calculated in accordance with Section 4.3.1
OpEx(NewNGProAs) _t	means Operating Expenses in respect of Legacy Natural Gas Processing Assets for Regulatory Year ‘t’ calculated in accordance with Section 4.3.2
DepRAB(LegNGProAs) _t	means Depreciation on Legacy Natural Gas Processing Regulated Asset Base for Regulatory Year ‘t’ calculated in accordance with Section 4.5
RtnRAB(LegNGProAs) _t	means Return on Legacy Natural Gas Regulated Processing Asset Base for Regulatory Year ‘t’ calculated in accordance with Section 4.8
CRP(NewNGProIs) _t	means Capital Recovery Payments in respect of New Natural Gas Processing Investments calculated in accordance with Section 4.9
VOMC _t	means Variable Operation and Maintenance Cost for Regulatory Year ‘t’ calculated in accordance with Section 4.10

4.3 Operation and Maintenance Expenses

The PURC shall determine operating expenses for both Legacy Natural Gas Processing Assets (LegNGProAs) and New Natural Gas Processing Investments (NewNGProIs) for first regulatory year and subsequent regulatory years in a Regulatory Control Period. The Commission shall disaggregate human resource expenses, operation and maintenance expenses, customer service expenses, and administration and general expenses, and ringfence human resource expenses as standalone expense.

4.3.1 Legacy Natural Gas Processing Assets – First Regulatory Year

Operating Expenses relating to Legacy Natural Gas Processing Assets shall be determined with respect to first regulatory year in Regulatory Control Period as follows.

4.3.1.1 Human Resource Expense

For determination of human resource expense for first regulatory year in Regulatory Control Period, the Commission shall ring-fence human resource Expense in consultation with the Natural Gas Processing Utility. Where human resource expense is projected, such projections shall be supported by relevant documentation.

4.3.1.2 Other Operating Expense

For determination of other operating expense categorised into operation and maintenance expense, administration and general expense for the first regulatory year in Regulatory Control Period, the following methodology shall be applied.

$$\text{OpEx}_t = \text{PANGPAV} * \gamma$$

Where:

OpEx _t	means First Regulatory Control Period Operating Expenses defined as Test Year of the Regulatory Control Period
PANGPAV	means PURC Approved Test Year Natural Gas Processing Network Asset Value
γ	means PURC Approved Operating Expense Efficiency Benchmark Percentage

4.3.2 Legacy Natural Gas Processing Assets – Subsequent Regulatory Years

Operating expenses relating to Legacy Natural Gas Gathering Assets shall be determined with respect to subsequent regulatory years in a Regulatory Control Period as follows.

3.2.2.1 Human Resource Expense

For subsequent regulatory years in Regulatory Control Period, the Commission shall approve human resource expense in consultation with the Natural Gas Gathering Utility taking into consideration all relevant documentation approved by the Board of the Natural Gas Gathering Utility.

3.2.2.2 Other Operating Expense

For subsequent regulatory years, the Commission shall determine other operating expenses using the following formula.

$$\text{OpEx}(\text{LegNGProAs})_{t+1} = \text{OpEx}(\text{LegNGProAs})_t + (\text{VNCLegNGProAs}) * \mu$$

Where:

OpEx(LegNGProAs) _{t+1}	means Forecast Operating Expenses of Natural Gas Processing Utility in respect of Legacy Natural Gas Processing Assets
OpEx(LegNGProAs) _t	means Base Year Operating Expenses of Natural Gas Processing Utility in respect of Legacy Natural Gas Processing Assets
VNCLegNGProAs	means Value of Newly Commissioned Legacy Natural Gas Processing Assets
μ	means Percentage of Value of Newly Commissioned Legacy Natural Gas Processing Assets Dedicated to Operating Expenses as Approved by the Commission

4.3.3 New Processing Investments - First Regulatory Year

Operating Expenses such as human resource expense, operation and maintenance expense, customer services expense, administration and general expense relating to Newly Commissioned Natural Gas Processing Investments shall be determined with respect to First Regulatory Year and Subsequent Regulatory Year in Regulatory Control Period as follows.

4.3.3.1 Human Resource Expense

PURC shall assess and approve human resource expense dedicated to operating Newly Commissioned Natural Gas Processing Investments for first regulatory year in Regulatory Control Period in consultation with the Natural Gas Gathering Utility taking into consideration all relevant documentation approved by the Board of the Natural Gas Processing Utility.

4.3.3.2 Other Operating Expense

Other Operating Expense as categorised (excluding Human Resource Expense) for first regulatory year in a Regulatory Control Period in respect of New Natural Gas Processing Investments undertaken by Natural Gas Processing Utility, shall be determined by the PURC using the following formula.

$$\text{OpEx}(\text{NewNGProIs})_t = \text{VNCNGProIs} * \mu$$

Where:

$\text{OpEx}(\text{NewNGGathNIs})_t$ means Base Year Operation and Maintenance Expenses in respect of New Natural Gas Transmission Network Investments undertaken by Natural Gas Gathering Utility

VNCNGGathNIs means Value of Newly Commissioned Natural Gas Processing Investments undertaken by Natural Gas Transmission Utility

μ means Percentage of Value of Newly Commissioned Natural Gas Processing Investments dedicated to Operating Expenses as approved by the Commission

4.3.4 New Processing Investments Subsequent Regulatory Years

Operating expenses relating to New Processing Investments shall be determined with respect to subsequent regulatory years in a Regulatory Control Period as follows.

4.3.4.1 Human Resource Expense

The Commission shall assess and approve human resource expense dedicated to operating newly commissioned Natural Gas Processing Investments for subsequent regulatory years in consultation with the Natural Gas Gathering Utility taking into consideration all relevant documentation approved by the Board of the Natural Gas Gathering Utility.

4.3.4.2 Other Operating Expense

For subsequent regulatory years in Regulatory Control Period, PURC shall determine other operating expenses of a Natural Gas Processing Utility using the following formula.

$$\text{OpEx}(\text{NewNGProIs})_{t+1} = \text{OpEx}(\text{NewNGProIs})_t + (\text{VNCNGProIs}) * \mu$$

Where:

$\text{OpEx}(\text{NewNGProIs})_{t+1}$ means Forecast Operation and Maintenance Expenses in respect of New Natural Gas Processing Investments of Natural Gas Processing Utility

$\text{OpEx}(\text{NewNGProIs})_t$ means Base Year Operation and Maintenance Expenses in respect of New Natural Gas Processing Investments of Natural Gas Processing Utility

VNCNGProIs means Value of Newly Commissioned Processing Investments

μ means Percentage of Value of Newly Commissioned Natural Gas Processing Investments/Assets Dedicated to Operating Expenses as Approved by the Commission

4.4 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 Processing 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

4.4.1 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 Processing Utility using the following methodology.

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

Where:

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

4.5 Depreciation

Depreciation shall be calculated in respect of both Legacy Natural Gas Processing Regulatory Asset Base and Newly Commissioned Natural Gas Processing Investments using the straight-line method of depreciation/amortisation. The depreciation on assets and investments in respect of a Regulatory Year 't' shall equal depreciation, which the Natural Gas Processing Utility will recognise and approved by PURC during Regulatory Year 't' with respect to the Opening Legacy Natural Gas Processing Assets as well as Newly Commissioned Natural Gas Processing Investments.

4.6 Gearing

In calculating the allowable Rate of Return on Regulatory Asset Base (RAB) for both Legacy Natural Gas Processing Assets and New Natural Gas Processing Investments, the Commission shall apply its benchmark gearing level of 30% equity and 70% debt.

4.7 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 post-tax WACC by taking into consideration cost of debt and cost of equity as well as the Commission's benchmark debt and equity ratios using the following formula.

$$\text{WACC} = \left[\frac{E}{(D+E)} * K_e \right] + \left[\frac{D}{(D+E)} * K_d * (1-T) \right]$$

Where:

WACC	Is Post-tax WACC
E	Is Equity
D	Is Debt
K _e	Is Cost of Equity
K _d	Is Pre-tax Cost of Debt
T	Is Corporate Tax Rate

4.8 Return on Natural Gas Processing 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 4.4
WACC	Is Weighted Average Cost of Capital calculated pursuant to 4.7

4.9 Capital Recovery Payments on New Natural Gas Processing Investments

Capital Recovery Payments in respect of New Natural Gas Processing Investments made by the Natural Gas Processing Utility commencing Regulatory Year 't' shall be the sum of Return and Depreciation on Newly Commissioned Natural Gas Processing Investments calculated in accordance with Section 4.5 and Section 4.8.

4.10 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 Processing Utility taking into account whether the projected VOMC is prudent and efficient.

4.11 Natural Gas Processing Charge

The PURC shall, having determined the total annual revenue requirement for Natural Gas Processing operations translate such cost into Gas Processing Charge using projected gas processing volume as per the following formula.

$$GPC_t = \frac{ARR(NGPro)_t}{GPV_t}$$

Where:

GPC_t Is Gas Processing Charge for Regulatory Year 't'

$ARR(NGPro)_t$ Is Annual Revenue Requirement in respect of Natural Gas Processing Operations calculated in accordance with Section 4.2 for Regulatory Year 't'

GPV_t Is Projected Natural Gas Processing Volume for Regulatory Year 't'

PART 5 METHODOLOGY FOR NATURAL GAS TRANSMISSION TARIFF DETERMINATION

5.1 Hybrid Tariff Methodology

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

5.2 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:

$$ARR(NGTrans)_t = OpEx(LegNGTransAs)_t + OpEx(NewNGTransAs)_t + [RtnRAB(LegNGTransAs) + DepRAB(LegNGTransAs) + CRP(NewNGTransNIs) + CWCA_t + CorpTax_t + VOMC_t]$$

Where:

ARR (NGTrans) _t	means Annual Revenue Requirement in respect of Natural Gas Transmission commencing Regulatory Year ‘t’
OpEx(LegNGTransAs) _t	means Operating Expenses in respect of Legacy Natural Gas Transmission Assets for Regulatory Year ‘t’ calculated in accordance with Section 5.3.1
OpEx(NewNGTransAs) _t	means Operating Expenses in respect of Legacy Natural Gas Transmission Assets for Regulatory Year ‘t’ calculated in accordance with Section 5.3.2
DepRAB(LegNGTransAs) _t	means Depreciation on Legacy Natural Gas Transmission Regulated Asset Base for Regulatory Year ‘t’ calculated in accordance with Section 5.5
RtnRAB(LegNGTransAs) _t	means Return on Legacy Natural Gas Transmission Regulated Asset Base for Regulatory Year ‘t’ calculated in accordance with Section 5.8
CRP(NewNGTransNIs) _t	means Capital Recovery Payments in respect of New Natural Gas Transmission Investments calculated in accordance with Section 5.9
CWCA _t	means Cost of Working Capital Allowance for Regulatory Year ‘t’ calculated in accordance with Section 5.10
CorpTax _t	means Corporate Taxes for Regulatory Year ‘t’ calculated in accordance with Section 5.11
VOMC _t	means Variable Operation and Maintenance Cost for Regulatory Year ‘t’ calculated in accordance with Section 5.12

5.3 Operation and Maintenance Expenses

The PURC shall determine operating expenses for both Legacy Natural Gas Transmission Network Assets (LegNGTransNAs) and New Natural Gas Transmission Network Investments (NewNGTransNIs) for first regulatory year and subsequent regulatory years in a Regulatory Control Period. The Commission shall disaggregate human resource expenses, operation and maintenance expenses, customer service expenses, and administration and general expenses, and ringfence human resource expenses as standalone expense.

5.3.1 Legacy Natural Gas Transmission Network Assets – First Regulatory Year

Operating Expenses relating to Legacy Natural Gas Transmission Network Assets shall be determined with respect to first regulatory year in Regulatory Control Period as follows.

5.3.1.1 Human Resource Expense

For determination of human resource expense for first regulatory year in Regulatory Control Period, the Commission shall ring-fence human resource Expense in consultation with the Natural Gas Transmission Utility. Where human resource expense is projected, such projections shall be supported by relevant documentation.

5.3.1.2 Other Operating Expense

For determination of other operating expense categorised into operation and maintenance expense, administration and general expense for the first regulatory year in Regulatory Control Period, the following methodology shall be applied.

$$\text{OpEx}_t = \text{PANGTNAV} * \gamma$$

Where:

OpEx _t	means First Regulatory Control Period Operating Expenses defined as Test Year of the Regulatory Control Period
PANGTNAV	means PURC Approved Test Year Natural Gas Transmission Regulatory Network Asset Value
γ	means PURC Approved Operating Expense Efficiency Benchmark Percentage

5.3.2 Legacy Natural Gas Transmission Network Assets – Subsequent Regulatory Years

Operating expenses relating to Legacy Natural Gas Transmission Assets shall be determined with respect to subsequent regulatory years in a Regulatory Control Period as follows.

5.3.2.1 Human Resource Expense

For subsequent regulatory years in Regulatory Control Period, the Commission shall approve human resource expense in consultation with the Natural Gas Transmission Utility taking into consideration all relevant documentation approved by the Board of the Natural Gas Transmission Utility.

5.3.2.2 Other Operating Expense

For subsequent regulatory years, the Commission shall determine other operating expenses using the following formula.

$$\text{OpEx}(\text{LegNGTransNAs})_{t+1} = \text{OpEx}(\text{LegNGTransNAs})_t + (\text{VNCLegNGTransNAs}) * \mu$$

Where:

OpEx(LegNGTransNAs) _{t+1}	means Forecast Operating Expenses of Natural Gas Transmission Utility in respect of Legacy Natural Gas Transmission Network Assets
OpEx(LegNGTransNAs) _t	means Base Year Operating Expenses of Natural Gas Transmission Utility in respect of Legacy Natural Gas Transmission Network Assets
VNCLegNGTransNAs	means Value of Newly Commissioned Legacy Natural Gas Transmission Network Assets
μ	means Percentage of Value of Newly Commissioned Legacy Natural Gas Transmission Assets Dedicated to Operating Expenses as Approved by the Commission

5.3.3 New Transmission Network Investments - First Regulatory Year

Operating Expenses such as human resource expense, operation and maintenance expense, customer services expense, administration and general expense relating to Newly Commissioned Natural Gas Transmission Network Investments shall be determined with respect to First Regulatory Year and Subsequent Regulatory Year in Regulatory Control Period as follows.

5.3.3.1 Human Resource Expense

PURC shall assess and approve human resource expense dedicated to operating Newly Commissioned Natural Gas Transmission Network Investments for first regulatory year in Regulatory Control Period in consultation with the Natural Gas Transmission Utility taking into consideration all relevant documentation approved by the Board of the Natural Gas Transmission Utility.

5.3.3.2 Other Operating Expense

Other Operating Expense as categorised (excluding Human Resource Expense) for first regulatory year in a Regulatory Control Period in respect of New Natural Gas Transmission Network Investments undertaken by Natural Gas Transmission Utility, shall be determined by the PURC using the following formula.

$$\text{OpEx}(\text{NewNGTransNIs})_t = \text{VNCNGTransNIs} * \mu$$

Where:

$\text{OpEx}(\text{NewNGTransNIs})_t$	means Base Year Operation and Maintenance Expenses in respect of New Natural Gas Transmission Network Investments undertaken by Natural Gas Gathering Utility
VNCNGTransNIs	means Value of Newly Commissioned Natural Gas Transmission Network Investments undertaken by Natural Gas Transmission Utility
μ	means Percentage of Value of Newly Commissioned Natural Gas Transmission Network Investments dedicated to Operating Expenses as approved by the Commission

5.3.4 New Transmission Network Investments Subsequent Regulatory Years

Operating expenses relating to New Gathering Network Investments shall be determined with respect to subsequent regulatory years in a Regulatory Control Period as follows.

5.3.4.1 Human Resource Expense

The Commission shall assess and approve human resource expense dedicated to operating newly commissioned Natural Gas Transmission Network Investments for subsequent regulatory years in consultation with the Natural Gas Gathering Utility taking into consideration all relevant documentation approved by the Board of the Natural Gas Transmission Utility.

5.3.4.2 Other Operating Expense

For subsequent regulatory years in Regulatory Control Period, PURC shall determine other operating expenses of a Natural Gas Transmission Utility using the following formula.

$$\text{OpEx}(\text{NewNGTransNIs})_{t+1} = \text{OpEx}(\text{NewNGTransNIs})_t + (\text{VNCNGTransNIs}) * \mu$$

Where:

$\text{OpEx}(\text{NewNGTransNIs})_{t+1}$	means Forecast Operation and Maintenance Expenses in respect of New Natural Gas Transmission Network Investments of Natural Gas Transmission Utility
$\text{OpEx}(\text{NewNGTransNIs})_t$	means Base Year Operation and Maintenance Expenses in respect of New Natural Gas Transmission Network Investments of Natural Gas Transmission Utility
VNCNGTransNIs	means Value of Newly Commissioned Transmission Network Investments
μ	means Percentage of Value of Newly Commissioned Natural Gas Transmission Network Investments/Assets Dedicated to Operating Expenses as Approved by the Commission

5.4 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:

$$\text{RAB} = \text{V} - \text{D} + \text{NWC}$$

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

5.4.1 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 _t	Is Mid-Year Regulated Asset Base in Regulatory Year (t)
OpeningRAB _t	Is Opening Regulated Asset Base in Regulatory Year (t)
CapEx _t	Is Capital Expenditure Related to Completed Capital Works in Regulatory Year (t)
Depn _t	Is Depreciation in Regulatory Year (t)
Disp _t	Is Disposition Proceeds in Regulatory Year (t)

5.5 Depreciation

Depreciation shall be calculated in respect of both Legacy Natural Gas Transmission Regulatory Asset Base and Newly Commissioned Natural Gas Transmission Investments using the straight-line method of depreciation/amortisation. The depreciation on assets and investments in respect of a Regulatory Year 't' shall equal depreciation, which the Natural Gas Gathering Utility will recognise and approved by PURC during Regulatory Year 't' with respect to the Opening Legacy Natural Gas Transmission Assets as well as Newly Commissioned Natural Gas Transmission Investments.

5.6 Gearing

In calculating the allowable Rate of Return on Regulatory Asset Base (RAB) for both Legacy Natural Gas Transmission Assets and New Natural Gas Transmission Network Investments, the Commission shall apply its benchmark gearing level of 30% equity and 70% debt.

5.7 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 post-tax WACC by taking into consideration cost of debt and cost of equity as well as the Commission's benchmark debt and equity ratios using the following formula.

$$\text{WACC} = \left[\frac{E}{(D+E)} * K_e \right] + \left[\frac{D}{(D+E)} * K_d * (1-T) \right]$$

Where:

WACC	Is Post-tax WACC
E	Is Equity
D	Is Debt
K _e	Is Cost of Equity
K _d	Is Pre-tax Cost of Debt

T Is Corporate Tax Rate

5.8 Return on Natural Gas Transmission Network 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 3.3

WACC Is Weighted Average Cost of Capital calculated pursuant to Section 3.6

5.9 Capital Recovery Payments on New Natural Gas Transmission Investments

Capital Recovery Payments in respect of New Natural Gas Transmission Investments made by the Natural Gas Transmission Utility commencing Regulatory Year 't' shall be the sum of Return and Depreciation on Newly Commissioned Natural Gas Transmission Investments calculated in accordance with Section 3.7 and Section 3.4

5.10 Cost of Working Capital Allowance

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

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

Where:

CWCA_t Is Cost of 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

PURC shall ensure that the Natural Gas Transmission Utility observes optimal working capital allowance management practices in accordance with international standards.

Prior to or upon commencement of the Regulatory Control Period, a lead – lag study shall be undertaken to form the basis for the determination of the regulatory working capital allowance.

5.11 Corporate Tax

Corporate tax shall be determined and included in the Annual Revenue Requirement for the Natural Gas Transmission Utility in accordance with provisions of Applicable Ghana Revenue Authority Tax Laws. To that end, the following formula shall be employed.

$$\text{CorpTax}_t = (\text{Pre-Tax WACC} - \text{Post-Tax WACC}) * \text{RAB}_{\text{NGTU}}$$

Where:

CorpTax_t Is Corporate Tax

Pre-Tax WACC Is Weighted Average Cost of Capital Including Corporate Tax Percentage

Post-Tax WACC Is Weighted Average Cost of Capital Excluding Corporate Tax Percentage

RAB_{NGTU} Is PURC Approved Test Year Regulatory Asset Base for the Natural Gas Transmission Utility

5.12 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.

5.13 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.

5.14 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.

5.14.1 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.

5.14.1.1 Commodity Usage Charge (Volumetric or Energy Content)

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

$$CUC_t = TGTRR_t / TPGTV_t$$

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

5.14.1.2 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_t Is Service Charge in USD/MMBtu

TFC_t Is Total Fixed Cost in Million USD

TC_t Is Total Number of Customers in MMBtu

5.14.2 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.

5.14.2.1 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_t Is Demand Charge or Capacity Reservation Charge in USD/MMBtu

$TGTCRR_t$ Is Total Gas Transmission Capacity Revenue Requirement in Million USD

TCMGD_t Is Total Contracted Maximum Gas Demand in MMBtu

5.14.2.2 Commodity Usage Charge (Volumetric or Energy Content)

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

$$CUC_t = TVOMR_t / TPGTV_t$$

Where:

CUC_t Is Commodity Usage Charge in USD/MMBtu

TVOMR_t Is Total Variable Operation and Maintenance Revenue in Million USD

TPGTV_t Is Total Projected Gas Transmission Volume in MMBtu

5.14.2.3 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_t Is Service Charge in USD/MMBtu

TFC_t Is Total Fixed Cost in Million USD

TC_t Is Total Number of Customers in MMBtu

5.15 Periodic Gas Gathering, Processing and Transmission Tariffs Adjustment

The periodic review of Natural Gas Gathering, Processing and Transmission Tariffs shall be carried out in accordance with PURC's Rate Setting Guidelines for Quarterly Review of Natural Gas, Electricity and Water Tariffs.

5.16 Natural Gas Gathering, Processing and Transmission Service Charges

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

PART 6 METHODOLOGY FOR DETERMINATION OF WEIGHTED AVERAGE COST OF GAS

6.1 Weighted Average Cost of Gas

In order to streamline the pricing of Natural Gas in Ghana, PURC in 2018, harmonised the prices of different gas sources to arrive at a single price referred to as Weighted Average Cost of Gas (WACOG) at which price, natural gas from all sources shall be sold to power generators.

In its disaggregated form, the Weighted Average Cost of Gas comprises the following.

1. Weighted Average Gas Commodity Charge
2. Weighted Average Gas Gathering Charge
3. Weighted Average Gas Processing Charge
4. Weighted Average Gas Transmission Service Charge
5. Weighted Average Gas Services Charge

The determination of each of the five components of the Weighted Average Cost of Gas is determined in the following sections.

6.1.1 Weighted Average Gas Commodity Charge

By law, the PURC does not determine the Gas Commodity Charge. The Gas Commodity Charge for each of the gas sources is determined by both the Ghana National Petroleum Corporation (GNPC) and the various field developers. However, by virtue of the Weighted Average Gas Commodity Charge (WAGCC) being a pass-through cost into determination of the fuel recovery charge of the electricity tariffs by PURC, the Commission has the responsibility to compute the Weighted Average Gas Commodity Charge (WAGCC) using contract prices and volumes for each gas supply source per the following formula.

$$WAGCC_t = \sum_i^n (GCC_n * GMix_n)$$

Where:

$WAGCC_t$ is Projected Weighted Average Gas Commodity Charge

GCC_n is Gas Commodity Charge by Gas Supply Source i.e. Jubilee, Sankofa, TEN, N-Gas, etc. as contained in the relevant GSPA

$GMix_n$ is Gas Supply Mix as Proportion of Total Gas Supply

6.1.2 Weighted Average Gas Gathering Charge

For determination of the Weighted Average Gas Gathering Charge (WAGGC), the Commission shall use the Gas Gathering Charge as computed in Section 3.2 and projected Natural Gas Volume per gas gathering infrastructure using the following methodology.

$$WAGGC_t = \sum_i^n (GGC_n * GMix_n)$$

Where:

$WAGGC_t$ is Projected Gas Gathering Charge

GGC_n is Gas Gathering Charge by Gas Supply Source i.e. Jubilee and TEN calculated in accordance with Section 3.9

$GMix_n$ is Gas Supply Mix as Proportion of Total Gas Supply

6.1.3 Weighted Average Gas Processing Charge

Similar to determination of Weighted Average Gas Gathering Charge, the Weighted Average Gas Processing Charge shall be determined by the Commission using the following formula.

$$WAGPC_t = \sum_i^n (GPC_n * GMix_n)$$

Where:

- WAGPC_t is Weighted Average Gas Processing Charge
GPC_n is Gas Processing Charge by each Gas Processing Plant as calculated in accordance with Section 4.11
GMix_n is Projected Processed Gas Volume by Gas Supply Source as Proportion of Total Gas Supply

6.1.4 Weighted Average Gas Transmission Service Charge

The Commission shall determine the Weighted Average Gas Transmission Charge using the following formula.

$$WAGTSC_t = \sum_i^n (GTSC_n * GMix_n)$$

Where:

- WAGTSC_t is Weighted Average Gas Transmission Service Charge
GTSC_n is Natural Gas Transmission Service Charge per Gas Transmission Pipeline including Regulatory Levy as Approved by PURC
GMix_n is Gas Supply Mix as Proportion of Total Gas Supply

6.1.5 Weighted Average Gas Service Charge

Gas Service Charges are negotiated Gas Management Costs between GNPC and Gas Services Management Companies to cover Gas aggregation, nomination and management services. In that regard, PURC shall compute a Weighted Average Gas Service Charge using Gas Service Charge per the three gas functions. The Weighted Average Gas Service charge so determined shall be incorporated into the Weighted Average Cost of Gas as a pass-through cost using the following formula.

$$WAGSC_t = \sum_i^n (GSC_n * GMix_n)$$

Where:

- WAGSC_t is Weighted Average Gas Service Charge
GSC_n is Gas Service Charge as Approved by PURC
GMix_n is Gas Supply Mix as Proportion of Total Gas Supply

6.1.6 Weighted Average Cost of Gas (WACOG)

Having determined the Weighted Average Gas Commodity Charge, Weighted Average Gas Gathering Charge, Weighted Average Gas Processing Charge, Weighted Average Gas Transmission Charge and Weighted Average Gas Service Charge based on above formulae, the Commission shall harmonise both price and volume of various gas supply sources into a Weighted Average Cost of Gas (WACOG) using the following formula.

$$WACOG_t = WAGCC_t + WAGGC_t + WAGPC_t + WAGTSC_t + WAGSC_t$$

Where:

- WACOG_t Is Projected Weighted Average Cost of Gas
WAGCC_t Is Projected Weighted Average Gas Commodity Charge
WAGGC_t Is Projected Weighted Average Gas Gathering Charge
WAGPC_t Is Projected Weighted Average Gas Processing Charge
WAGTSC_t Is Projected Weighted Average Gas Transmission Service Charge
WAGSC_t Is Projected Weighted Average Gas Service Charge

PART 7 TARIFF DETERMINATION/SETTING PROCESS

7.1 Pre-filing Notification

The Natural Gas Gathering, Processing and Transmission Utility shall file tariff notification by with the PURC at least 60 days from its effective date.

7.2 Preliminary Review

The PURC upon receipt of all necessary documentation shall review such documents and notify the Natural Gas Gathering, Processing and Transmission Utility.

7.2.1 Rejection and Re-filing

Where a filling of the Gas Transmission Utility is rejected, the Natural Gas Gathering, Processing and Transmission Utility shall re-file within a maximum period of fourteen (14) calendar days for consideration by the PURC.

7.3 Public Hearing

Where the PURC accepts the filling of the Natural Gas Gathering, Processing and Transmission 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 Gathering, Processing and Transmission 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”.

7.4 Formal Hearing

Following public hearings, the PURC shall investigate the tariff proposals submitted by the Natural Gas Gathering, Processing and Transmission Utility. The investigations shall be conducted by staff of the PURC and other experts or representatives of stakeholders.

7.5 PURC Decision and Publication of Rates

Within 30 days of acceptance of a Major Tariff Review Proposal, PURC shall take a Decision on the tariff proposal. PURC shall convene a meeting with the affected Utility Company to present the key elements of its Decision on the utility’s tariff proposal, followed by a written notification of the Decision. PURC shall cause its Decision on the tariff proposal to be published in the Gazette and print media. Within 10 working days of the publication, PURC shall issue a detailed Major Tariff Decision Paper.

7.6 Petitions

Upon publication of the Major Tariff Decision Paper, a Natural Gas Transmission Utility may file a petition with PURC requesting a review of the Decision. The petition shall be filed within ten (10) working days following the publication of the Decision Paper. A petition shall be heard by way of Formal Hearing and the Panel shall comprise both external experts and Commissioners of PURC in accordance with the Formal Hearing Rules. The Panel shall submit recommendations to the Commission for its final decision. A petition shall be resolved within twenty-eight (28) working days from its filing, following which all administrative remedies are exhausted.

7.7 Communication

The Gas Transmission Utility shall undertake major pre-tariff approval and post-tariff approval communication drives on key issues relating to Natural Gas Gathering, Processing and Transmission tariff reviews/adjustments.

7.7.1 Pre-Tariff Approval Communication

As part of pre-tariff approval communication, Natural Gas Gathering, Processing and Transmission Utility shall engage the public through various media including both electronic and print, to sensitise them on issues regarding proposals submitted to the Commission for consideration, and review of tariffs, including reasons and justification for such reviews.

7.7.2 Post-Tariff Approval Communication

As part of a post-tariff approval communication, the Natural Gas Gathering, Processing and Transmission 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.