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NATURAL GAS DISTRIBUTION CODE

September, 2022

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1. DEFINITIONS

Act	Energy Commission Act, 1997 (Act 541).
Acceptance Testing	The testing and setting conducted by a manufacturer or installer on a Meter, Corrector or Metering Installation to establish the initial calibration of the Meter, Corrector or Metering Installation.
Accredited Laboratory	A testing facility that is accredited in accordance with the accreditation standards for the competence of testing and calibration laboratories.
Accreditation Body	Ghana Standards Authority.
Affected Party	A person who may be affected by the possible inaccuracy of a Metering Installation or Metering Data from that Metering Installation.
Applicable Law	With respect to a given person or entity on a given date, any constitution, law, rule, regulation, ordinance, judgment, order or decree of a government authority, or any published directive, guideline, requirement or other governmental restriction that has the force of law in Ghana, or any determination by, or interpretation of any of the foregoing by, any judicial authority, that is or becomes binding on such person including those listed in Schedule 4 of the Distribution Code.
Applicable Standards & Regulations	The Ghanaian and International Standards set out in schedule 3 and all other Ghanaian standards relevant to Distribution Systems, or otherwise applicable to the operation of this Distribution Code, as set out in the most recent edition of a standard publication by the Commission.
Basic Meter	A Meter without a Data Logger.
Basic Metering Data	Data obtained from a Basic Metering Installation.
Basic Metering Installation	A Metering Installation without a Data Logger.
Bulk Customer	A Customer who purchases or receives Natural Gas of such amount or level as the Commission may specify.

Certification	The process for a manufacturer/importer to register with the Ghana Standards Authority, provide information regarding each natural gas meter and obtain a certificate from the Ghana Standards Authority that lists each meter and the percentage of each meter's billing.
Commercial Customer	A Customer that buys Natural Gas for the purpose of trading.
Commission	The Energy Commission established under the Act.
Connection	The joining of a Customer's Gas Installation to a Distribution Supply Point to allow the flow of Natural Gas.
Connection Agreement	▪ An agreement between a Distribution Utility and a Customer for the physical connection of the Customer's Gas Installation and the Distribution System for the sale or delivery of Natural Gas; or ▪ An agreement between the Wholesale Supplier of Natural Gas and the Distribution Utility for the physical connection of the Wholesale Supplier of Gas Installation and the Distribution Utility for the sale or Delivery of Natural Gas as applicable.
Corrector	A device which adjusts uncorrected quantity of Natural Gas from actual to standard conditions for billing and other purposes.
Customer	In relation to the supply of Natural Gas to a Distribution Supply Point, the person to whom the Distribution Utility delivers Natural Gas through its Distribution System and includes a Bulk Customer and a person who has sought Connection to the Distribution System as a Customer.
Customer Charter	As defined in the Public Utilities Regulatory Commission (Consumer Service) Regulations, 2020 (LI 2413) means a written policy of a Distribution Utility containing the minimum service standards that it will adhere to in providing the relevant services.

Data Logger	A device that collects and stores data relating to the quantity, temperature and pressure of Natural Gas and is capable of either: a) transferring recorded data to a portable reading device; or b) being accessed electronically by the Commission through a data collection system.
Delivered Gas Price (DGP)	Means Weighted Average Cost Of Gas (WACOG) plus Transmission Service Charge.
Designated Area	An area or zone designated by the Commission and within which a Distribution Utility shall operate.
Dispute	A controversy or claim arising out of or in connection with this Distribution Code.
Distribution Code or Code	This Distribution Code issued by the Commission as amended from time to time.
Distribution Licence	A licence issued by the Commission pursuant to the Act which permits the holder to install and operate a Natural Gas distribution infrastructure (including CNG, LNG and pipeline) to distribute Natural Gas without discrimination to consumers who own or occupy premises within a designated (concession) area or zone.
Distribution Pipeline	Any Pipeline which • has a maximum allowable operating pressure of up to 1379 kPa (13.79 bar) gauge or below; or • is functionally a distribution pipeline in nature (i.e. few inputs and many closely spaced outputs); and through which the Distribution Utility provides Distribution Services to Customers.
Distribution Service	The service of receipt of Natural Gas at Entry Points, transport of the Natural Gas through the Distribution System and delivery of the Natural Gas at Distribution

	Supply Points, Metering, Pressure Control and compliance to Natural Gas quality specifications.
Distribution Service Charge	Means cost of distribution related services provided under a Distribution Service Agreement.
Distribution Service Agreement	An agreement for the provision of Distribution Services by the Distribution Utility.
Distribution Supply Point	A point on a Distribution System at which Natural Gas is withdrawn from the Distribution System for delivery to a Customer which is normally located at: • the inlet of a Gas Installation of a Customer; • the outlet of a Meter; or • the end of a Main.
Distribution System	Means a network of Pipelines, Meters and controls which the Distribution Utility uses to supply Natural Gas.
Distribution Utility	A person who holds a Distribution Licence.
Emergency	An event or circumstance or combination of events or circumstances which have occurred or are likely to occur and which in the opinion of the relevant Distribution Utility adversely affects, or is likely to have an adverse effect on the safety or operational integrity of the Distribution System which results in or is likely to affect the safety of life, property or the environment including: a) the event or circumstance which gives rise to the emergency; b) the safe conveyance of Natural Gas by the Distribution System being significantly at risk; c) Natural Gas conveyed by the Distribution System being at a pressure or of a quality as to constitute a danger to life, property or the environment when off-taken from the Distribution System; d) an escape or suspected escape of Natural Gas;

	e) the Distribution Utility's inability to maintain safe pressures within the Distribution System due to interruption or disruption to the Distribution System or other connected system; f) events or circumstances in a connected system either upstream or downstream of the Distribution System; g) an insufficiency of deliveries of Natural Gas to and from the Distribution System; and h) any actual or potential failure of or damage to the Distribution System.
Entry Point	A point on a Distribution System at which Natural Gas is withdrawn from the NGITS or a Wholesale Supplier's facility for delivery into the Distribution System.
Error Limits	The limits within which the components of metering installations affecting metering shall be calibrated to be accurate as set out in Schedule 1, Part B.
Expansion	The process of upgrading capacity or service potential of a Distribution Pipeline by: a) replacing or enhancing existing plant or equipment; or b) adding new plant or equipment.
"Fair and Reasonable Terms and Conditions"	The: a) terms and conditions agreed between a Distribution Utility and a Customer; or b) principles or terms and conditions proposed by the Distribution Utility and approved by the Commission.
Force Majeure	a) an act or event which arises out of, or is attributed to, an act of God; b) war, hostility, a terrorist act, sabotage, an act of vandalism, revolution, an act of military authority, riot; c) disaster, fire, flood, epidemic or explosion

	d) an event which is beyond the reasonable control of the NGTU, Customer or Distribution Utility, and e) a strike, lock-out or other industrial trade dispute.
Fuel Gas	Natural Gas used by the Distribution Utility for operational purposes e.g. compress gas, step down pressure, heat the gas in order to meet delivery point specifications, odorisation, etc.
Gas Installation	Any Natural Gas equipment located at a Customer's premises within the relevant Designated Area, that is not part of a distribution system and which is intended to be connected to the Distribution System.
Gas Installer	A person authorised under the Applicable Law to install, repair, alter or make any addition to a Natural Gas installation or to any part of a Gas Installation.
Guaranteed Service Levels or GSLs	The levels of service in connection with the distribution of Natural Gas to Customers set out in Schedule 1, Part E to the Distribution Code.
Guaranteed Service Level payments	The amounts in connection with the non-performance of the Guaranteed Service Levels set out in Schedule 1, Part E to the Distribution Code.
HHV	Higher Heating Value being the gross heating value of a standard cubic metre of Natural Gas.
Industrial Customer	A Customer that uses Natural Gas in the production of other products e.g a cement manufacturing company using Natural Gas for the production of cement.
Installation Completion Certificate	As defined in the Natural Gas Distribution and Sale (Technical and Operational) Rules, 2007 (LI 1911) means a notice of authentication that indicates the successful completion of a piping installation for Natural Gas from the Distribution Utilities' meter to the Customer's Gas

	Installation, the form of which is attached hereto in Schedule 5.
Installation Database	The database of calibration data which a Distribution Utility is required to keep in respect of its Metering Installations pursuant to the Distribution Code.
Interconnection Agreement	An agreement entered into between the NGITS and a Distribution Utility for the safe and reliable connection of one persons' facilities with due consideration for (a) any facilities necessary to accommodate the connection, (b) the coordinated operation of the connected systems, and (c) the economic impact of such connections on the connected systems.
Interval Meter	A Meter with a Data Logger.
Interval Metering Installation	A Metering Installation with a Data Logger.
Kilopascal (kPa)	The unit of measurement to gauge pressure in excess of the atmospheric pressure. "Kilopascal" is equal to one thousand pascals as defined in "The International System of Units (S1) and its Application".
Licensing Manual	The Licence and Permit Application Manual for Service Providers in the Natural Gas Supply Industry dated June 2020.
Main	A low, medium or high-pressure pipe in the Distribution System, other than a Service Pipe.
Market Participant	A Wholesale Supplier, Customer or Retailer.
Meter	An instrument that measures the quantity of Natural Gas passing through it and includes associated equipment attached to the instrument to filter, control or regulate the flow of Natural Gas.
Meter Models	A group of Meters defined as a population in that standard and grouped in accordance with the requirements in the standard.

	Four types or meters are available: i. mass flow meters e.g Coriolis or thermal mass flow meters; ii. velocity flow meters e.g turbine (measure volumetric flow) or ultrasonic (measures in pulses between two sensors) or vortex (measures flow by frequency of vortices); iii. differential pressure flow meters e.g. orifice plate; and iv. positive displacement flow meters e.g. diaphragm meter.
Metering Data	The measure of quantity of Natural Gas flow obtained from a Metering Installation.
Metering Installation	The Meter and associated equipment and installations, which may include correctors, regulators, filters, data loggers and telemetry relating to a distribution supply point.
Modification	The Expansion or enhancement of a Distribution Pipeline, and the term "Modify" shall be construed accordingly.
Month	A calendar month in a Year.
Natural Gas	Any hydrocarbon fuel which are gaseous under normal atmospheric conditions and wet gas, dry gas and residue after the extraction of liquid hydrocarbon fuels from wet gas.
Natural Gas Transmission Access Code	Natural Gas Transmission Access Code, December 2014.
NGTU	The Natural Gas transmission utility granted a Natural Gas transmission licence under the Act to exclusively operate the national interconnected Gas transmission system.
NGITS	The natural gas interconnected transmission system.
Operation and Maintenance Plan	A plan detailing the functions, duties and labour associated with the daily operations and normal repairs, replacement of parts and structural components and other activities

	required to preserve the Distribution System so that it continues to provide acceptable services and achieves its expected life.
Pipeline	As defined in the Natural Gas Pipeline Safety (Construction, Operation and Maintenance) Regulations, 2012 (LI 2189) includes each part of the physical facilities through which Natural Gas is transported, through a pipe, valve and other appurtenance attached to a pipe, compressor unit, metering station, regulator station, delivery station, holder and fabricated assembly.
Pipeline Equipment	In relation to a Pipeline: a) equipment for inducing or facilitating the flow or movement of Natural Gas through the Pipeline; b) equipment or structure for giving protection or support to the Pipeline; c) equipment for transmitting information or instruction with regard to the operation of the Pipeline; d) pig launchers, pig receivers, valves, valve chambers, manholes, inspection pits and other similar equipment or facilities annexed to or adjoining or forming part of the Pipeline; and e) equipment for metering the flow or movement of Natural Gas or energy through the Pipeline or any point on the Pipeline.
Prescribed Standards of Quality	The standards of quality and other requirements for Natural Gas set out in or as prescribed under the Natural Gas Distribution and Sale (Standards of Performance) Regulations, 2007 (LI 1912).
Prudent Utility Operator	A person seeking in good faith to perform its covenants or obligations in accordance with this Code and in so doing and in the general conduct of its undertaking exercising that degree of skill, diligence, prudence and foresight which

	would reasonably and ordinarily be expected from a skilled and experienced operator complying with all applicable laws, industry codes, standards and regulations engaged in the same type of undertaking under the same or similar circumstances and conditions and the expression "Standard of a Reasonable and Prudent Operator" shall be construed accordingly.
PURC	The Public Utilities Regulatory Commission established pursuant to section 1 of the Public Utilities Regulatory Commission Act, 1997 (Act 538).
Reconciliation Amount	An amount calculated in accordance with Schedule 1, Part C of the Distribution Code.
Residential Customer	A Customer to whom Natural Gas is supplied for personal or domestic purposes at the person's dwellings e.g. a person that buys Natural Gas for cooking or heating purposes.
Retail Licence	A licence issued under the Act which authorises its holder to sell Natural Gas through the Distribution System without discrimination to consumers who own or occupy premises within a designated area (concession) or zone, as specified in the licence.
Retailer	A person who holds a Retail Licence.
Service Pipe	A pipe ending at a Metering Installation or, for an unmetered site a Gas Installation, which connects a Main or a Transmission Pipeline to a Customer's premises, as determined by a Distribution Utility.
Standard Metering Installation	The least overall cost, technically acceptable Meter able to measure and record the quantity of Natural Gas that is reasonably expected to be consumed by a Customer at a Distribution Supply Point at a metering pressure of 1.1 kPa [0.011 bar], and for Meters with a capacity in excess of a nominal $6m^3$/hr, at an hourly load factor of at least 5%.

Transmission Pipeline	Any pipeline which has a maximum allowable operating pressure of greater than 1379 kPa (13.79 bar) gauge and is not a Distribution Pipeline.
Transmission Service Charge	The transportation services charges in respect of National Gas Pipelines (including Pipelines for importation of Natural Gas), as determined from time to time by PURC.
Type Testing	The testing conducted to establish the fitness for purpose of a new Metering Installation type, "Type Tests" shall be construed accordingly.
Unaccounted for Gas	The difference between the amount of Natural Gas injected into the Distribution System at all Entry Points and the amount of Natural Gas withdrawn from the Distribution System at all Distribution Supply Points, including but not limited to leakage or other actual losses, discrepancies due to metering inaccuracies and variations of temperature, pressure and other parameters.
Unaccounted for Gas Benchmark	The benchmark rate for each Distribution Utility in relation to the rates of flow of Natural Gas as set out in Schedule 1, Part C of the Distribution Code.
Weighted Average Cost of Capital (WACC)	The pre-tax real cost of capital included in the Distribution Utility's PURC approved access agreement.
Weighted Average Cost of Gas (WACOG)	The cost of gas for such period, which is generally derived by weighting the gas volumes by the gas prices paid under specific gas contracts to produce one average price for a gas supply portfolio, as determined from time to time by the PURC.
Wholesale Supplier	A person licensed under the Act to install and operate facilities to procure Natural Gas for sale to [a Retailer or] Bulk Customers or to a Distribution Utility.
Working Day	A day other than a Saturday or a Sunday or a day which has not been declared as a public holiday in Ghana.

Year	A calendar year or a period commencing on 1 January in a calendar year and terminating on 31 December in the following calendar year.

SECTION 1

INTRODUCTION

Art.1.00 This Natural Gas Distribution Code of Ghana herein referred to as the **Distribution Code** is developed by the Energy Commission herein referred to as the **Commission** to prescribe standards of performance and technical and operational rules of practice for Natural Gas public utilities in connection with the distribution of Natural Gas in Ghana.

Art.1.01 The object of the Distribution Code is to ensure the fair, transparent, safe, reliable, secure and efficient operation of the Distribution System in furtherance of the provision of non-discriminative services to Customers located in the relevant Designated Area.

Art.1.02 This Distribution Code is subject to periodic review by the Commission to improve its quality and its appropriateness, given advancements in technology and developments in the Natural Gas industry.

Application

Art.1.03 The Distribution Code applies to all transactions and interactions between a Distribution Utility and all Retailers, Wholesale Suppliers, other Distribution Utilities, the NGTU and Customers who use the Distribution System.

Art.1.04 The Distribution Code also sets out the responsibilities and obligations of the Commission, Distribution Utilities, Market Participants, the NGTU, in connection with Distribution Services.

Purpose of the Distribution Code

Art.1.05 The purpose of the Distribution Code is to set out the minimum standards for the operation and use of a Distribution System including requirements for:

(a) Installation and Modification;
(b) Connection and disconnection;
(c) provision of Metering Installations;
(d) Metering Installation testing;
(e) Meter reading and data;
(f) interruption of supply
(g) Dispute resolution; and
(h) Distribution Service Agreement requirements.

Scope

Art.1.05 The Distribution Code provides for responsibilities and obligations associated with all the functions in the supply and delivery of Natural Gas over a Distribution System.

Art.1.06 The Distribution Code sets out the metering provisions which in turn provide for the:

(a) obligation to provide Metering Installations;
(b) standards of performance for Metering Installations;
(c) testing of Metering Installations; and
(d) the recording and provision of Metering Data.

Art.1.07 The metering provisions of the Distribution Code are to be read, in conjunction and consistently with the:

(a) Natural Gas Distribution and Sale (Technical and Operational) Rules, 2007 (LI 1911)
(b) Natural Gas Distribution and Sale (Standards of Performance) Regulations, 2007 (LI 1912) and
(c) Natural Gas Pipeline Safety (Construction, Operation and Maintenance) Regulations, 2012 (LI 2189) which set out amongst other things, the metering requirements, the collection, recording and storage of Metering Data.

Art.1.08 In accordance with the Act, the Energy Commission has determined that the distribution infrastructure within the country shall comprise all natural gas plant and equipment within the borders of Ghana and specific concessions that function or are operated at any pressure below 200psi (13.79 bar) as well as any associated supply equipment that are for shared or common use.

Commencement

This Distribution Code comes into force on the date first written above.

SECTION 2

OBLIGATIONS OF ENTITIES

DISTRIBUTION UTILITY OBLIGATIONS

Operation and Maintenance of the Distribution System

Art.2.00 A Distribution utility shall do the following when operating a Distribution System:

(a) comply with the Applicable Laws and this Distribution Code

(b) maintain the delivery pressure of Natural Gas from the Distribution System to ensure the minimum supply pressure is maintained at the outlet of the Meter as set out in Schedule 1, Part A to the Distribution Code;

(c) subject to the Distribution Code, deliver Natural Gas received from the NGTU or a Wholesale Supplier at an Entry Point through its Distribution System to Distribution Supply Points nominated by the relevant Customer on terms and conditions set out in a Connection Agreement and Distribution Service Agreement, as applicable, or otherwise on Fair and Reasonable Terms and Conditions;

(d) install and maintain Metering Installations and perform Meter readings at Basic Metering Installations and manage Metering Data in accordance with the metering provisions of this Distribution Code;

(e) except where the Distribution Utility is prevented from so doing by Force Majeure, ensure that Natural Gas which meets the Prescribed Standards of Quality when delivered into the Distribution System at an Entry Point also meets the Prescribed Standards of Quality (including odorisation) when it is delivered to a Customer at a Distribution Supply Point;

(f) where Natural Gas is delivered to the Distribution Utility un-odorised, the Distribution Utility shall ensure that odorisation is carried out in accordance with the prescribed standard (ISO 16922) on odorisation;

(g) publish on its website and make available to Customers at no cost, copies of its Customer Charter in accordance with the Public Utilities Regulatory Commission (Consumer Services) Regulations, 2020 (LI 2413);

(h) maintain the Distribution System in accordance with best industry standards as well as the Standards established by the Commission; and

(i) co-ordinate maintenance activities with the relevant Market Participants with a view to minimising Natural Gas Distribution losses due to maintenance by notifying all relevant parties:

  (i) at least one (1) Month in advance of the date when such maintenance is to take place of;

  (ii) the duration of the maintenance activity; and

  (iii) measures to be taken if the duration is exceeded.

Health, Safety and Environment

Art.2.01 The Distribution Utility shall:

(a) establish, apply and maintain a health, safety and environmental programme for the operation and maintenance of the Distribution System; and

(b) establish and provide a training program to maintain the awareness of health and safety of personnel and equipment in the operation of the Distribution System.

Planning & Asset Management

Art.2.02 The Distribution Utility shall:

(a) prepare and submit to the Commission for approval, an Operation and Maintenance Plan for the duration of the Distribution Licence, in accordance with the requirements and standards established under the Applicable Laws within 3 Months from the effective date of its Distribution Licence.

(b) establish an annual Operation and Maintenance Plan for its Distribution System for the following Year by [30 November] of the preceding Year;

(c) establish operational and system security standards for its distribution System and for all connections and proposed connections to the Distribution System;

(d) establish a replacement programme for equipment that requires replacement at specific intervals;

(e) establish a testing programme for the Distribution System to determine the status of the equipment and the remaining life of same. This programme will inform the Operation and Maintenance Plan where equipment is reaching its end of life and will need to be replaced.

Connection

Art.2.03 Upon receipt of an application duly made by a person in accordance with the procedures specified by the Distribution Utility and on payment of the applicable fees, a Distribution Utility shall connect a Customer's Gas Installation to its Distribution System, provided that:

(a) the Customer's Gas Installation complies with the Natural Gas Distribution and Sale (Technical and Operational) Rules, 2007 (LI 1911);

(b) the Customer:

(i) has an agreement with the Distribution Utility for the distribution of Natural Gas;

(ii) has an agreement for the purchase of Natural Gas with the relevant Market Participant;

(iii) provides as part of the application, a forecast specifying the planned quantity of Natural Gas to be off-taken at the Distribution Supply Point;

(iv) executes a Connection Agreement;

(v) in the case of a Bulk Customer, is duly authorised by the Commission; and

(vi) provides the Distribution Utility with an Installation Completion Certificate issued by a Gas Installer in accordance with the Natural Gas Distribution and Sale (Technical and Operational) Rules, 2007 (LI 1911).

Art.2.04 A Distribution Utility shall within Ten (10) Working Days of a request by or on behalf of a Customer, provide the Customer, the Customer's agent or the Customer's Gas Installer with information on the Distribution Utility's requirements for any proposed new Gas Installation or proposed changes to an existing Gas Installation, including advice about supply extensions. The information shall be provided free of charge and in writing if so requested.

Art.2.05 The charge for the provision of services by the Distribution Utility shall be subject to the approval of the PURC.

Art.2.06 A Distribution Utility shall connect a Customer's Gas Installation in accordance with the Natural Gas Distribution and Sale (Standards of Performance) Regulations, 2007 (LI 1912), within 35 Working Days in the case of a connection to be made from an existing supply pipeline and within 60 working Days where an extension of the existing supply pipeline is required:

Art.2.07 A Distribution Utility shall connect the Gas Installation of a Customer that resides within the relevant Designated Area on Fair and Reasonable Terms and Conditions

Art.2.08 A Distribution Utility shall include a condition in its Distribution Service Agreement to the effect that it will comply with its obligations in respect of the Customer as set out in the Distribution Code.

Art.2.09 A term or condition of the Distribution Service Agreement shall not be inconsistent with the Distribution Code and provides that a Customer shall:

(a) provide the Distribution Utility and its equipment safe, convenient and unhindered access to the Customer's supply address for:
  (i) connection or disconnection of supply;
  (ii) inspection or testing of Gas Installations or Metering Installations;
  (iii) undertaking inspection, repairs, testing or maintenance of the Distribution System; and
  (iv) collection of Metering Data, in accordance with the provisions of the Distribution Code;
(b) maintain the Gas Installation at the Customer's supply address in a safe condition;
(c) protect the Distribution Utility's equipment at the Customer's supply address from damage and interference;
(d) inform the Distribution Utility as soon as possible if there is any:
  (i) change to the major Natural Gas usage purpose of the Customer's supply address;
  (ii) change affecting access to Metering Installation;
  (iii) proposed change to the Customer's Gas Installation which may affect the quality or safety of the supply of Natural Gas to the Customer or any other person; or

(iv) Natural Gas leaks or other problems with the Distribution Utility's Distribution System.

(e) take reasonable precautions to minimise the risk of loss or damage to any equipment, premises or business of the Customer which may result from poor quality or reliability of Natural Gas supply.

Art.2.010 The cost of inspecting and testing Metering Installations or connections are to be borne by the Distribution Utility, unless the inspection reveals that the Customer is in breach of a requirement under the Applicable Law, in which case the Customer will be responsible for the reasonable costs of the inspection and testing.

Art.2.011 Upon receipt of a request by a Customer for connection, a Distribution Utility shall evaluate the request on such factors as it deems fit, and if approved, shall modify the Connection of the Customer's Gas Installation to its Distribution System within a reasonable time, at the cost of the Customer and on Fair and Reasonable Terms and Conditions. The approval of the Distribution Utility shall not be unreasonably withheld or delayed Guaranteed Service Levels (GSL)

Art.2.012 A Distribution Utility shall use reasonable efforts to, at a minimum, meet the GSLs for Customers.

Art.2.013 Where a Distribution Utility does not meet a GSL in relation to a Customer, the Distribution Utility shall ensure that the Customer is paid the applicable GSL payment as soon as practicable as in schedule 1-part E. Unaccounted for Gas

Art.2.014 A Distribution Utility shall use reasonable efforts to ensure that the quantity of Unaccounted for Gas in its Distribution System for any Month shall not exceed 2% of the aggregate quantity of Natural Gas received by the Distribution Utility at Entry Points into its Distribution System during suchMonth.

Art.2.015 Schedule 1, Part C of the Distribution Code provides guidance on a method that allows the calculation of the Unaccounted for Gas.

Art.2.016 With respect to Art.2.014 a Distribution Utility shall give written notice to the Commission of the volume of Natural Gas withdrawn by the Distribution Utility for a Customer for each Month. The Distribution Utility shall report this data to the Commission in accordance with the requirements of its Distribution Licence.

Art.2.017 Where the percentage volume of Unaccounted for Gas in a Month exceeds 2% of the total volume of gas supplied to the Distribution Utility, the parties shall use reasonable endeavours to adjust gas supplies until zero unaccounted for gas is achieved by the end of such Year.

Art.2.018 If the Reconciliation Amount at the end of that Year is negative, the Distribution Utility shall pay the Reconciliation Amount to the relevant Market Participant.

Art.2.019 If the Reconciliation Amount at the end of that Year is positive the relevant Market Participant shall pay the Reconciliation Amount to the Distribution Utility.

RETAILER OBLIGATIONS

Art.2.020 A Retailer shall notify the Affected Parties and the Commission, of its contractual arrangements with a Customer relating to interruption or curtailment within 21 Working Days of entering into such arrangements.

Art.2.021 A Retailer shall give Affected Parties and the Commission 7 days prior notice of any planned maintenance testing or repair which will require interruptions to the delivery of Natural Gas at one or more Distribution Supply Points of a Customer and shall liaise with Customers and use reasonable efforts to accommodate their needs.

Art.2.022 If the Distribution Utility notifies a Retailer of any interruption to delivery of Natural Gas at a Distribution Delivery Point, the Retailer shall use reasonable efforts to ensure that its Customers comply with any reasonable requirement set out in the notice.

Art.2.023 If a Retailer finds evidence of tampering with a Metering Installation, it shall immediately notify that fact to the Distribution Utility and immediately take the necessary steps to ensure the safety of the Metering Installation and Distribution System where practicable.

CUSTOMER OBLIGATIONS

Art.2.024 If required by the Distribution Utility, a Customer applying for a Connection shall provide estimated Natural Gas load information for its proposed use at the proposed supply address.

Art.2.025 Where an existing Customer wants to upgrade its Gas Installation, the Customer shall provide estimated Natural Gas load information with its application for upgrade to the Distribution Utility.

Art.2.026 If a Customer finds evidence of tampering with a Metering Installation, it shall immediately notify that fact to the Distribution Utility.

Art.2.027 A term or condition of the Distribution Service Agreement shall not be inconsistent with the Distribution Code to the extent that it provides that the Customer shall not:

(a) allow Natural Gas supplied by the Distribution Utility to the Customer's supply address to be used at another supply address;

(b) take at the Customer's supply address Natural Gas supplied to another supply address;

(c) supply Natural Gas to any other person unless otherwise permitted under the Distribution Service Agreement;

(d) tamper with, or permit tampering with the Meter;

(e) bypass, or allow Natural Gas supplied to the supply address to bypass the Meter;

(f) allow Natural Gas supplied under a residential tariff to be used for non-residential purposes other than home offices;

(g) allow gas supplied under a specific purpose tariff to be used for another purpose;

(h) allow a person, other than a person who is (to the best of the Customer's knowledge) a Gas Installer, to perform any work on the Gas Installation;

(i) use the Natural Gas supply in a manner that may:

(i) interfere with the Distribution System or with supply to any other Gas Installation; or

(ii) cause damage or interference to any third party; or

(j) interfere, or knowingly allow interference, with the Distribution Utility's Distribution System or any metering equipment at the supply address, except as may be permitted by the Applicable Law.

ROLE OF OTHER ENTITIES

Art.2.028 The Commission is the technical regulator of service providers in the Natural Gas supply industry. The Commission (in consultation with the (PURC) is responsible for maintaining standards in the industry. The guiding principles for the Commission in performing its licensing function are to promote competitive and fair market conduct, prevent misuse of monopoly or market power, facilitate entry into and exit from the relevant markets, ensure consumers benefit from competition and efficiency.

Art.2.029 The Commission shall protect the interests of consumers with respect to reliability and quality of Natural Gas supply services; promote economic efficiency, fair, transparent and competitive operations in the Natural Gas supply industry; and to facilitate the maintenance of a financially viable Natural Gas supply industry.

Art.2.030 The NGTU is licensed under the Act as the exclusive operator of the NGITS, and as such, is responsible for the provision of safe and reliable operation of high-pressure Natural Gas pipeline and compression systems to ensure the cost-effective delivery of Natural Gas to Bulk Customers or Distribution Utilities from Wholesale Suppliers, without discrimination to any other licensee in the Natural Gas industry.

Art.2.031 A Wholesale Supplier is a producer / shipper licensed under the Act to procure, process or store Natural Gas for sale to Bulk Customers or to a Distribution Utility and includes brokerage, export and import of Natural Gas.

Art.2.032 Bulk Customers is authorised to operate in the deregulated Natural Gas market and negotiate Natural Gas supply contracts with Wholesale Suppliers of Natural Gas.

Art.2.033 Retailers is licensed under the Act to sell Natural Gas through a Distribution System without discrimination to consumers who own or occupy premises within a designated area (concession) or zone, as specified in the licence.

MODIFICATION

Art.2.034 The Distribution Utility shall obtain the prior written approval of the Commission to modify the Distribution System.

Art.2.035 A Customer that finances all or part of the of the Distribution System, with the approval of the Distribution Utility, shall be entitled to a full refund of the investment in accordance with the Natural Gas Distribution and Sale (Technical and Operational) Rules, 2007 (LI 1911)

SECTION 3

DISCONNECTION AND RECONNECTION

Disconnection

Art.3.00 A Distribution Utility may disconnect a customer from the Distribution System:

(a) in accordance with the Natural Gas Distribution and Sale (Technical and Operational) Rules, 2007 (LI 1911) and the Public Utilities Regulatory Commission (Consumer Service) Regulations, 2020 (LI 2413);

(b) subject to Art.3.01, at the direction in writing of a Retailer;

(c) where the Customer requests disconnection from the Distribution System;

(d) where the Distribution Utility is directed to do so by the Commission inthe interest of public safety;

(e) if a Customer is obtaining or has obtained supply of Natural Gas at a supply address otherwise than in accordance with the Distribution Code; or

(f) as set out in Art.5.00.

Art.3.01 Where a Retailer directs a Distribution Utility to disconnect a Customer pursuant to Art.3.00(a), the Distribution Utility shall not disconnect the Customer unless the Retailer certifies in writing that it is entitled to disconnect the Customer under the Natural Gas Distribution and Sale (Standards of Performance) Regulations, 2007 (LI 1912), the Natural Gas Distribution and Sale (Technical and Operational) Rules, 2007 (LI 1911), the Public Utilities Regulatory Commission (Consumer Service) Regulations, 2020 (LI 2413) or the relevant contract with the Customer.

Art.3.02 A Distribution Utility may, before making a disconnection directed by a Retailer in accordance with Art.3.00(a), require the Retailer, in consideration of the Distribution Utility disconnecting the Customer, to indemnify and keep indemnified the Distribution Utility from and against any loss, liability, damage, claim, action, proceeding, cost and expense suffered or incurred by or made or brought against the Distribution Utility as a result of the disconnection of the Customer from the Distribution System.

Reconnection

Art.3.03 A Distribution Utility shall reconnect a disconnected Customer who satisfies the requirements for connection to its Distribution System including compliance with the technical and safety standards for the supply of Natural Gas, and on payment of any applicable reconnection charge.

Art.3.04 Any reconnection under Art.3.03, shall be completed in accordance with the Natural Gas Distribution and Sale (Standards of Performance) Regulations, 2007 (LI 1912), the Natural Gas Distribution and Sale (Technical and Operational) Rules, 2007 (LI 1911) and the Public Utilities Regulatory Commission (Consumer Service) Regulations, 2020 (LI 2413) to enable a Retailer to meet its contractual obligations to the Customer as set out in the relevant Distribution Service Agreement.

Art.3.05 A Distribution Utility is not obliged to reconnect a Customer where the circumstances giving rise to the disconnection in accordance with Art.3.00 continue to apply.

SECTION 4

METERING

METERING INSTALLATION

Provision of Metering Installations

Art.4.00 The Distribution Utility shall provide Meter Installations at the Customer's premises in accordance with the Natural Gas Distribution and Sale (Standards of Performance) Regulations, 2007 (LI 1912).

Art.4.01 The Metering Installations shall be type tested and approved by the Ghana Standards Authority for compliance before being put into operation.

Art.4.02 A Metering Installation shall:

(a) comprise an Interval Meter and contain telemetry, if required by the Applicable Law;

(b) contain an index register that

(i) has a visible and accessible display of Metering Data; or

(ii) allows the Metering Data to be accessed and read at the same time by portable computer or other equipment of a type or specification reasonably acceptable to all persons who are entitled to have access to that Metering Data.

Art.4.03 Subject to the Natural Gas Distribution and Sale (Standards of performance Regulations) Regulations, 2007 (LI 1912) and the Natural Gas Distribution and Sale (Technical and Operational) Rules, 2007 (LI 1911), Natural Gas is to be metered by quantity and converted to units of energy for billing purposes.

Art.4.04 A Market Participant may install a check meter at or after the Distribution Supply Point.

Art.4.05 Notwithstanding Art.4.03, the Metering Data recorded by the Metering Installation installed by the Distribution Utility will be the Metering Data for billing purposes and Dispute settlement purposes.

Type of Metering Installation

Art.4.06 The Distribution Utility shall provide an Interval Meter Installation where:

(a) at any time, the consumption of Natural Gas at the Distribution Supply Point has exceeded 10,000 MMBTU/day for any consecutive 12-Month period; or

(b) in respect of a new Distribution Supply Point, the consumption of natural Gas at the Distribution Supply Point is likely to be more than 10,000 MMBTU/day for any consecutive 12-Month period commencing during the immediately following 12-Month period.

Art.4.07 In all other cases not provided for in Art.4.06 (a) a Distribution Utility shall provide as a minimum, a Standard Metering Installation.

Cost of Metering Installations

Art.4.08 Where a Distribution Utility is required to provide a Standard Metering Installation pursuant to Art.4.06 (a) the Distribution Utility shall be responsible for the cost of providing and installing that Metering Installation.

Art.4.09 If a Distribution Utility, pursuant to Art.4.06(b) is required to install an interval Metering Installation then the Market Participant shall bear any fair and reasonable costs incurred by the Distribution Utility in installing that Interval Metering Installation in excess of those costs that the Distribution Utility would have incurred in installing a Standard Meter and associated Metering Installation.

Art.4.010 If a Market Participant requests a Metering Installation which is different from a Standard Metering Installation, then the Market Participant shall be responsible for the costs that exceed the fair and reasonable costs that the Distribution Utility would have incurred in providing and installing a Standard Metering Installation.

Installation Database

Art.4.011 A Distribution Utility shall maintain an Installation Database in respect of each Metering Installation.

Art.4.012 The Installation Database shall contain the following information:

(a) the Metering Installation Reference Number (MIRN);
(b) the location of each installed Meter, Corrector and Data Logger;
(c) for each Meter, Corrector and Data Logger that is installed, the name and address of the Customer and the date of installation;
(d) the next scheduled date for test or replacement of each Meter, Corrector and Data Logger;
(e) data on performance of each Meter, Corrector and Data Logger (where relevant);
(f) calibration records of all devices used to measure the quantity of Natural Gas;
(g) testing records of all devices used to measure the quantity of Natural Gas;
(h) date and details of all seals and labels applied to Meters, Correctors and Data Loggers;
(i) the date and details of the most recent maintenance of all devices used to measure the quantity of Natural Gas; and
(j) the next scheduled date for maintenance of all devices used to measure the quantity of Natural Gas.

Art.4.013 A Distribution Utility shall maintain the information contained in the Installation Database:
(a) in an accessible format for a minimum period of 24 Months from the date of inclusion of the information in the database; and
(b) in archive for 5 Years from the date of inclusion of the information in the database, or for the life of the relevant Meter, whichever is longer.

Art.4.014 The Distribution Utility shall, upon request in writing, provide an Affected Party access to information in the installation database relevant to that person:
(a) within 2 Working Days, where the information is in an accessible form as required by Art.4.013(a); and
(b) otherwise within 30 Working Days, from the date of receipt of the request.

Metering Installation Standards

Art.4.015 A Distribution Utility shall ensure that each of its Metering Installations:
(a) complies, and is calibrated to comply, with the Error Limits;
(b) relating to Distribution Supply Points and Entry Points on the NGITS complies, and is calibrated to comply, with the metering inaccuracy limits and calibration requirements in the Natural Gas Transmission Access Code;
(c) containing pressure regulators are able to provide sufficient flow at the minimum regulator inlet pressure, and where a fixed pressure factor is applied, are able to reliably control the outlet pressure to meet the Distribution System pressure requirements in Schedule 1, Part A to the Distribution Code; and
(d) incorporating an Interval Meter contains telemetry that communicates to a central station to facilitate reading and reconciliation.

Security and Non-Compliant Meters

Art.4.016 A Distribution Utility shall use reasonable efforts to protect the Metering Installation from unauthorised interference or damage.

Art.4.017 A Distribution Utility shall, in accordance with the Natural Gas Distribution and Sale (Standards of Performance) Regulations, 2007 (LI 1912) seal a Metering Installation, in the presence of the Customer or the Customer's representative to detect any interference.

Art.4.018 Where a Customer alleges that the Metering Installation is defective, the Distribution Utility shall procure the calibration of the alleged defective Metering Installation by an independent person:
(a) Where the Metering Installation is found to be defective, the Distribution Utility shall bear the costs incurred in the independent calibration and the pro-rated difference of the under-supplied Natural Gas from the date of the complaint until the Metering Installation is reconnected; and
(b) where the Metering Installation is not found to be defective, the Customer shall bear the costs incurred in the independent calibration in accordance with the Natural Gas Distribution and Sale (Standards of Performance) Regulations, 2007 (LI 1912).

METERING INSTALLATION TESTING

Accreditation and Certification

Art.4.019 The Distribution Utility shall ensure that all Metering Installations and Meter type (or model) intended to be used in a Metering Installation are approved by the Commission in consultation with the Ghana Standards Authority and the PURC.

Art.4.020 The Distribution Utility shall ensure that Ghana Standards Authority conducts tests on Metering Installations and confirm compliance with the relevant calibration requirements in accordance with the Applicable Laws.

Art.4.021 A Distribution Utility shall, with the approval of the Commission, test, and if necessary calibrate Customers' Meter Installation periodically as required by the Commission in accordance with the Natural Gas Distribution and Sale (Standards of Performance) Regulations, 2007 (LI 1912).

METER TESTING

Acceptance Testing and Type Testing of Metering Installations

Art.4.022 A Distribution Utility shall carry out, or cause to be carried out, Acceptance Tests on Meters, Correctors and Data Loggers that are components of Metering Installations in the following circumstances:

(a) before a new Meter, Corrector or Data Logger is placed in service;
(b) before a Meter, Corrector or Data Logger that has been removed from service is placed back into service; and
(c) after any repairs, maintenance or recalibration performed on a Meter, Corrector or Data Logger have been completed.

Art.4.023 A Distribution Utility shall ensure that any new type of Metering Installation is submitted for Type Testing.

Art.4.024 A Distribution Utility shall ensure that any Metering Installations that have been modified are assessed to determine whether the modified design continues to meet the minimum standards prescribed by the Distribution Code.

Art.4.025 If reasonable grounds exist for concluding that modifications to a Metering Installation affect its measuring capability, then the Distribution Utility shall ensure that the Metering Installation is submitted for Type Testing.

Testing on request

Art.4.026 A Distribution Utility shall:

(a) within 15 Working Days of a request from an Affected Party, test a Metering Installation which has been installed to measure and record the amount of Natural Gas supplied to a Customer to ascertain whether or not the Metering Installation is defective; and

(b) give the Affected Party who requests a test, at least 5 Working Days' notice (or agree such other mutually convenient time) of when the requested test is proposed to be performed.

Art.4.027 Payment for the test shall be in accordance with Art.4.018(a) of this Distribution Code.

Classification of Meter Models

Art.4.028 For Meters that are defined in this Distribution Code:

(a) the initial life of a specific Meter Model shall be determined by the Distribution Utility in accordance with the requirements of this Code; taking into consideration the following:
   (i) Meters of capacity <10 m³/h shall have an initial life of not more than 10 Years
   (ii) Meters of capacity >10 m³/h but <25 m³/h shall have an initial life between 15 and 25 Years as determined by the manufacturer and the type of Meter Model

(b) the Distribution Utility shall provide the sampling plan for the initial life of the specific Meter Model setting out the calculations in accordance with the requirements of the relevant standard. The Distribution Utility must obtain the approval of Ghana Standards Authority for the sampling plan for the initial life of a specific Meter Model

(c) following the testing by the Distribution utility in accordance with Art.4.028(a) to determine the initial life of a specific Meter Model, the Distribution Utility is required to provide to the Ghana Standards Authority the calculations upon which the Distribution Utility has determined the initial life of the specific Meter Model and the test results for both 20% and 100% of the badge capacity for the Meter Model.

(d) a Distribution Utility intends to retain the Meters in a specific Meter Model after the end of the initial life of the Meter Model, the Distribution Utility shall notify the Commission of its intention at least 3 Months before the end of the initial life of the Meter Model;

(e) the ongoing life of a Meter Model shall be determined by the Distribution Utility in accordance with the relevant standard;

(f) the Distribution Utility shall provide for the Ghana Standards Authority's approval, the sampling plan for the ongoing life of the specific Meter Model setting out the calculations in accordance with the requirements of the relevant standard; and

(g) following the testing by the Distribution Utility in accordance with subparagraph (iv) to determine the ongoing life of a Meter Model, the Distribution Utility is required to provide to the Ghana Standards Authority's the calculations upon which the

Distribution Utility has determined the ongoing life of the Meter Model and the test results for both 20% and 100% of the badge capacity for the Meter Model.

Correction

Art.4.029 In undertaking a Meter reading at a Metering Installation the Distribution Utility shall adjust the Meter reading for pressure, temperature or super compressibility, or a combination of these factors, through applying the correction factors or using a Corrector when:

(a) the error arising from these effects exceeds the requirements of the Distribution Code including Schedule 1 Part B; or
(b) the supply of Natural Gas is not through a Standard Metering Installation; or
(c) the operating condition varies during the course of the day affecting the pressure, temperature or super compressibility.

Art.4.030 During the registration or change process, the Distribution Utility shall advise the Affected Parties of the method employed for adjusting the Meter reading, and the correction factors.

Art.4.031 A Distribution Utility can only make an adjustment for Meter error using a Corrector or a correction factor when:

(a) the Corrector and Meter for the specified correction is uniquely identified;
(b) the accuracy of the Meter and/or Corrector is within the Error Limits;
(c) the method of adjustment by the Corrector can be varied; and
(d) the Affected Parties are advised of the compensation device and the settings used.

Sealing and Labelling

Art.4.032 A Distribution Utility shall place a label on any Meter and Corrector that has passed an Acceptance Test. The label shall include a distinguishing mark with the Year of that Acceptance Test attached.

Art.4.033 If a Meter or Corrector has not been tested or has not passed an Acceptance Test, the Distribution Utility shall ensure that the Meter or Corrector is not labelled.

METER READING AND METERING DATA

Collection of Metering Data

Art.4.033 In relation to the supply of Natural Gas to a Customer, a Distribution Utility shall collect data stored in Basic Metering Installations by:

(a) inspecting the Metering Installation;
(b) electronic means; or
(c) using substitute readings made in accordance with the Natural Gas Distribution and Sale (Standards of Performance) Regulations, 2007 (LI 1912) as frequently as is required to

enable the relevant Market Participant to discharge its obligations and exercise its rights consistent with the Applicable Law a and relevant agreement.

Art.4.034 A Distribution Utility shall:

(a) retain Basic Metering Data it collects in accordance with the Natural Gas Distribution and Sale (Standards of Performance) Regulations, 2007 (LI 1912); and

(b) supply Basic Metering Data it collects to the relevant Market Participant on request.

Art.4.035 Where Metering Data is collected by electronic means, if there is any discrepancy between:

(a) the data stored in a Metering Installation; and

(b) Metering Data in respect of that Metering Installation, the data stored in the Metering Installation is to be the prima facie evidence of the quantity of Natural Gas or energy, if applicable, supplied to the relevant Market Participant.

Art.4.036 The owner of the Meter is the owner of all Metering Data produced or recorded by that Meter. Each other person entitled to access that Metering Data under the Distribution Code has the right to a non-exclusive licence (i.e. the use of the metering data is not exclusive or limited to a particular person) to use that Metering Data for the purposes of its business.

Access to Metering Data

Art.4.037 The only persons entitled to have either direct or remote access to Metering Data from a Metering Installation in relation to a Distribution Supply Point are:

(a) the Market Participant associated with the Distribution Supply Point;

(b) the Distribution Utility associated with the Distribution Supply Point;

(c) the Commission; and

(d) any authorised agent of persons listed in Art.4.033 (a) to (c).

Art.4.038 For Metering Installations with electronic data storage and access capabilities, a Distribution Utility shall:

(a) ensure that Metering Data held in a Metering Installation is protected from local or remote electronic access by suitable password and security controls;

(b) hold 'read-only' and 'write' passwords;

(c) allocate 'read-only' passwords for each Metering Installation to the Customer which has an interest in the Metering Installation; and

(d) keep secure records of electronic access passwords.

Art.4.039 Electronic access to Metering Data from a Metering Installation shall only be provided where passwords are allocated.

Art.4.040 If remote access is ordinarily available, but unavailable for a period of 5 consecutive Working Days, a Distribution Utility shall, if requested by anyperson entitled to have access, obtain readings locally from the Metering Installation and provide those readings to that person.

Art.4.041 A Distribution Utility shall not make, and shall use reasonable efforts to ensure that no other person makes, any alteration to the original stored data in a Metering Installation.

SECTION 5

INTERRUPTION OF SUPPLY

Art.5.00 In addition to the requirements of the Natural Gas Distribution and Sale (Standards of Performance) Regulations, 2007 (LI 1912) the following shall apply

Interruption

Art.5.01 A Distribution Utility may curtail or interrupt the delivery of Natural Gas to a Distribution Supply Point to the extent, and for such period of time, as the Distribution Utility considers is necessary:

(a) if there is material damage to that part of the Distribution System used to deliver Natural Gas to the Distribution Supply Point or other necessity for repair;

(b) if a Force Majeure Event occurs which affects the Distribution Utility's ability to deliver Natural Gas at the Distribution Supply Point;

(c) in the event of or likelihood of an Emergency;

(d) for a health or safety reason (subject to Art.5.04 and Art.5.05);

(e) if work under a planned maintenance or Modification program is undertaken, at least 3 Working Days' notice given to the relevant Market Participant; and

(f) under contractual interruption arrangements agreed between Market Participants, or between the Distribution Utility and a Market Participant

Emergency Interruptions

Art.5.02 A Distribution Utility may, in accordance with the Natural Gas Distribution and Sale (Standards of Performance) Regulations, 2007 (LI 1912) disconnect or interrupt supply to a Customer in an Emergency without notice to the Customer and shall immediately inform the Customer.

Art.5.03 A Distribution Utility shall take appropriate steps to rectify the situation and immediately inform the Customer.

Unplanned Interruptions

Art.5.04 In the event of an unplanned interruption, the Distribution Utility shall provide a 24-hour telephone number to enable Customers to ascertain details and the expected duration of the interruption.

Art.5.05 A Distribution Utility shall take appropriate steps to rectify the situation and immediately inform the Customers.

Right to Information by a Customer

Art.5.06 The Distribution Utility shall, at the request of a Customer, provide an explanation for an interruption of supply to the Customer. The explanation shall be given orally or in writing as specified by the Customer. If oral, the explanation shall be given within 3 Working Days and if in writing, it shall be given within 20 Working Days of the Customer's request.

Minimisation of Interruptions

Art.5.07 The Distribution Utility shall ensure that it minimises the duration of an interruption to supply resulting from the grounds listed in Art.5.01(a) to (e) and shall restore supply as soon as practicable.

Interruption Procedures

Art.5.08 A Distribution Utility shall give Affected Parties and the Commission prior notice of any planned maintenance testing or repair which will require interruptions to the delivery of Natural Gas at one or more Distribution Supply Points.

Art.5.09 The notice shall stipulate the approximate duration of the disconnection or interruption through public notice for a period of 3 Working Days or by direct contact in accordance with the Natural Gas Distribution and Sale (Standards of Performance) Regulations, 2007 (LI 1912).

Art.5.010 The Distribution Utility shall use reasonable efforts to promptly notify Affected Parties and the Commission of any unplanned interruptions to the delivery of Natural Gas at one or more Distribution Supply Points.

Natural Gas Interruption Programme

Art.5.011 A Distribution Utility shall prepare a Natural Gas curtailment programme to be implemented in the event of an emergency interruption or diminution of Natural Gas supply in accordance with the Natural Gas Distribution and Sale (Standards of Performance) Regulations, 2007 (LI 1912).

SECTION 6

DISPUTE RESOLUTION

Disputes between a Distribution Utility and a Customer

Art.6.00 A Dispute between a Distribution Utility and a Customer shall be resolved as follows:

(a) A Distribution Utility shall handle a complaint by a Customer in accordance with the Public Utilities Regulatory Commission (Consumer Service) Regulations, 2020 (LI 2413).

(b) A Distribution Utility shall make readily available to Customers, information on its complaint handling processes.

(c) When a Distribution Utility responds to a Customer's complaint, the Distribution Utility shall inform the Customer that the Customer has a right to:

(i) raise the complaint to a higher level within the Distribution Utility's management structure; and

(ii) refer the complaint to the PURC for determination.

(d) When a dispute is referred to the PURC for determination, the customer and the Distribution Utility shall furnish the PURC or a person appointed by the PURC, with relevant evidence required to enable the proper determination of the dispute.

Disputes between a Distribution Utility and a Wholesale Supplier or Retailer

Art.6.01 A Dispute between a Distribution Utility and a Wholesale Supplier or Retailer shall be resolved in accordance with the Public Utilities regulatory Commission (Consumer Service) Regulations, 2020 (LI 2413) the procedure for filing complaints and resolving Disputes between the Distribution Utility and Wholesale Supplier or Retailer.

Distribution Service Agreement Requirements

Art.6.012 In addition to other requirements for the Distribution Service Agreements under this Code, a Distribution Utility shall not include any term or condition in its Distribution Service Agreement, which limits the liability of the Distribution Utility to the Customer:

(a) for any breach of the Applicable Law;

(b) for any breach by the Distribution Utility of the Distribution Service Agreement; and

(c) for any negligence by the Distribution Utility in relation to the Distribution Service Agreement.

SECTION 7

EMERGENCIES

Art.7.00 A Distribution Utility shall develop and implement such arrangements in accordance with the Standard of a Reasonable and Prudent Operator to ensure the safety, and where reasonably practicable, the continuity of its operations in the event of an Emergency, taking into account, the Applicable Laws.

Art.7.01 The existence of an Emergency shall be determined by the Commission, the NGTU or a Distribution Utility, irrespective of the cause of the Emergency and of whether another person may have caused or contributed to the Emergency.

Art.7.02 An Emergency shall continue up to a time when the Commission, the NGTU or a Distribution Utility, as applicable, determines that the circumstances giving rise to the declaration of the Emergency no longer exist and that normal operations of the Distribution System and full implementation of provisions of this Distribution Code may be resumed.

Art.7.03 Where an Emergency arises, the relevant Distribution Utility shall:

(a) promptly inform the NGTU, Wholesale Suppliers or Customers [or Retailers], the Commission and the general public of the commencement, nature, extent and expected duration of the Emergency by means reasonably available to the Distribution Utility at the time; and

(b) as far as practicable keep the NGTU, Wholesale Suppliers or Customers [or Retailers], the Commission informed of material changes and developments in respect of the Emergency and notified, as soon as is reasonably practicable, of the time at which the Distribution Utility considers the Emergency would cease.

Art.7.04 The relevant Distribution Utility may, by way of notice, impose on the NGTU, Wholesale Suppliers or Customers [or Retailers], an obligation it considers reasonable or necessary to resolve or mitigate the impact of the Emergency and the NGTU, Wholesale Suppliers or Customers [or retailers], shall comply with the obligation upon receipt of the notice.

Art.7.05 The relevant Distribution Utility may to the extent it considers necessary, take measures and require the NGTU, Wholesale Suppliers or Customers [or Retailers] to:

(a) put in place Emergency measures to avert and reduce the likelihood of or likely scale of an Emergency;

(b) overcome or contain an Emergency;

(c) avert or reduce the hazard presented by an emergency; and

(d) restore Natural Gas supply and normal operation of the Distribution System in the course of and after taking Emergency measures.

Actions Under Emergency

Art.7.06 Emergency measures may include action to be taken or not to be taken by the NGTU, a Wholesale Supplier or Customer [or Retailer] as instructed by the Distribution Utility.

Art.7.07 The Distribution Utility and the NGTU, a Wholesale Supplier or Customer [or Retailer] may acknowledge that in an Emergency their respective interests shall be subordinated to the need to take Emergency measures in accordance with Art.6.04.

Art.7.08 To ensure co-ordination of Emergency measures, a Wholesale Supplier or customer [or Retailer] shall only take Emergency measures in accordance with Art.6.04 and in accordance with instructions given by the Distribution Utility.

Breaches Under Emergency

Art.7.09 An Emergency measure taken by the relevant Distribution Utility, a Wholesale Supplier or Customer [or Retailer] in compliance with a requirement of Art.6.05 shall not be considered to be a breach of the Applicable Law, Connection Agreement, Distribution Service Agreement or Distribution Code or an ancillary agreement.

Art.7.010 A Distribution Utility shall not be in breach of its obligation to accept Natural Gas tendered for delivery to the Distribution System at an Entry Point or to make Natural Gas available for off-take at the Distribution Supply Point to the extent that as a result of the Emergency measures taken, Natural Gas tendered for delivery is not accepted or Natural Gas is not made available for off-take.

Art.7.011 In the event of an Emergency, a Distribution Utility shall implement the relevant Distribution System Emergency procedures in addition to measures specified in Art.6.05.

Art.7.012 Subject to the obligations set out in Art.6.06 where Emergency measures include increasing or decreasing the delivery or rate of flow of Natural Gas to an Entry Point, a Distribution Utility may issue appropriate instructions in respect of the increase or decrease to the Wholesale Supplier utilising the Entry Point.

Art.7.013 In the event that the Customer is not a shipper, the Customer shall in turn exercise nomination rights under the respective agreements with the Wholesale Supplier as necessary and as requested by a Distribution Utility to a practical extent but at all times use reasonable endeavours.

Distribution Supply Point control during emergency

Art.7.014 Where Emergency measures include the reduction or discontinuance of off-take of gas at Distribution Supply Point, the Distribution Utility shall first seek voluntary reductions of off-take by Customers, where practicable andif the Distribution Utility cannot achieve the requisite reduction of off-take voluntarily in a timely manner, the Distribution Utility may require aCustomer to reduce demand for Natural Gas on the Distribution System.

Art.7.015 In reducing demand of a Customer the Distribution Utility shall give due consideration on timely notification to a Customer, and where appropriate, include in the negotiation of the relevant Distribution Service Agreement, practical terms and conditions to enable a Customer discontinue off-take in a manner that shall protect its essential or major capital items of plant or allow the final consumer to change to alternative fuels.

Art.7.016 Where the Distribution Utility is unable to take an Emergency measure and to exercise other rights which the Distribution Utility has under this Distribution Code, the Distribution Utility may disconnect Natural Gas at a Distribution Supply Point if a Customer does not comply with an instruction given under Art.6.04.

Art.7.017 For the purpose of calculating balancing charges, an Emergency shall be considered to have ceased only with effect from the start of the day at 06.00 hours GMT after the Distribution Utility shall have notified the relevant Customer of the abatement of the Emergency.

Consequences of emergency

Art.7.018 In the event of an Emergency, the relevant Distribution Utility may suspend the Connection Agreement and Distribution Service Agreement except for the financial obligations of a Wholesale Supplier or Customer or Distribution Utility under this Distribution Code, the Connection Agreement and Distribution Service Agreement with respect to a Wholesale Supplier or Customer or Distribution Utility.

Art.7.019 The Distribution Utility and each Wholesale Supplier or Customer or [Retailer] shall agree that it may be necessary for each of them to divert resources from other activities during an Emergency, which may potentially result in a temporary impairment of their respective abilities subsequent to carrying out their respective obligations other than financial obligations.

Art.7.020 An impairment resulting from a diversion of resources may constitute force Majeure.

Emergency Costs

Art.7.021 The Distribution Utility shall:

(a) Not be liable for costs arising out of an Emergency incurred by a Wholesale Supplier or Customer or [Retailer] or as a result of taking Emergency measures imposed by the Distribution Utility; and

(b) Not engage in any cash transactions with regard to costs incurred by the Distribution Utility in respect of an Emergency or as a result of taking an Emergency measure or other measure imposed by the Distribution Utility and charged to a disbursement account.

Art.7.022 A Customer is not personally liable for its costs if:

(a) The off-take of Natural Gas by the Customer who voluntarily reduces its off-take in accordance with Art.6.014

(b) The effect is that the first Customer's Natural Gas is off-taken by another Customer.

Art.7.023 A Customer is not personally liable for its costs in accordance with Art.6.014 the benefitting Customer shall on behalf of the first Customer pay the price for the quantity of the first Bulk Customer to the Distribution Utility which shall pay the sums received to the first Customer or Distribution Utility.

Art.7.024 Each Customer or Distribution Utility shall be personally liable for its own costs incurred in respect of an Emergency.

Emergency Reporting and Audit

Art.7.025 The Distribution Utility shall prepare an Emergency report within 7 days after the Emergency and shall submit a copy of the report to the Commission.

Art.7.026 In the event of an Emergency, either the Commission or the affected NGTU, Wholesale Supplier or Customer or [Retailer] may within 6 Months after the end of the Emergency, require an audit to be conducted by a reputable independent expert to determine the cause and the remedial actions required to be taken to minimise the likelihood of the reoccurrence of the Emergency and require submission of the audit report.

Art.7.027 Where the Commission or the affected NGTU, Wholesale Supplier or Customer or [Retailer] requires the appointment of an independent expert, the Distribution Utility shall appoint a professional entity approved by the Commission and provide the entity with information to establish:

(a) the cause of the Emergency; and

(b) where relevant, the remedial action that needs to be taken to minimise the likelihood of the re-occurrence of the Emergency.

Art.7.028 The cost of an audit shall be borne by the person that requested the audit.

Art.7.029 A copy of the audit report prepared shall be submitted to the Commission.

Art.7.030 A copy of the audit report shall be made available to the affected NGTU, Wholesale Supplier or Customer or [Retailer].

Art.7.031 The cost of a remedial measure as a result of the audit and effected by the distribution Utility shall be recoverable from the person identified in the audit as being the cause of the Emergency, taking into account, the nature and scope of the remedial measure.

Art.7.032 The Distribution Utility may appeal against a determination in accordance with Dispute resolution procedures provided for under the Applicable Law in respect of Natural Gas Distribution Utility standards of performance where the result of an audit determines that the Emergency would not have occurred but for the wilful misconduct of the Distribution Utility.

Art.7.033 The Distribution Utility is liable to the NGTU, Wholesale Supplier or Customer or [Retailer] for the contravention of the standards of performance as required under the Applicable Law for the Distribution of Natural Gas.

System Emergency manager

Art.7.034 The Distribution Utility is the Emergency manager.

Art.7.035 The Distribution Utility shall prepare a manual containing details of arrangements and procedures established by the Distribution Utility for the Emergency management for approval by the Commission.

Art.7.036 The Distribution Utility shall provide each Wholesale Supplier or Customer or [Retailer] with a copy of the manual.

SECTION 8

FORCE MAJEURE

Art.8.00 An event of Force Majeure means any event or circumstance which is beyond the control of a person, each such affected person having acted reasonably but only to the extent that:

(a) such event or circumstance cannot be or caused to be prevented, avoided or removed by the affected person;

(b) such event or circumstance prevents the affected person from performing its obligations in this Distribution Code;

(c) the affected person has taken all reasonable precautions and reasonable alternative measures in order to avoid the effect of such event or circumstance on the ability to perform its obligations.

Art.8.01 The following shall not constitute Force Majeure:

(a) the breakdown or failure of machinery caused by:

(i) normal wear and tear which should have been avoided by the Distribution Utility;

(ii) the failure to comply with the manufacturer's recommended maintenance and operating procedures; or

(iii) the non-availability at appropriate locations of standby equipment or spare parts in circumstances where the Distribution Utility should have had such equipment or spare parts available.

Art.8.02 The failure to pay money or the unavailability or lack of funds shall not constitute a force majeure.

Art.8.03 Any event or circumstance which is within the reasonable control of or caused by any act or omission of:

(a) a Distribution Utility;

(b) a Market Participant;

(c) an upstream petroleum operator;

(d) the owner or operator of the Natural Gas production facilities from which a Wholesale Supplier purchases gas for transportation in the Distribution System;

(e) the owner or operator of the Customer's Gas Installation to which Natural Gas is sold and delivered or to which the sale or delivery of Natural Gas is intended; and

(f) any person engaged by any of the persons listed in Art.7.03(a) to (e) shall not constitute a force majeure.

Art.8.04 Where a Wholesale Supplier or Customer [or Retailer] is affected by the Distribution Utility's inability to perform its obligations under the Applicable Law, a Connection Agreement or Distribution Service Agreement as a result of Force Majeure, the Distribution Utility shall notify that Wholesale Supplier or Customer [or Retailer] as soon as possible.

Art.8.05 The Distribution Utility shall in writing notify a Wholesale Supplier or Customer [or Retailer] affected by the Distribution Utility's inability to perform its obligations under the Applicable Law, a Connection Agreement or Distribution Service Agreement as a result of Force Majeure.

Art.8.06 The Distribution Utility shall suspend the obligations of the Wholesale Supplier or Customer [or Retailer] to the extent that the Wholesale Supplier or Customer's ability to perform is hindered by Force Majeure.

Art.8.07 Where the Distribution Utility considers an event of which it is notified by a Wholesale Supplier or Customer [or Retailer] to constitute Force Majeure which affects the Distribution System, the Distribution Utility shall as soon as is reasonably practicable declare Force Majeure and the obligations of the Distribution Utility and each Wholesale Supplier or Customer [orRetailer] will be suspended to the extent hindered by the Force Majeure.

Extent of Relief from Force Majeure

Art.8.08 Force Majeure shall not relieve the Distribution Utility, Wholesale Supplier or Customer [or Retailer] from a liability or obligation to:

(a) make payments due under the Applicable Law, a Connection Agreement, Distribution Service Agreement or any ancillary agreement except to the extent that the failure to pay money is caused by Force Majeure or a circumstance affecting all reasonable means of payment, or

(b) give notice or other communication which may be required under the Applicable Law, this Distribution Code, or other relevant agreement with a Distribution Utility, Wholesale Supplier or Customer [or Retailer], except where the Distribution Utility, Wholesale Supplier or Customer [or Retailer] is unable to give the notice or communication due to Force Majeure affecting the monitoring systems, in which case the notice or communication shall be made in accordance with the direction of the Distribution Utility.

Art.8.09 The affected person shall be relieved of liability under Art.7.07 for as long as, and to the extent that the occurrence of Force Majeure and the effects of the occurrence could not be overcome by measures which the affected party might reasonably be expected to take with a view to resuming performance of its obligations, except that the affected person shall not be required to settle any strikes, lock-out or other industrial trade disputes which constitute Force Majeure.

Art.8.010 The other person shall be relieved of liability to perform its obligations under this Distribution Code and any ancillary agreement to the extent that, that person is rendered unable to perform any of its obligations as a result of the affected person being prevented from, delayed or hindered in the performance of any of its obligations by reason of Force

Majeure.

Information

Art.8.011 Relief in relation to an Entry Point or a Distribution Supply Point shall not be given under Art.7.07 unless, the affected person has within 21 days of the occurrence of the Force Majeure, or within a period approved by the Commission, supplied the other person with a report giving reasonable details of the

(a) place, nature of and reasons for the Force Majeure, and

(b) obligations delayed or prevented in their performance and the estimated period during which performance may be suspended.

Art.8.012 The person may in relation to Force Majeure that relates to a Distribution Supply Point, request the affected person to supply the other person with a report containing details of the matters specified in Art.7.011 (a) and (b).

Art.8.013 The report shall be supplied by the affected person to the other person within 21 days from the date of the request.

Resumption of Performance

Art.8.014 A person who has been relieved under Art.7.07 of a liability arising from a failure to perform an obligation, shall after the removal of the cause of the failure, notify the other person and resume the performance of the obligation.

Notices to the Commission

Art.8.015 Each Distribution Utility, Wholesale Supplier or Customer [or Retailer] shall provide to the Commission a copy of each notification issued by it pursuant to Art.7.04.

SECTION 9

OTHER MATTERS

Customer Information

Art.9.00 A Distribution Utility shall comply with the requirements of the Data Protection Act, 2012 (Act 843) and any guidelines issued by the Commission in relation to the treatment of Customer information.

Distribution Utility permitted to subcontract functions

Art.9.01 A Distribution Utility shall not assign to any person any of its rights, or transfer to such person any of its obligations, arising under this Distribution Code or any Connection Agreement or Distribution Service Agreement without the prior written consent of the Commission, which consent shall not be unreasonably withheld or delayed if the Distribution Utility has demonstrated to the reasonable satisfaction of the Commission that the proposed assignee or transferee is qualified as a Distribution Utility, and has the financial and technical capacity to perform its obligations as a Distribution Utility.

SCHEDULE 1

PERFORMANCE STANDARDS

PART A: DISTRIBUTION SYSTEM PRESSURE

A Distribution Utility shall use all reasonable efforts to maintain sufficient Distribution System pressures to ensure the minimum pressure is maintained at the Distribution Supply Point. The typical indicative daily pressure for each category of Distribution System is as follows:

Distribution System	**Distribution System Pressure (*kPa* gauge) [bar]**		
Category	Maximum	Minimum at Distribution Delivery Point	
		Border Point #	**Outlet of Meter ***
Low Distribution Pressure	7 [0.07]	1.4 [0.014]	1.1 [0.011]
Medium Distribution Pressure	20-210 [0.2 – 2.1]	15 [0.15]	1.1 [0.011]
High Distribution Pressure	515-1379[5.15-13.79]	140 [1.4]	1.1 [0.011]
Transmission Pressure	Maximum allowable operating pressure under the Pipeline Licence	On application	1.1 [0.011]

* Or other such value where a higher supply pressure has been agreed.

Note: Distribution Utilities may use lower Distribution System pressures during periods of low demand (eg overnight) to minimise Unaccounted for Gas and where the operator can demonstrate that quality and reliability of supply can be maintained at those pressures.

[1] This table will need to be updated once the system has been designed

PART B: MAXIMUM ALLOWABLE ERROR LIMITS

Unless specified in Art.4.028 the maximum allowable variance (error units) in quantity from the agreed true quantity for Gas Meters shall be:

(a) not more that 0.2 percent for an electronic meter and not more than 1 percent for a mechanical meter in favour of the Distribution Utility;

(b) not more that 1 percent in favour of the Customer.

The maximum allowable error limit range for Correctors shall be ±1 % in addition to the error limits outlined in (a) and (b) above.

Except where provided for in a sampling plan approved by the Ghana Standards Authority, the Error Limit range of Meters and Correctors shall be established under standard conditions at (1) 20% and (2) 100% of the badge capacity of the Meter, by the Ghana Standards Authority.

The testing procedures for Gas Meters and Correctors shall have an uncertainty limit of no more than 1%.

Note: Testing of Meter Families (field life extension) under clause 0 shall be conducted in accordance with a sampling plan approved by the Commission.

PART C: UNACCOUNTED FOR GAS

Reconciliation Amount

(a) The Distribution Utility's Unaccounted for Gas for each Month shall be calculated as follows:

Distribution Utility Unaccounted for Gas = AMR – AMD – ACFG (1)

Percentage Unaccounted for Gas = (AMR – AMD – ACFG)/MR (2)

Where:

AMR	=	(aggregated Monthly receipt) The quantity of Natural Gas delivered to the Distribution Utility at the Entry Point and allocated to its Customers
AMD	=	(aggregated Monthly delivery) The quantity of Natural Gas delivered to Customers at the downstream delivery points
ACFG	=	(aggregated chargeable Fuel Gas) The quantity of chargeable fuel gas allocated to the Distribution Utility

(b) At the end of each Month the Distribution Utility shall calculate the actual Fuel Gas as follows:

Fuel Gas = MR – MD + IS – IE (3)

Where:

MR	=	the total quantity of Natural Gas delivered to the Distribution Utility at the Entry Point by the NGITS during each Month

MD	=	the total quantity of Natural Gas delivered to Customers at all the downstream delivery points on the Distribution System during such Month
IS	=	the inventory at the start of the Month
IE	=	the inventory at the end of the Month

In each case the values shall be aggregated for all the days in that Month

(c) The Distribution Utility and NGTIS shall work together to minimise the total size of the Unaccounted for Gas during each Month

(d) If following the end of a Month, the cumulative amount of the Distribution Utility's Unaccounted for Gas exceeds 2% of the aggregate quantity of gas (AMR) received into the Distribution System, then from 5th day after the beginning of the following Month, NGITS will adjust daily deliveries of Natural Gas supplies with the aim of achieving a zero Unaccounted for Gas by the end of such Year

(e) If by the end of the Year the Unaccounted for Gas has not been reconciled to zero then the volume of Natural Gas above/below the benchmark multiplied by the PURC approved Distribution Service Charge is used to determine the value that is payable to the respective party

Illustration Example

Calculations of Unaccounted for Gas			
(A)Aggregated Monthly Receipt(AMR)	10,000,000.00	MMBTU/month	The quantity of Natural Gas withdrawn from the NGITS by the Distribution Utility at the VGIF Interconection Point during the previous month
(B) Aggregated Monthly Delivery (AMD)	9,800,000.00	MMBTU/month	The quantity of Natural Gas delivered by the Distribution Utility to its downstream customers during the previous month
(c) Aggregated Chargeable Fuel Gas (ACFG)	100,000.00	MMBTU/month to distribution	The quantity of Chargeable Fuel Gas allocated to the Distribution Utility during the previous month
(D) The Benchmark Rate (BR) for the UFG	0.020	Two percent of AMR per month	The benchmark rate for the unaccounted for gas (UFG)
UFG=Unaccounted for Gas			
The Benchmark Rate (BR)Test of UFG		UFG/AMR	The BR Test of UFG
Calculation of Unaccounted for Gas for the previous month			
AMR-AMD-ACFG=UFG	100,000.00	MMBTU/month	
The BR Test of UFG for the previous month	0.01	If this Rate is less or equal to 2% the Distribution Utility is in regulatory compliance of unaccounted for gas	
		If this rate is say 4% in the previous month the Distribution Utility may undertake investigations on its system fuel use, may declare emergency maintenance , increase its line pack or nominate more gas to meets its customer needs	
		The purpose of all these actions is to get the unaccounted for gas or gas flow rate imbalance to zero	
At the end of each Contract Month the Distribution Utility shall calculate the actual fuel use as follows			
Fuel Use =MR-MD+IS-IE			
Where :			
MR	Total quantity of Gas delivered to the Distribution Utility at the interconnection point by the NGITS during the Contract Month		
MD	Total quantity Gas delivered to the Distribution Utility's customers at all the downstream delivery points on the distribution system during the Contract Month		
IS	Inventory at the Start of the Contract Month		
IE	Inventory at the End of the Contract Month		
MR	10,000,000.00	MMBtu/Month	
MD	9,850,000.00	MMbtu/Month	
IS/Linepack at the Start of deliveries	50,000.00	MMBtu/Month	
IE/Linepack at the End of the deliveries	100,000.00	MMBtu/Month	
Actual Fuel Gas Used for the Contract Month	100,000.00	MMBtu/Month	

Note: this is an illustrative calculation and the values presented are for illustrative purposes only

PART D: HEATING VALUE

(1) NON-DAILY METERED CUSTOMERS

The Commission will monitor and declare a daily state-wide flow-weighted average (HHV) heating value for Natural Gas for all non-daily metered Natural Gas Customers as in LI 1912

(2) DAILY METERED CUSTOMERS

Unless otherwise agreed between Market Participants the declared Commission zonal hourly "flow-weighted average" (HHV) heating value for Natural Gas shall be applied for the purposes of billing settlements.

[2] NTD: Energy Commission to confirm

PART E: GUARANTEED SERVICE LEVELS

Penalty compensation charges for non-compliance to requirements are replicated from the First Schedule of Natural Gas Distribution and Sale (Standards of Performance) Regulations, 2007 (LI 1912)

Prescribed Compensation				
Regulation	**Residential Customer**	**Commercial Customer**	**Industrial Customer**	**Energy Commission**
	GH₵	**GH₵**	**GH₵**	**GH₵**
3 (2)	240.00	360.00	600.00	
4 (3)	480.00	720.00	1200.00	
10 (3)	240.00	360.00	600.00	
11 (5)	240.00	360.00	600.00	
12 (2)	240.00	360.00	600.00	
12 (5)				3,000.00
14 (1)	360.00	480.00	600.00	
18 (1)	240.00	360.00	600.00	
19 (3)	240.00	360.00	600.00	
21 (1)	240.00	360.00	600.00	

SCHEDULE 2

CONNECTION CHARGES

GUIDANCE ON CONNECTION CHARGES

1) Purpose and Limitation

The purpose of this Schedule is to provide guidance with respect to the determination of the charge component of the terms and conditions for the connection of a Customer's Gas Installation to the Distribution System within the minor or infill extension area. Nothing in this Schedule shall override any contractual provision relating to the charge levied on a Customer for connecting to the Distribution System that existed prior to the effective date of this Code.

2) Required Approach

The principle for determining the charge to be paid by a Customer for obtaining connection to the Distribution System is dependent on the type of tariff to which that Customer would be assigned once connected, if more than one tariff exists. If only one tariff is applicable, then the charge for obtaining connection to the Distribution System shall be:

i. the cost of installing and maintaining the Connection facilities dedicated to that Customer; and
ii. a contribution to the reinforcement of the shared Distribution System calculated as the greater of the deficit resulting from the application of the economic feasibility test or zero.

To the extent practicable, cost and revenue shall be calculated according to the incremental cost and revenue associated with the Connection of a Customer or group of Customers to the Distribution System. Incremental cost or revenue associated with a Customer or group of Customers means the revenue or cost that would be anticipated with the Connection of that Customer or group of Customers less the revenue or cost that would be anticipated without the Connection of that Customer or group of Customers, both computed in present value terms. Further guidance on the estimation of incremental cost and revenue is set out below.

For the purpose of this Schedule, Connection "facilities dedicated to a Customer" mean those facilities that are used (or may be used) to transport Natural Gas to that Customer and no other Customer. The shared Distribution System in relation to a Customer refers to that part of the Distribution System that is used (or may be used) to transport Natural Gas to that Customer that does not comprise dedicated facilities.

3) Definition of the Economic Feasibility Test

The economic feasibility test refers to the computation (in present value terms) of the revenue anticipated from the provision of the reference service to the Customer and the anticipated cost associated with serving that Customer. The deficit from the application of the economic feasibility test refers to the difference between cost and revenue.

Deficit = PV (Cost) – PV (Revenue)
where PV refers to a present value.

Nothing in this Schedule 2 requires a Distribution Utility to undertake an economic feasibility test in respect of a Customer or group of Customers if it does not intend to charge a Customer or group of Customers for obtaining Connection to the Distribution System, or to levy a contribution on a Customer or group of Customers in respect of the reinforcement of the shared Distribution System.

4) Estimation of Incremental Revenue and Cost

For Customers who would be assigned to any tariff that succeeds part or all of the existing applicable tariff, the following assumptions should be adopted when applying the economic feasibility test (and hence computing whether a charge for connecting to the Distribution System may be payable).

a) Discount rate – the pre-tax real WACC included in the Distribution Utility's approved access arrangement;
b) Period of analysis – 20 Years for domestic Customers and 15 Years for commercial and industrial customers. A different life for commercial and industrial customers may be used if there are grounds to consider that the life of the connection may be less than 15 Years.
c) Tariffs – the current approved reference tariffs shall be adjusted by the prevailing X factor until the end of the current regulatory period and constant in real terms thereafter.
d) Quantities – a forecast based upon the reasonably anticipated usage for a Customer or group of Customers shall be used.
e) Incremental capital costs – shall include the cost of mains extensions, provision of a Service Pipe and provision of a Standard Meter for the Customer or group of Customers. The cost associated with the provision of these facilities shall be computed as the direct cost forecast to be incurred to purchase and install the facilities plus 10 per cent to reflect incremental overheads. It shall be assumed that the incremental cost associated with upstream reinforcement of the Distribution System is immaterial.
f) Incremental operating and maintenance costs – shall be based on the prevailing calculated cost for operation and maintenance of the Distribution System. In the case where the cost is not current, the available cost may be escalated by an annual amount of CPI or bank rate percentage to account for the rate of

change per connection, and for inflation to convert it into an equivalent cost in the Year in which the economic feasibility test is being undertaken using the method for adjusting for inflation that is employed for reference tariffs.

5) Provision of Information

Where requested, quotes for connections shall be itemised to include at least the following information:

a) where relevant, assumption about the future usage by the Customer or group of Customers, and present value of incremental revenue;

b) in relation to a contribution for upstream reinforcement by a specific tariff customer, the assumptions about the incremental increase or reduction in operating and maintenance costs;

c) meter type and cost;

d) mains extension cost;

e) any other incidental costs; and

f) any upstream augmentation works and associated costs.

SCHEDULE 3: INFRASTRUCTURE STANDARDS

NATIONAL & INTERNATIONAL STANDARDS – NATURAL GAS DISTRIBUTION

Standard Number	Description
ISO 6993.1 - 2007	Buried high impact poly vinyl chloride (PVC-Hi) piping systems to the supply of Gaseous fuels-Pipes for a maximum operating pressure of 1 bar (100 kPa) (ISO 6993.1-2006, Mod)
ISO 6993.2 – 2007	Buried high impact poly (vinyl chloride)(PVC-Hi) piping systems to the supply of Gaseous fuels-Fittings for a maximum operating pressure of 20 mbar (20 kPa)
ISO 6993.2 - 2007	Buried high impact poly (vinyl chloride)(PVC-Hi) piping systems to the supply of Gaseous fuels-Fittings and Saddles for a maximum operating pressure of 1 bar (100kpa)
ASME B31.8	Installation and maintenance of steel pipe system for Gas
	Fittings for Polyethylene (PE) Pipes for Pressure Applications
	Polyethylene (PE) Pipes for Pressure Applications
	Polyethylene (PE) Compounds for Pressure Pipes and Fittings
ASME B31.8	Pipelines - Gas and liquid petroleum - Design and construction
ASME B31.8	Pipelines - Gas and liquid petroleum - Welding
ASME B31.8	Pipelines - Gas and liquid petroleum - Operation and maintenance

ASME B31.8	Pipelines – Gas and liquid petroleum – offshore submarine pipeline systems
ASME B31.8	Pipelines – Gas and liquid petroleum – Field pressure testing
	Plastics pipes and fittings for Gas reticulation - Polyamide compounds for manufacture
	Plastics pipes and fittings for Gas reticulation - Polyamide - Pipes
	Plastics pipes and fittings for Gas reticulation - Polyamide - Fittings
	Installation and maintenance of plastic pipe systems for Gas
ISO 4437 - 2:2014	Plastics piping systems for the supply of Gaseous fuels - Polyethylene (PE) - Part 2: Pipes
ISO 4437 - 1/2/3:2014:	Plastics piping systems for the supply of Gaseous fuels - Polyethylene (PE) - Part 1: General/Part 2: Pipes/ Part 3: Fittings
BS EN 751-1/2:1997	Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family Gases and hot water. (Anaerobic jointing compounds/ Non-hardening jointing compounds)
BS EN 13636:2004	Cathodic Protection of Metals – Pipes and Cables

BS EN 1473:2021	Installation and equipment for Liquified Natural Gas. Design of onshore Installations
BS EN 15399: 2018	Gas infrastructure. Safety management System for Gas Networks with maximum operating pressure up to and including 16 bar
BS EN 1776:2015	Gas Infrastructure. Gas measuring systems
GS ISO 13847:2000	Petroleum, petrochemical and natural gas industries – Pipeline transportation systems – Welding of pipelines
GS ISO 13847:2000/Cor 1:2001	Petroleum, petrochemical and natural gas industries - Pipeline transportation systems - Welding of pipelines
GS ISO 14224:2006	Petroleum and natural gas industries - Collection and exchange of reliability and maintenance data for equipment
GS ISO 14313:2007	Petroleum and natural gas industries - Pipeline transportation systems – Pipeline valves
GS ISO 15589-1:2003	Petroleum and natural gas industries - Cathodic protection systems – Part 1: On-land pipelines
GS ISO 15590-1:2009	Petroleum and natural gas industries - Cathodic protection systems-Part 1: Induction bends, fittings and flanges for pipeline transportation systems - Part 1: Induction bends
GS ISO 15590-2:2003	Petroleum and natural gas industries - Induction bends, fittings and flanges for pipeline transportation systems – Part 2: Fittings

GS ISO 15590-3:2004	Petroleum and natural gas industries – Induction bends, fittings and flanges for pipeline transportation systems – Part 3: Flanges
ISO/TS 16922	Natural Gas – Guidelines for odorising gases
GS ISO 21329:2004	Petroleum and natural gas industries - Pipeline transportation systems – Test procedures for mechanical connectors
GS ISO 21809:2007	Petroleum and natural gas industries - External coatings for buried for submerged pipelines used in pipeline transportation systems- Part 2: Fusion-bonded epoxy coatings
GS ISO 21809-3:2008	Petroleum and natural gas industries - External coatings for buried or submerged pipelines used in pipeline transportation systems – Part 3: Field joint coatings
GS ISO 21809-4:2009	Petroleum and natural gas industries - External coatings for buried or submerged pipelines used in pipeline transportation systems – Part 4: Polythylene coatings (2-layer PE)
ASME/ANSI B16.5:1977	Cast pipe flanges and flanged fittings

SCHEDULE 4

APPLICABLE LAWS

ACTS

1. Energy Commission Act, 1997 (Act 541)
2. Environmental Protection Agency Act, 1994 (Act 490)
3. Public Utilities Regulatory Commission Act, 1997 (Act 538)
4. Standards Act, 1973 (NRCD 173)

RULES AND REGULATIONS

1. Environmental Assessment Regulations, 1999 (LI 1652)
2. Natural Gas Distribution and Sale (Standards of Performance) Regulations, 2007 (LI 1912)
3. Natural Gas Distribution and Sale (Technical and Operational) Rules, 2007 (LI 1911)
4. Natural Gas Transmission Utility (Standards of Performance) Regulations, 2008 (LI 1936)
5. Natural Gas Transmission Utility (Technical and Operational) Rules, 2007 (LI 1913)
6. Natural Gas Pipeline Safety (Construction, Operation and Maintenance) Regulations, 2012 (LI 2189)
7. Public Utilities Regulatory Commission (Consumer Service) Regulations, 2020 (LI 2413)

Protocols, Codes, Guidelines and Other Procedures

1. Natural Gas Transmission Access Code, December 2014
2. Licence and Permit Application Manual for Service Providers in the Natural Gas Supply Industry, June 2020

SCHEDULE 5

INSTALLATION COMPLETION CERTIFICATE

COMPANY NAME:

INSTALLATION COMPLETION CERTIFICATE

☐ Workshop Contract:

☐ Site Job No.

☐ Department Purchase Order No.

PROJECT NAME:	Ghana LNG Franchise
PROJECT NO.:	1001168
CONTRACT NO.:	
PROJECT LOCATION:	Ghana Tema Region

THE SCOPE OF WORKS DESCRIPTION

DRAWING NO.:	
DESCRIPTION:	
DATE:	

EXCEPTIONS TO THE SCOPE OF WORKS:
▪ ▪
Reason / Justification:

▪ ▪ ▪
Conclusions
▪ ▪
Recommendations:
▪ ▪ ▪ ▪ ▪ ▪ ▪
GAS INSTALLER COMPANY NAME

Engineering Manager	Name:	Signature: _ _ _ _ _ _ _ _ _ _
Lead Specialist	Name:	Signature: _ _ _ _ _ _ _ _ _ _
Head of Engineering	Name:	Signature: _ _ _ _ _ _ _ _ _ _
Project Manager	Name:	Signature: _ _ _ _ _ _ _ _ _ _