



DRAFT NATURAL GAS TRANSMISSION

ACCESS CODE

AUGUST 2014

TABLE OF CONTENTS

Section 1	PREAMBLE	1
	Purpose and Scope	1
	Scope of the NGITS.....	3
	Structure of the Access Code	3
	Open Access.....	4
	Agreements.....	4
Section 2	DEFINITIONS AND INTERPRETATION	6
Section 3	ROLES AND RESPONSIBILITIES OF ENTITIES	14
	Background.....	14
	Roles of Entities	14
	Entities.....	14
	Compliance with laws and industry standards	14
	Responsibilities of the NGTU.....	15
	Responsibilities of Wholesale Supplier, Distribution Company or Bulk Customer	16
Section 4	PROCEDURE FOR OBTAINING THE FRAMEWORK AGREEMENT	17
Section 5	PROCEDURE FOR CONNECTION TO THE TRANSMISSION SYSTEM	18
	General Conditions for Connecting to the Transmission System.....	18
	Application for Connection to the Transmission System	18
	Network Connection Conditions Agreement.....	23
Section 6	PROCEDURE FOR CONCLUDING THE GAS TRANSMISSION SERVICE AGREEMENT	26
	Formal and Legal Conditions.....	26
	General Conditions for the Provision of Gas Transmission Service.....	26
	Application for the Gas Transmission Service Agreement	28
	Review of the Application for Gas Transmission Service Agreement	29
	Issuance of Capacity Reservation Agreement	32
	Concluding the Gas Transmission Service Agreement	33
	Issuance of Gas Transmission Service Agreement.....	36
Section 7	ADMINISTRATION OF GAS TRANSMISSION SERVICE AGREEMENT	38
	Suspension of Gas Transmission Service Agreement	38
	Termination of the Gas Transmission Service Agreement	38
	General Conditions for Modifying the Contracted Capacity	41
	General Conditions for Adjusting Financial Security	44
Section 8	PROVISION OF TRANSPORTATION SERVICES	45

Charges	45
Reservation Charge	45
Usage Charge.....	46
Surcharge.....	46
Invoices	46
Section 9 QUALITY STANDARDS AND MEASUREMENTS	48
Gas Quality	48
Gas Entry - Measurement and Testing at the Entry Point.....	51
New Entry Points	54
Gas Off-Take - Measurement and Testing at Off-Take Points.....	56
New Off-take Points	58
Section 10 OPERATIONAL PROCEDURES	59
Nomination Procedures	60
Line Pack and Fuel Gas.....	63
Allocation and Imbalances	63
Capacity and Curtailment	65
Safety of Supply	67
Continuing surveillance.....	69
Damage prevention programme.....	69
Emergency procedures	70
Public Awareness	72
Investigation of an Accident or a Failure	73
Section 11 MAINTENANCE AND SYSTEM PLANNING	74
Maintenance.....	74
System Planning.....	77
Title, Property and Custody.....	78
Section 12 EMERGENCIES.....	80
Responsibilities of Parties under Emergency	80
Actions Under Emergency	82
Breaches Under Emergency.....	82
Off-take point control during emergency	83
Consequences of emergency	83
Emergency Costs	84

Emergency Reporting and Audit.....	85
System Emergency manager	86
Section 13 FORCE MAJEURE.....	87
Force Majeure.....	87
Information.....	90
Resumption of Performance.....	90
Notices to the Commission.....	91
Assignment	91
Section 14 MODIFICATION	92
Section 15 MISCELLANEOUS PROVISION.....	94
Dispute Resolution	94
Section 16 SCHEDULES.....	95

SECTION 1 PREAMBLE

Purpose and Scope

- Art.1.00 The Natural Gas Transmission Access Code establishes the requirements, procedures, practices and standards that govern:
- (a) how a shipper interconnects to the Natural Gas Interconnected Transmission System (NGITS); and
 - (b) the general terms and conditions for the provision of transmission services by the Natural Gas Transmission Utility (NGTU).
- Art.1.01 The purpose of the Access Code is to ensure that the NGITS provides fair, transparent, non-discriminatory, safe, reliable, secure, efficient and cost effective delivery of natural gas.
- Art.1.02 The objective of this Access Code is to:
- (a) promote the development of a competitive gas market by establishing uniform principles for owners and users of gas pipelines to allow transparent and non-discriminatory access to the natural gas transmission systems;
 - (b) prevent abuse of power by the NGTU;
 - (c) provide rights of access to natural gas transmission systems on conditions that are fair and reasonable for both Service Providers and Users; and
 - (d) provide basis for resolution of disputes.
- Art.1.03 The Access Code describes the responsibilities and obligations associated with all the functions involved in the supply, transmission and delivery of bulk natural gas over the NGITS including the functions of the NGTU, shippers and other Wholesale Suppliers, Distribution Companies and Bulk Customers who are not shippers.
- Art.1.04 The Access Code is issued by the Energy Commission and is based on the provisions of the Energy Commission Act, 1997 (Act 541):
- (a) Sections 24, 27 and 28 of the Energy Commission Act, 1997 (Act 541)

- (i) Section 24- Conditions of Transmission Licence;
- (ii) Section 27- Standards of Performance for Public Utilities; an
- (iii) Section 28 - Technical and Operational Rules of Practice.

(b) The Access Code shall be read as one with the following legislative instruments:

- (i) L.I. 1911: Natural Gas Distribution and Sale (Technical and Operational) Rules, 2007;
- (ii) L.I.1912: Natural Gas Distribution and Sale (Standards of Performance) Regulations, 2007;
- (iii) L.I. 1913: Natural Gas Transmission Utility (Technical and Operational) Rules, 2007;
- (iv) L.I 1936: Natural Gas Transmission Utility (Standards of Performance), Regulations, 2008; and
- (v) L.I. 2189: Natural Gas Pipeline Safety (Construction, Operation and Maintenance) Regulations, 2012.

Scope of the NGITS

Art.1.05 The NGITS shall include all pipelines from

- (a) regulatory and metering stations,
- (b) compressor stations,
- (c) natural gas storage facility,
- (d) a liquefied natural gas terminal or
- (e) directly from a processing facility.

to distribution centres, storage facilities and bulk customers as well as any associated regulating and metering equipment, or supply equipment that are for shared or common use irrespective of ownership, but excluding the West African Gas Pipeline.

Structure of the Access Code

Art.1.06 The Parts of the Access Code are generally organized according to the legal instruments by which they are to be implemented.

Art.1.07 Part A of the Access Code covers Section 24 of the Energy Commission Act 1997 (Act 541).

Art.1.08 Part B of the Access Code covers Section 27 and 28 of the Energy Commission Act 1997 (Act 541).

Art.1.09 Despite the separation, the different Parts of the Access Code are intended to be consistent and complementary for the satisfactory delivery of natural gas transmission services.

Art.1.10 Nothing in this Access Code precludes the application of evolving technologies and processes as they become available.

Open Access

- Art.1.11 Gas Transmission Services are to be provided on a non-discriminatory basis. Furthermore, Gas Transmission Service Agreements with shippers who are asset owners or affiliates of asset owners shall be subject to the following conditions:
- (a) The tariff charged shall be based solely on consideration for the Gas Transmission Service Agreement.
 - (b) The asset owner or its affiliate shall be subject to same level of liability to the NGTU and requirements for security and insurance as other Shippers.
 - (c) The terms of the Gas Transmission Service Agreement, including the tariff charged, shall not be influenced by the relationship with the asset owner or its affiliate.
 - (d) The NGTU shall not provide information about the NGITS and its operational aspects to its asset owner or its affiliate unless such information is also available to other Shippers or prospective Shippers.
 - (e) The NGTU and any party connected with the operation or management of the NGITS shall not have any interest in the purchase and sale of the natural gas being transported under the Gas Transmission Service Agreement.
 - (f) The NGTU's representatives responsible for negotiating and approving the Gas Transmission Service Agreement should not be employed by or seconded from the asset owner or its affiliate.

Agreements

- Art.1.12 For the purposes of the Code, the following Agreements are required for commercial operation in the Natural gas industry and copies lodged with the Energy Commission:
- (a) the **Framework Agreement** provided for under the NGTU (Standards of Performance) Regulations, 2008 (L.I. 1936)
 - (b) the **Network Connection Agreement**; and
 - (c) the **Gas Transmission Services Agreement**.

- Art.1.13 The Framework Agreement is between the NGTU referred in Section 23(1) of the Energy Commission Act 1997 (Act 541) and a Shipper. It sets out
- (a) The procedure for obtaining and terminating transmission and interconnection services for natural gas;
 - (b) The method of response to request for the NGTU's services; and
 - (c) Maps and diagrams of the NGTU's Natural Gas transmission facilities in the country as required under Section 24(2)(c) of the Energy Commission Act, 1997 (Act 541).
- Art.1.14 The Network Connection Agreement defines the terms and conditions between the NGTU and the Shipper for the physical connection of the shipper's facility to the NGITS for the sale or delivery of gas.
- Art.1.15 The Gas Transmission Services Agreement defines the terms and conditions between the NGTU and the Shipper for the transportation of gas through the NGITS.

SECTION 2 DEFINITIONS AND INTERPRETATION

“Affiliate” means with respect to a person:

- (a) Its parent company, being any company which directly or indirectly controls it;
- (b) any company that is for the time being directly or indirectly controlled by the Parent Company; or
- (c) in the case of a person which does not have a parent company or any person which for the time being directly or indirectly controls.

“Approved Tariff Methodology” means the methodology for setting tariffs for the transportation of gas in the Pipeline System.

“Asset Owner” means a person who owns the whole or part of the NGITS or any facility connected to the NGITS.

“Balancing Charge” includes a charge due to imbalance or difference between the input and output quantities recorded by the NGTU on behalf of a wholesale supplier, bulk customer or distribution company for a specific period and a charge debited or credited to the disbursement account as a result of any balancing action taken by the NGTU to ensure the physical balance of the transmission system.

“Bulk Customer” means a customer that purchases or receives natural gas products of an amount or level specified by the Commission.

“Calendar Year” means a period of twelve consecutive months commencing on the first day of January.

“Contract Duration” means the period during which the obligations of that Gas Transmission Service Agreement continue in effect.

“Contract Month” means the period commencing on the Start Date of any Gas Transmission Service Agreement and ending at the start of the first Day of the calendar month following the calendar month in which the Start Date occurred.

“Contract Year” means a period commencing on the Start Date of any Gas Transmission Service Agreement and ending at the start of the first Day of January of the calendar year following the calendar year in which the Start

Date occurred and each successive period of twelve Contract Months thereafter provided that the last Contract Year of the Contract Duration at the end of the last Day of the Contract Duration.

“Capacity Reserve” means a wholesale supplier, bulk customer or distribution company request for a specific quantity of natural gas at an entry point or off-take point of, the transmission system at a specific time as a result of the NGTU’s acceptance.

“Capacity Reservation Agreement” means an agreement between a wholesale supplier, bulk customer or distribution company and the NGTU for a specific quantity of natural gas at an entry point or off-take point of the transmission system at a specific time.

“Commission” means the Energy Commission established under section 1 of the Energy Commission Act, 1997 (Act 541).

“Connected System” means any gas network system that is connected to the transmission system but not part of the NGITS.

“Customer” means a person that contracts to purchase natural gas from a shipper.

“Consumer meter” means the meter that measures the transfer of gas from a NGTU to a bulk consumer.

“Day” means a calendar day.

“Disbursements Account” means an account where all amounts received from every bulk consumer and distribution company in respect of balancing charges are lodged;

“Dispute” means a controversy or claim arising out of or in connection with this Code.

“Distribution company” includes a person licensed under the Energy Commission Act, 1997 (Act 541) to distribute and sell natural gas to consumers without discrimination.

“Emergency” means 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 NGTU adversely affects, or is likely to have an adverse effect on the safety or operational integrity of the national transmission system

for natural gas or which results in or is likely to affect the safety of life, property or the environment and may refer to:

- (a) the event or circumstance which gives rise to the emergency;
- (b) the safe conveyance of natural gas by the transmission system being significantly at risk;
- (c) natural gas conveyed by the transmission 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 national transmission system;
- (d) an escape or suspected escape of natural gas;
- (e) the NGTU's inability to maintain safe pressures within the transmission system due to interruption or disruption to the transmission system or a connected system;
- (f) events or circumstances in a connected system either upstream or downstream of the transmission system;
- (g) an insufficiency of deliveries of natural gas to and from the transmission system; and
- (h) any actual or potential failure of or damage to the transmission system.

“End user” means a third party that has entered into an agreement with a wholesale supplier, bulk customer or distribution company to purchase or utilize natural gas to be off-taken from the transmission system.

“Entry point” means a point at which natural gas is transferred from a connected system to the transmission system.

“Expert” means a Person who has not less than ten years' experience in the Gas supply and transmission business and is knowledgeable on the subject of the dispute in respect of which such Person is appointed.

“Force majeure” means

- (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, bulk customer or distribution company, and
- (e) a strike, lock-out or other industrial trade dispute.

"Framework Agreement" means the agreement entered into between the NGTU and a Shipper which defines the procedure and conditions for obtaining and terminating transmission and interconnection services for natural gas, and defines all the contractual obligations of the two parties.

"Fuel Gas" means the quantity of gas used for or consumed in the operation and maintenance of the Pipeline System including compressor station fuel and fuel use for other utility purposes, together with line losses and other unaccounted-for losses of gas incurred in such operations.

"Gas" means any hydrocarbons or a mixture of hydrocarbons and other gases which, at a temperature of sixty (60) degrees Fahrenheit and atmospheric pressure, are predominantly in a gaseous state.

"Gas Purchase Agreement(s)" means, with respect to any Gas Transmission Service Agreement, the agreement or agreements between the Shipper and one or more Gas producers for the purchase of the gas to which the Gas Transmission Service Agreement refers.

"Gas Specification" means the Receipt Gas Specification or the Delivered Gas specification, as the context admits

"Gas Transmission Service Agreement" means the operational agreement between the NGTU and a shipper for the safe, reliable, efficient and cost effective delivery of gas from the facility of a wholesale supplier through the NGITS to the facility of a bulk customer or a distribution company;

"Gas year" means a twelve month period determined by the NGTU and declared to the Commission.

"Interoperating system" means a distribution, storage or transmission system other than the NGTU's transmission system that interoperates with the NGTU's transmission system

"Line Pack" means the quantity of Gas in the Pipeline System purchased from time to time by the NGTU to maintain the operating pressure of the Pipeline System.

“Maximum pressure” means the maximum pressure at which gas is supplied to a customer.

“Measurement equipment” means that equipment installed, or required by the NGTU to be so installed, at an entry point or at an off-take point for the purpose of measuring the flow rate, temperature and pressure of natural gas delivered to or off-taken from the Transmission System

“Meter” means natural gas meter.

“Minimum pressure” means the minimum pressure at which gas is supplied to a customer.

“Minimum quantity” means the quantity, if any, shown as the minimum quantity in a Gas Transmission Agreement, or otherwise agreed between a Shipper and the Transporter. If no Minimum Quantity is shown in a Gas Transmission Service Agreement, or otherwise agreed, it shall be deemed to be zero.

“MMBtu” means one million (1,000,000) British Thermal Units.

“Monthly Reserved Capacity” means the Daily Reserved Capacity multiplied by the number of Days in that Contract Month.

“Mscf and MMscf” means respectively one thousand (1,000) and one million (1,000,000) Standard Cubic Feet.

“Network Connection Agreement” means the agreement between the NGTU and a shipper which sets out the rights and responsibilities of both parties for the physical connection of the shipper’s facility to the NGITS for the sale or delivery of gas.

“Network Connection Conditions Agreement” means the agreement between the NGTU and a shipper which sets out the terms and conditions for connection of the shipper’s facility to the NGITS for the sale or delivery of gas.

“NGTU” means the person granted the transmission licence as a public utility under section 23 of the Energy Commission Act, 1997 (Act 541) to operate the national interconnected transmission system for the transmission of natural gas.

“Non- compliant gas” means natural gas tendered for delivery at the entry point which fails to conform to the entry specification.

“Normal business hours” means 0800 hours GMT to 1700 hours GMT.

“Off-take point” means the point at which gas is delivered to the bulk customer or distribution company from the NGTU.

“Off-spec gas” means natural gas which fails to conform to the off-take specification when the NGTU makes it available for off-take at an off-take point.

“Party” means a person who has consented to a Gas Transmission Service Agreement, or an ancillary agreement as the context admits, its successors or permitted assigns.

“Payment Dispute” means any dispute or difference:

- (a) specified in, arising out of, or in connection with, a Payment Dispute Notice;
- (b) in relation to the information contained in or provided with an Invoice;
- (c) arising out of or in connection with the NGTU’s failure to accept gas at the intake point or deliver gas to a off-take point; or
- (d) which the Parties agree is a payment dispute.

“Person” includes a body corporate, whether corporation aggregate or corporation sole and an unincorporated body of persons as well as an individual.

“Pipe” means a pipe of tubing used in the transportation of natural gas.

“Pipeline” means the physical facility including a pipe, valve, and metering equipment through which natural gas is transported.

“Psia” means pound per square inch (absolute).

“psig” means pound per square inch (gauge).

“Reasonable and Prudent Operator” means a Person seeking in good faith to perform its contractual obligations and, in so doing and in the general conduct of its undertaking, exercising that degree of skill, diligence, prudence and foresight which will reasonably and ordinarily be expected from a skilled and experienced operator engaged in the same type of undertaking under the same or similar circumstances or conditions, and the expression “standard of a Reasonable and Prudent Operator” shall be construed accordingly.

"Regulating and Metering Station (RMS)" means a facility that receives natural gas from a high pressure transmission pipeline, Liquefied Natural Gas storage or natural gas processing plant and from where distribution of natural gas begins.

"Reserved Capacity" means either daily Reserved Capacity or Monthly Reserved Capacity.

"Reservation charge" means the charge for the capacity reserved by a shipper.

"Shipper" means a wholesale supplier, bulk customer or distribution company registered by the NGTU and which contracts the NGTU to transport natural gas in the transmission system.

"Spare capacity" means any available capacity in the Pipeline System which is not Reserved Capacity.

"Standard Cubic Foot" or scf means the quantity of Gas that at sixty degrees Fahrenheit and at a pressure of 14.73 pounds per square inch (psia) occupies the volume of one cubic foot.

"Storage facility" means facility used to store gas including containerless storage of gas and storage capacity of gas pipelines being the property of an energy company or operated by that company including the part of the liquefaction of natural gas facility used for its storage, with the exception of that part of the facility which is used to production activity, as well as facilities serving exclusively the performance of the tasks of transmission system operators.

"Tariff" means a schedule of rates approved by the Public Utilities Regulatory Commission for a service provided by a public NGTU.

"Transmission pipeline" includes a pipeline from a hub of gathering lines, Regulating and Metering Stations, natural gas storage facility or a liquefied natural gas (LNG) terminal to distribution centres, storage facilities and bulk customers.

"Transmission System" means the National Interconnected Transmission System.

"Wholesale Supplier" means a person licenced under the Energy Commission Act, 1997 (Act 541) to install and operate facilities to procure

or process natural gas for sale to bulk customers or to a distribution company for distribution and sale to consumers.

SECTION 3 ROLES AND RESPONSIBILITIES OF ENTITIES

Background

Art.3.00 The open-access transmission service that is required for the NGITS in Ghana calls for extensive coordination of the roles and responsibilities of the several actors to successfully deliver the required service.

Roles of Entities

Entities

Art.3.01 The **NGTU** is the exclusive and independent operator of all assets in the NGITS irrespective of ownership.

Art.3.02 The **Natural Gas Technical Committee (NGTC)** of the Energy Commission shall have the mandate to oversee the development, implementation and monitoring of the technical and operational rules of practice for the NGTU.

Art.3.03 An **NGITS Asset Owner** shall design, construct, and own the transmission assets in accordance with prescribed standards.

Art.3.04 A **Wholesale Supplier** shall construct, maintain and operate processing plant, LNG facility or supply facility in accordance with the prescribed standards and in consultation with the NGTU to provide supply through the NGITS to consumers.

Art.3.05 A **Distribution Company** who wishes to receive natural gas from the NGITS shall design, construct and operate its network connected to the NGITS in accordance with prescribed standards and in consultation with the NGTU.

Compliance with laws and industry standards

Art.3.06 A Shipper who may wish to interconnect the NGITS to access natural gas from neighbouring countries shall do so in accordance with the provisions of this Access Code and other relevant codes and regulations.

Art.3.07 The NGTU and all shippers, wholesale supplier, asset owners, Bulk Customers and Distribution Companies shall comply with all relevant laws, the requirements of the Access Code, permits, Best Practice and applicable international standards.

Responsibilities of the NGTU

Art.3.08 The NGTU shall operate and maintain the NGITS to provide services in accordance with the Performance and Reliability Standards of the Access Code as contained in Part B of the Access Code. The NGTU's responsibilities in this regard shall include:

- (a) operation and maintenance of the NGITS;
- (b) developing the procedures for connecting to the NGITS and making the procedures publicly available;
- (c) entering into Framework Agreements with entities requiring connection to the NGITS;
- (d) entering into Gas Transmission Service Agreements with shippers;
- (e) development of procedures for operations including the development of a procedure manual;
- (f) operational planning;
- (g) interruption and congestion management;
- (h) performance reporting;
- (i) coordination of all equipment and facilities;
- (j) system integrity and security for the NGITS;
- (k) capacity determination;
- (l) the maintenance of the disbursement accounts;
- (m) physical balancing of the transmission system;
- (n) operational safety and supply requirements;
- (o) maintaining required pressure and composition of gas in the pipeline;
- (p) maintaining and operating the main measuring equipment at the entry or off-take points;

- (q) set fair and transparent balancing rules;
- (r) make tariff proposals to PURC for approval;
- (s) measurement of receipt and delivery quantities on behalf of shipper at entry points and off-take points.

Art.3.09 The NGTU shall make available

- (a) maps and diagrams of its facilities in the country.
- (b) details of capacity and location of all entry and off-take points available in the NGITS.

This information shall be submitted to the Energy Commission and made publicly available at the offices of the NGTU.

Responsibilities of Wholesale Supplier, Distribution Company or Bulk Customer

Art.3.10 A Wholesale Supplier, Distribution Company or Bulk Customer shall be responsible for:

- (a) maintaining and operating check measuring equipment at the entry or off-take points; and
- (b) applying for access to the NGITS;
- (c) make available maps and diagrams of its facilities in its operational area;
- (d) maintenance and operation of its facilities interconnected to the NGITS.

SECTION 4 PROCEDURE FOR OBTAINING THE FRAMEWORK AGREEMENT

Art.4.00 Any entity that intends to utilize the NGITS for commercial operations in the natural gas industry shall do so in accordance with the terms and conditions defined by the NGTU and approved by Energy Commission which shall include the following:

- (a) the procedure to obtain and terminate transmission and interconnection services for natural gas to both existing and new connection points;
- (b) the method of response to any request for the NGTU's services;
- (c) the minimum technical capability and resources required for the entity to carry out obligations under this Access Code;
- (d) the minimum financial capacity required to carry out obligations under this Access Code; and
- (e) the Receipt Gas Quality that defines gas that qualifies to be introduced into the NGITS.

Art.4.01 A person who intends to engage in commercial operations in the natural gas industry shall enter into a Framework Agreement with the NGTU prior to lodging application for connection.

Art.4.02 A Framework Agreement shall only be concluded with an entity holding a valid licence or provisional licence issued by the Energy Commission.

SECTION 5 PROCEDURE FOR CONNECTION TO THE TRANSMISSION SYSTEM

General Conditions for Connecting to the Transmission System

Art.5.00 Any person applying for connection to the network shall have legal title or right to use the facility or network that is to be connected.

Art.5.01 A person applying for connection to the network, shall have the licence (or provisional licence) for conducting business, as required by the provisions of the Energy Commission Act, 1997 (Act 541).

Art.5.02 Connection to the network shall take place under the terms of the network connection agreement after the applicant has fully satisfied all the “conditions for connection to the network” as specified by the NGTU.

Art.5.03 The conditions and methods of interoperation shall be specified in the Network Connection Conditions Agreement to cover the following facilities;

- (a) direct lines,
- (b) interconnector pipelines to transmission systems of other operators,
- (c) distribution networks,
- (d) storage facilities,
- (e) supply and receipt installations,
- (f) gas mixing facilities,
- (g) gas processing installations, and
- (h) liquefied natural gas installations.

Application for Connection to the Transmission System.

Art.5.04 The entity applying for connection to the network (the applicant) shall submit an application to the NGTU in accordance with the procedures specified by the NGTU.

- Art.5.05 If gas is to be transmitted to a new off-take point in the transmission system, a forecast specifying the planned quantity of gas to be off-taken at this point should be attached to the application.
- Art.5.06 The NGTU shall examine the application that was filed by the applicant on the basis of information provided in the application and the attached documents.
- Art.5.07 In the event that the applicant fails to provide all the necessary information specified by the NGTU:
- (a) the NGTU shall acknowledge receipt of the application within 10 working days of the date of receipt and specify the need to provide additional information if necessary;
 - (b) the applicant shall provide the additional information requested within 21 days of the date of receipt of the notice referred to in Art.5.07 (a);
 - (c) if the additional information is not submitted within the specified deadline, the NGTU may reject the application.
- Art.5.08 In the event that the application provides all the necessary information
- (a) the NGTU shall acknowledge receipt of the application within 10 working days of the date of receipt,
 - (b) the NGTU shall assess whether connection to the network is technically possible and whether the facilities, installations and networks of the applicant satisfy the technical and operational requirements for the:
 - (i) security of the transmission system operations;
 - (ii) security of the transmission system against damage caused by the inappropriate operation of the connected facilities, installations and networks;
 - (iii) security of the connected facilities, installations and networks against damage in the event of a failure or the introduction of restrictions in the off-take or supply of gas,
 - (iv) maintenance of the quality parameters of the gas at the place of connection of the facilities, installations and networks;

- (v) stipulated environmental protection standards; and
- (vi) measurements of the amounts and parameters required for managing network traffic and billing for the transmission of gas.

Art.5.09 If it is not possible to connect to an existing entry or off-take point, the NGTU shall specify the conditions for connection to a new point.

Art.5.10 When reviewing the application, the NGTU shall take into consideration the following:

- (a) Gas Transmission Service Agreements that have been concluded;
- (b) applications for the provision of gas transmission services submitted earlier; and
- (c) Network Connection Conditions Agreement that has already been signed.

Art.5.11 The connection conditions produced by the NGTU shall specify the following:

- (a) place of connection of the gas pipelines or gas installations to the transmission system;
- (b) extent of the construction or expansion of the transmission system necessary for making the connection;
- (c) technical parameters of the connection;
- (d) gas quality requirement according to L.I. 1913;
- (e) minimum and maximum pressures for the supply and off-take of gas at the connection point;
- (f) requirements on the measurements of the supplies and receipts of gas and the place of installation of the measurement system;
- (g) characteristics of the supply and receipts of the gas, including the minimum and maximum hourly, daily and annual quantities of gas;
- (h) location for the delivery and off-take of the gas;

- (i) pipeline ownership limits of the parties
- (j) principles on which the customer uses other sources of gas in the event of stoppages or restrictions in the contracted supply of gas;
- (k) forecast cost of making the connection;
- (l) requirements for equipping the gas station, the type of measurement system and the technical conditions for corrosion protection;
- (m) expected date for starting to supply and receive gas; and
- (n) purpose for which the gas will be used.

Art.5.12 In addition to requirement in Art.5.11, the conditions for connecting a storage facility shall specify the

- (a) active capacity of the storage facility;
- (b) characteristics of the operations of storage facilities; and
- (c) maximum and minimum injection and withdrawal capacity of the gas to and from the storage facility.

Art.5.13 In addition to requirement in Art.5.11, the conditions for connecting gas supply sources with the transmission system shall also specify the composition of the gas supplied to the transmission system.

Art.5.14 The NGTU may refuse to grant connection to the NGITS on the following grounds:

- (a) the person seeking connections is not licenced by the Energy Commission.
- (b) the applicant does not
 - (i) satisfy the minimum technical capability defined in the connection procedure,
 - (ii) satisfy the minimum financial capability defined in the connected procedures; or
- (c) the NGTU has reasonable grounds for believing that granting a connection would impose unreasonable risk to the integrity and safety of the Pipeline System and its operation, including the security of the NGTU's service commitments; and

- (d) the provision of transmission services to the applicant could result in a reduction of the reliability of transmission or quality of gas or could prevent the NGTU from fulfilling other duties imposed on it regarding protection of the interests of customers and environmental protection.

Art.5.15 In the event of a refusal to grant a connection to the transmission system, the NGTU shall

- (a) inform the applicant and the Commission of the refusal, providing the grounds for the refusal,
- (b) at the request of the applicant, provide information on the steps that the applicant should take to obtain a connection to the transmission network and collect the charge agreed with the applicant for the preparation of the information.

Art.5.16 The NGTU shall respond to an application for connection within a deadline of no longer than:

- (a) Ninety days from the date of submission of a completed application for applicants involved in transmission, distribution or storage of gas, having a liquefied natural gas facility or gas processing facility; and
- (b) Sixty days for other applicants from the date of submission of a completed application, that satisfies the formal requirements.

Art.5.17 A change in the connection conditions is only possible by submitting a new application to the NGTU.

Art.5.18 In the event of several applications being submitted for connection to the transmission network, for which the same technical capacity of the transmission network would be utilised, or which concern an area entirely or in part overlapping territorially the NGTU shall specify the connection conditions for all applicants whose applications meet the technical connection criteria, and inform the applicants of the existence of the other applicants.

Network Connection Conditions Agreement

Art.5.19 The Network Connection Conditions Agreement constitutes the grounds for starting design work, as well as construction and assembly work based on the conditions specified in the agreement.

Art.5.20 The Network Connection Conditions Agreement shall specify the following:

- (a) the rights and duties of the NGTU and applicant;
- (b) the contracted capacity as specified in the Framework Agreement for the connected entry or off-take point;
- (c) date of connection of the entity's network to the NGITS;
- (d) the timing for connecting;
- (e) the level of the charge for connection;
- (f) the demarcation of the transmission network and the relevant equipment or plant;
- (g) the scope of works required to make connection;
- (h) the requirements for the location of the measuring and billing system and its parameters;
- (i) the conditions for providing access to the facilities of the applicant in order to build or expand the network.; and
- (j) the liability or penalties of the parties for failing to meet the specified Conditions including;

(k) liabilities for delay in completion of work specified in the agreement,

(l) liabilities for failure to perform the duties referred to in Art.5.20(a), or

(m) liabilities for withdrawal from the agreement.

Art.5.21 The conditions for connection to the transmission network shall be sent to the applicant together with a draft Network Connection Conditions Agreement, and shall be

(a) subject to negotiations between the NGTU and the applicant,

(b) valid for thirty days from the day of delivery to the applicant

Art.5.22 The NGTU shall be obliged to enter into the Network Connection Conditions Agreement if all conditions for connecting to the network have been satisfied by the applicant.

Art.5.23 The conditions for the conclusion of the Network Connection Conditions Agreement shall be as follows:

(a) if several applications for connection to the transmission network for which conditions for connection have been specified depend on the same technical capacity of the transmission network, the NGTU shall process Network Connection Conditions Agreements in the order in which the complete applications were submitted;

(b) after submission of completed applications, the applicants shall be entitled to a thirty-day exclusivity for negotiations conducted with the NGTU regarding the content of the Network Connection Conditions Agreement;

(c) if the Network Connection Conditions Agreement is not signed and delivered to the NGTU by the deadline mentioned in Art.5.23(b) the NGTU shall begin negotiations regarding the draft Network Connection Conditions Agreement with the next applicant;

(d) the thirty-day deadline mentioned in Art.5.23(b), takes effect from the day of delivery of the conditions for the first application submitted, along with the draft Network Connection Conditions

Agreement. Subsequent application begins from the day of informing them of the possibility of commencing with negotiations;

- (e) the NGTU shall inform entities mentioned in Art.5.23(a) of:
 - (i) the determination of the conditions and sending to all other applicants the draft Network Connection Conditions Agreements which contain the same technical information;
 - (ii) either concluding Network Connection Conditions Agreements; or
 - (iii) not concluding Network Connection Conditions Agreement due to insufficient information to meet the technical conditions for connection to the transmission network (i.e. expiry of validity of transmission network connection conditions).

SECTION 6 PROCEDURE FOR CONCLUDING THE GAS TRANSMISSION SERVICE AGREEMENT

Formal and Legal Conditions

Art.6.00 The NGTU shall only provide gas transmission services to persons who have been duly licensed by the Energy Commission as a Wholesale Supplier, Bulk Customer or a Distribution Company

General Conditions for the Provision of Gas Transmission Service

Art.6.01 A person who intends to transport gas through the NGITS shall enter into a Gas Transmission Services Agreement with the NGTU.

Art.6.02 A Gas Transmission Services Agreement shall consist of a Capacity Reservation Agreement and the conditions for transportation of gas through the NGITS.

Art.6.03 The obligation of the NGTU to make capacity available under the Natural Gas Transmission Utility (Standards of Performance) Regulations 2008 L.I. 1936, the Framework Agreement, Network Connection Conditions Agreement and any ancillary agreement shall depend on the availability of the capacity having regard to, among other things, the NGTU's estimate of anticipated discharge of natural gas from the transmission system and anticipated deliveries of natural gas to the transmission system.

Art.6.04 The NGTU shall render transportation service to a shipper under the terms of the Gas Transmission Services Agreement after the applicant fully satisfies the conditions specified by the NGTU

Art.6.05 The prospective shipper shall specify the entry point(s) and off-take point(s) required for the transportation of the gas.

Art.6.06 The period for the provision of gas transmission services by the NGTU to a shipper shall be as agreed between the parties.

Art.6.07 The Gas Transmission Service Agreement shall be for the provision of gas transmission service under fixed conditions where the shipper is assured of continuous performance of the gas transmission service

agreed upon, except in the case of emergency or planned work being done on the transmission system.

Art.6.08 In the event that the NGTU is not able to provide the services under fixed conditions, the NGTU may provide the gas transmission service under interruptible conditions.

Art.6.09 The Gas Transmission Service Agreement shall only be concluded under conditions where:

- (a) the transmission system has technical capacity enabling the transmission of gas from the entry points to the off-take points specified in the application for the provision of gas transmission services;
- (b) the equipment at the entry and off-take points enables metering and regulation of the gas being transported;
- (c) the pressure specified in the application at the given entry or off-take point falls within the range, the maximum and minimum thresholds of which the NGTU specifies;
- (d) the quality parameters of the gas introduced for transmission at the entry points specified in the application shall not result in a reduction of the quality of gas; and
- (e) the conclusion of the agreement does not prevent the NGTU from fulfilling its obligations as required under the Legislative Instruments covering the transmission of Natural Gas.

Art.6.10 The procedure for concluding a Gas Transmission Service Agreement requires the following steps:

- (a) the submission of an application for a Gas Transmission Service Agreement to the NGTU including a request for reservation of capacity on the NGITS;
- (b) the review of the application by the NGTU and the conveyance by the NGTU to the applicant of a Capacity Reservation Agreement and the conditions for transportation of gas;
- (c) signing of Capacity Reservation Agreement;

- (d) submission of financial security and evidence of sale and purchase agreements;
- (e) signing of the Gas Transmission Service Agreement; and
- (f) implementation of the Gas Transmission Service Agreement.

Application for the Gas Transmission Service Agreement

Art.6.11 In order to ensure non-discriminatory treatment of all applicants for the gas transmission services, a standard application form shall be used for all applications for gas transmission service, and this application form shall be provided by the NGTU and made publicly available at its offices.

Art.6.12 The applicant shall submit an application to the NGTU, which submissions shall include:

- (a) evidence of licensing by the Energy Commission;
- (b) entry points and off-take points;
- (c) transmission capacity required; and
- (d) period for which the gas transmission service is required.

Art.6.13 The application for the Gas Transmission Service Agreement may be submitted at the following times:

- (a) an application for the transmission of gas for a period of at least one year, should not be earlier than three years before the expected date on which transmission is to start and not later than 1st January of the year preceding the year in which transmission is to start; and
- (b) an application regarding the transmission of gas for a period of less than a year, should not be earlier than six months and not later than three months before the expected date of the start of transmission.

Art.6.14 An application received earlier shall be returned without being reviewed, whereas an application received later shall be reviewed after all other pending applications have been reviewed.

Art.6.15 The NGTU shall acknowledge receipt of all applications for gas transmission service within ten days of receipt of the application.

Review of the Application for Gas Transmission Service Agreement

Art.6.16 The NGTU shall review the application filed by the applicant taking into consideration the following:

- (a) the current state of gas transmission services provided;
- (b) earlier applications for gas transmission services received ; and
- (c) Network Connection Conditions Agreements already concluded.

- Art.6.17 Based on the information provided in the application and the documents attached to it, the NGTU shall examine the application for the gas transmission services to ensure conformity with the requirements of the Gas Transmission Service Agreement.
- Art.6.18 In the event that the applicant fails to provide all the required information, or if the application submitted contains errors or omissions:
- (a) the NGTU shall within ten working days of the date of receipt of the application, inform the applicant of the need to provide additional information;
 - (b) the applicant shall provide the additional information requested within twenty- one days of the date of receipt of the notice.
- Art.6.19 If the additional information is not submitted within the specified deadline, the NGTU may reject the application.
- Art.6.20 In the event that the application meets the formal requirements, the NGTU shall undertake a technical analysis of the application to determine whether there is capacity in the transmission system to handle the request.
- Art.6.21 In the event that there is no capacity at the entry or off-take point specified in the application, the applicant shall be requested to make submissions specifying connection to a new entry or off-take point in the transmission system.
- Art.6.22 In the case of storage facilities, if the technical parameters of the storage facility wherein the compulsory reserves of gas were meant to be maintained do not ensure the possibility of supplying those reserves to the transmission system within forty days, the NGTU shall inform the Commission and the applicant of this matter.
- Art.6.23 The NGTU may reject an application for a Gas Transmission Service Agreement on the following grounds:
- (a) the applicant is not licenced by the Energy Commission
 - (b) the conclusion of the Gas Transmission Service Agreement:

- (i) could reduce the reliability of the delivery and quality of gas below the level specified in the LI 1936;
- (ii) could result in a detrimental change in the scope of their delivery to customers connected to the transmission system; and
- (iii) does not meet environmental protection requirements.

Art.6.24 The NGTU shall inform the applicant of the outcome of the review of the application no later than sixty working days from the date of receipt of an application that is correct in formal and legal terms.

Art.6.25 If the application is accepted, the NGTU shall send to the applicant a draft Capacity Reservation Agreement prepared on the basis of the currently applicable specimen via internet and courier within ten working days of notification.

Art.6.26 The applicant shall submit the signed Capacity Reservation Agreement to the NGTU within fifteen working days of receipt of the draft Capacity Reservation Agreement.

Art.6.27 If the applicant fails to submit the signed draft Capacity Reservation Agreement within the deadline as specified in Art.6.26, the application for the provision of the gas transmission services shall be rejected and the applicant shall be informed by the NGTU forthwith.

Art.6.28 If the rejected application affected the review of other applications for the provision of gas transmission services, the NGTU shall analyse them once again.

Art.6.29 In the event of rejection of the application or the refusal to sign the Capacity Reservation Agreement:

- (a) the NGTU shall immediately notify the applicant and the Energy Commission stating the justification for the refusal;
- (b) a person aggrieved by the refusal of the NGTU to sign the Capacity Reservation Agreement may lodge a complaint with the Minister within ten days after receipt of the NGTU decision; and

- (c) the Minister shall within thirty days after receipt of the complaint make a decision on it.

Art.6.30 An applicant whose application is rejected for any reason may submit a new application if the applicant so wishes.

Issuance of Capacity Reservation Agreement

Art.6.31 The NGTU shall submit to the applicant a signed Capacity Reservation Agreement within fifteen working days of the date of delivery of the agreement signed by the applicant and obtain evidence of receipt by the applicant.

Art.6.32 The agreement that is signed by the applicant shall be synonymous with the acceptance of all conditions of the gas transmission service agreement and all the provisions of the Access Code

Art.6.33 The Capacity Reservation Agreement shall specify the level of contracted capacity within the NGITS including the entry and off-take point(s).

Art.6.34 The Capacity Reservation Agreement shall define the level of contracted capacity for the whole of the period of validity of the contract at a uniform level for all months.

Art.6.35 The Capacity Reservation Agreement shall be valid for a period of six months from the date of signature within which period the applicant shall :

- (a) submit to the NGTU all the required documents as referred to in Art.6.36; and
- (b) satisfy the conditions specified in the Capacity Reservation Agreement.

Concluding the Gas Transmission Service Agreement

Art.6.36 Within six months of receipt of the signed Capacity Reservation Agreement, the applicant shall submit the following to the NGTU to enable confirmation and signing of the substantive Gas Transmission Service Agreement:

- (a) financial security at a level defined by the NGTU
- (b) agreements, promises of agreements, preliminary agreements or excerpts thereof:
 - (i) those concluded with suppliers confirming the obligation of these suppliers to supply gas to the entry points to the NGTU's transmission system;
 - (ii) those regarding the storage of gas if the applicant declares a requirement for transporting gas to and from a storage facility connected to the NGTU's transmission system;
 - (iii) those concluded with operators of interoperating transmission or distribution systems confirming the obligation to transmit or distribute gas beyond the off-take points of the NGTU's transmission system; and
 - (iv) gas sales agreements concluded with end users (consumers), who receive gas directly from the transmission system, confirming their obligation to receive this gas at the off-take point from the transmission system

Art.6.37 The level of financial security submitted by the applicant shall be equal to twice the average monthly value of the entity's financial liabilities to the NGTU in the given gas year arising from the performance of the gas transmission service, specified on the basis of the contracted capacity and quantities provided in the approved annual nomination.

Art.6.38 The financial security referred to in Art.6.37 shall be presented in the following forms:

- (a) a cash deposit made to a bank account specified by the NGTU, which shall be returned after the expiry of the Gas Transmission Service Agreement together with bank interest at the level specified for that

account at the time the deposit was made, less costs of holding the account and costs of the bank transfer;

- (b) an irrevocable and unconditional bank or insurance guarantee payable on the NGTU's first demand; and
- (c) any other irrevocable, unconditional form of financial security that is payable on the first demand and which is accepted by the NGTU.

Art.6.39 The agreements or excerpts from the documents referred to Art.6.36(b) above should contain at least the following data:

- (a) the period of validity of the agreement with all clauses limiting its implementation, together with the termination conditions;
- (b) the contracted capacities together with the definition accepted in the given agreement in the individual years of validity of the agreement;
- (c) the contractual quantities of gas in the individual years of validity of the agreement,
- (d) the minimum and maximum pressures of gas at the entry points and off-take points; and
- (e) the quality parameters of the gas,

- Art.6.40 The agreement in Art.6.36(b) shall be submitted in:
- (a) an original form,
 - (b) an excerpt of the agreement prepared by a notary public or a photocopy certified as being in conformity with the original by a legal adviser or attorney.
- Art.6.41 The excerpts of the agreements in Art.6.36(b) shall contain a declaration of the people authorised to represent the applicant and that the data contained in the excerpt is consistent with the wording of the agreements concluded by the applicant.
- Art.6.42 The NGTU shall acknowledge receipt of all required documentations for gas transmission service within ten days of receipt of the submissions.
- Art.6.43 The NGTU shall examine the submissions for the gas transmission services to ensure conformity with the requirements, including the requirements for financial security specified in Art.6.36(a).
- Art.6.44 In the event that the applicant fails to provide all the required submissions, or if the submissions contain errors or omissions:
- (a) the NGTU shall within ten working days of the date of receipt of the submissions, inform the applicant of the need to provide additional information;
 - (b) the applicant shall provide the additional information requested no later than thirty working days from the expiration date of the of the Capacity Reservation Agreement.
- Art.6.45 In the event that submissions provided by the applicant indicated a transmission capacity requirement that differs from the capacity originally requested, the NGTU and the applicant shall negotiate the new capacity provided that the final capacity shall not exceed the originally requested capacity.
- Art.6.46 The NGTU shall inform the applicant of the outcome of the review of the submissions no later than twenty working days from the date of receipt of a complete set of submissions.

- Art.6.47 If the submissions meet all the requirements, the NGTU shall send to the applicant a draft Gas Transmission Service Agreement prepared on the basis of the currently applicable specimen via internet and courier within ten working days of notification.
- Art.6.48 The applicant shall submit the signed draft agreement to the NGTU within fifteen working days of receipt of the draft Gas Transmission Service Agreement.
- Art.6.49 If the applicant fails to submit the signed draft Gas Transmission Service Agreement within the deadline, the application for the provision of the gas transmission services shall be rejected, the Capacity Reservation Agreement shall be terminated and the applicant informed by the NGTU forthwith.
- Art.6.50 If the rejected application affected the review of other applications for the provision of gas transmission services, the NGTU shall analyse them once again.
- Art.6.51 In the event of rejection of the application or the refusal to sign the Gas Transmission Service Agreement,
- (a) the NGTU shall immediately notify the applicant and the Energy Commission stating the justification for the refusal.
 - (b) a person aggrieved by the refusal of the NGTU to sign the Gas Transmission Service Agreement may lodge a complaint with the Minister within ten days after receipt of the NGTU decision
 - (c) The Minister shall within thirty days after receipt of the complaint make a decision on it.
- Art.6.52 An applicant whose application is rejected for any reason may submit a new application if the applicant so wishes.

Issuance of Gas Transmission Service Agreement

- Art.6.53 The NGTU shall submit to the applicant a signed Gas Transmission Service Agreement by courier within two weeks of the date of delivery of the agreement signed by the applicant.

- Art.6.54 The agreement that is signed by the applicant is synonymous with the acceptance of all conditions of the Gas Transmission Service Agreement and all the provisions of the Access Code.
- Art.6.55 The Gas Transmission Service Agreement shall specify the level of contracted capacity within the NGITS including the entry and off-take point(s).
- Art.6.56 The Gas Transmission Service Agreement shall define the level of contracted capacity for the whole of the period of validity of the contract at a uniform level for all months.
- Art.6.57 The capacity of the Gas Transmission Service Agreement shall not exceed the capacity specified in the Capacity Reservation Agreement.
- Art.6.58 The level of contracted capacity should lie within the measurement range of the measuring devices and the capacity of the technological facilities installed at the given entry or off-take point.
- Art.6.59 The contracted capacity may be changed in accordance with Art.7.16 to Art.7.24

SECTION 7 ADMINISTRATION OF GAS TRANSMISSION SERVICE AGREEMENTS

Suspension of Gas Transmission Service Agreement

Art.7.00 The NGTU is authorised to suspend the Gas Transmission Service Agreement in the event that a shipper or his customer,

- (a) is completely or partially bypassing or tampering with the metering system;
- (b) is falsifying the measurements taken by the metering system particularly in the event of damage to the fittings at the off-take point causing it to exceed the upper limit of the measurement range;
- (c) has an installation located on their sites that creates a direct threat to lives, health or the environment,
- (d) is in arrears with payment for the services provided by at least a month after the passage of the payment term, despite the prior written notification of the intention to terminate the agreement and the award of an additional deadline of two weeks for the payment of the outstanding and current receivables.

Art.7.01 Despite the situations described in Art.7.00, the NGTU may withhold the supply of gas to the off-take point at the shipper's request on the conditions specified in a separate agreement concluded between the NGTU and the shipper.

Art.7.02 The NGTU shall restart transmission of the full quantities of gas immediately the reasons for withholding no longer exist.

Art.7.03 The NGTU is not liable for the failure to transmit gas in the event of withholding the transmission of gas.

Termination of the Gas Transmission Service Agreement

Art.7.04 The Gas Transmission Service Agreement shall be terminated on the following grounds:

- (a) expiry of the licence or the validity of the licence has not been extended by the Commission;

- (b) if the party or its legal successor has not received a new licence enabling the further performance of the agreement;
- (c) the Energy Commission has not ordered the party to continue to conduct the activities despite the expiry of the licence; and
- (d) upon withdrawal of the licence by the Energy Commission regarding activities related to the contract agreement.

Art.7.05 Notwithstanding Art.7.04, the Gas Transmission Service Agreement may be terminated by written agreements of the parties.

Art.7.06 The party to which the circumstances described in Art.7.05 applies is obliged to inform the other party in writing at least fourteen days in advance of the state on which the agreement is to be terminated.

Art.7.07 Despite other provisions specified in this code, shipper is entitled to the right to terminate the Gas Transmission Service Agreement that is concluded for an indefinite period after the passage of at least twelve months of the provision of the gas transmission service under the agreement, by providing a notice period of three months.

Art.7.08 In the event of the termination of the agreement by the shipper on the grounds described in Art.7.07, the NGTU shall be entitled to demand compensation.

Art.7.09 The NGTU is authorised to terminate the agreement with a notice period of one month in the event that:

- (a) the shipper is in arrears with payments for the services provided by at least a month after the payment term has expired, despite the prior written notification of the intention to terminate the agreement; and
- (b) the award of an extra period of at least two weeks to pay the outstanding and current receivables if the shipper has failed to pay all current and outstanding receivables within the next thirty days after the passage of the deadline set.
- (c) the shipper fails to supplement the financial security to the full amount in the form specified in the Gas Transmission Service Agreement or the validity is not extended despite the written

demand to supplement it within the specified deadline of no shorter than fourteen days;

- (d) that the shipper fails to observe the restrictions in gas off-take that have been introduced in accordance with the respective provisions of the LIs and provisions of this code; and
- (e) when the shipper fails to meet the requirements provided for by the Legislation Instruments as listed in Art.1.04(a)(ii) to (b)(vi) and this Access Code;

- Art.7.10 In the event that the shipper, suppliers or customers for which the shipper is responsible for causes a threat to the security of the NGITS operations or the performance of the Gas Transmission Service Agreement that has been concluded, especially by introducing gas for transmission of an inadequate quality or through an imbalance in excess of the admissible limits, the NGTU is authorised to terminate the agreement in part with respect to the contracted capacity at the points where the reaction resulted in the emergence of a threat to the security of the transmission system operations, with a notice period of one month.
- Art.7.11 The shipper is authorised to terminate the agreement by providing a notice period of one month in the event that the NGTU fails to perform the gas transmission service for a period of thirty cumulative working days in the gas year or the NGTU breaches material provisions of the gas transmission service agreement and fails to eliminate their consequences within the deadline agreed by the parties.
- Art.7.12 A party is not entitled to terminate the agreement if the reasons that constitute the grounds for its termination were as a result of force majeure.
- Art.7.13 Notwithstanding Art.7.12, if the force majeure or the elimination of the consequences of force majeure lasts longer than sixty days, either party is entitled to terminate the Gas Transmission Service Agreement with immediate effect.
- Art.7.14 In the event of the termination of the agreement by the NGTU in the situations described in Art.7.09 the NGTU shall not be liable for any possible losses or lost benefits on the part of the shipper.
- Art.7.15 In the event of the termination of the agreement by the shipper on the grounds described in Art.7.11, the shipper shall be entitled to demand compensation.

General Conditions for Modifying the Contracted Capacity

- Art.7.16 The shipper may apply to the NGTU by 1st January of the given gas year to change the contracted capacity for the following gas year. The shipper

should attach the documents specified in Art.6.12 and Art.6.36 to the application.

Art.7.17 With respect to those entry and off-take points for which the shipper has not applied with an application to change the contracted capacity for the following gas year within the deadline, the shipper is entitled to the contracted capacity specified in the Gas Transmission Service Agreement;

Art.7.18 The NGTU shall review the application to change the contracted capacity by taking the following into consideration:

- (a) the Gas Transmission Service Agreement currently being executed;
- (b) applications submitted earlier for the provision of the gas transmission service or applications to change the contracted capacity; and
- (c) Network Connection Conditions Agreement.

- Art.7.19 The order in which applications are reviewed shall be determined by the date of submission of a complete application, which has passed the formal and legal examination.
- Art.7.20 In the case of applications submitted on the same day, the order in which they are reviewed shall be the order in which they are received by the NGTU.
- Art.7.21 The NGTU shall inform the shipper applying for a change in the contracted capacity for specific entry and off-take points that it is or not possible to change the contracted capacity within twenty working days.
- Art.7.22 The NGTU shall refuse to change the contracted capacity in the event that the conditions specified in Art.6.16 and Art.6.36 are not satisfied.
- Art.7.23 A change in the contracted capacity shall be effected in the form of an annex to the original Gas Transmission Service Agreement.
- Art.7.24 If the change in the contracted capacity at the given entry point requires the reconstruction of this point, the applicant shall bear the cost of the reconstruction.

General Conditions for Adjusting Financial Security

- Art.7.25 Within the limits specified in Art.6.36 the NGTU or shipper has the right to demand that the security is adjusted during the validity of the Gas Transmission Service Agreement, if the level of the shipper's liabilities with respect to the NGTU, which are established on the basis of invoices raised are higher or lower by more than ten percent of the value of the financial security.
- Art.7.26 The shipper shall present appropriate financial security to the NGTU in the event of a loss of the financial rating or the security expires.
- Art.7.27 In the event that the shipper punctually pays for the services provided by the NGTU:
- (a) the level of the financial security shall each year be reduced from the date of the first payment by twenty five percent of the original value.
 - (b) the lowest level to which the level of the financial security may be reduced is twenty five percent of the original value.
- Art.7.28 In the event that the shipper is late paying for the services provided by the NGTU:
- (a) the level of the financial security shall be increased by twenty five of the original value.
 - (b) notwithstanding Art.7.27(a) the maximum value of the financial security shall not exceed the original value.

SECTION 8 PROVISION OF TRANSPORTATION SERVICES

Charges

Art.8.00 The amount payable by a shipper in respect of the Transmission Services for each contract month of any Gas Transmission Service Agreement entered into pursuant to this Access Code shall comprise of charges derived by calculation from the Approved Tariff Methodology of the Public Utility Regulatory Commission (PURC).

Art.8.01 The charges payable by each shipper shall comprise:

- (a) a Reservation Charge, which is a charge for the capacity reserved by a shipper;
- (b) a Usage Charge, which is a charge set to cover the cost of all Fuel Gas used by the NGTU and that varies with the quantity of Gas delivered to each shipper at its Off-take point;
- (c) a surcharge payable in respect of any Excess Quantity pursuant to Art.8.10; and
- (d) the Attributable PURC/Commission charge.

Reservation Charge

Art.8.02 The Reservation Charge shall be expressed as an amount in United States Dollar or its equivalent in Ghana Cedis at the prevailing Bank of Ghana exchange rate per MMBtu per day or Giga Joules (GJ) per day.

Art.8.03 The Reservation charge shall:

- (a) be calculated in accordance with the Approved Tariff Methodology agreed with the PURC at the time of notification;
- (b) be notified to shippers prior to the start of each contract year;
- (c) shall take effect from the start of the Contract Year;

Usage Charge

- Art.8.04 A Usage Charge shall be set to recover the cost to the NGTU of Fuel Gas.
- Art.8.05 In lieu of levying a Usage Charge, the NGTU may require a shipper to provide Fuel Gas.
- Art.8.06 A Usage Charge shall be approved by PURC at the start of each calendar year, based on an estimate produced by the NGTU of throughput for the calendar year and the estimated cost to it of all Fuel Gas.
- Art.8.07 Following the end of the calendar year or at such more frequent times as may be agreed between the NGTU and PURC, there shall be a calculation of the actual cost to the shipper of such Fuel Gas and a reconciliation with the Usage Charge billed to shippers during the calendar year.
- Art.8.08 Any amount by which the actual cost exceeded or was less than the total of the Usage Charge for the calendar year shall be refunded to either the shipper or the NGTU, as the case may be, to shippers on the next monthly Invoice without interest.
- Art.8.09 If the NGTU charges a Usage Charge, each shipper may, upon giving reasonable notice, request the NGTU to calculate the Fuel Gas required for its quantities of gas during any Calendar Month and such shipper shall have the right, in lieu of paying the Usage Charge, to provide at no cost to the NGTU, a share of the total quantity of Fuel Gas required by the NGTU in proportion to such shipper's actual throughput of gas through the NGITS.

Surcharge

- Art.8.10 For each day in any Contract Month that a shipper takes delivery at an off-take point of a quantity of gas in excess of the Daily Reserved Capacity specified for such off-take point in its Gas Transmission Service Agreement, the shipper shall pay a surcharge to be determined by the PURC to the NGTU.

Invoices

- Art.8.11 Within five working days of the end of each Contract Month, the NGTU shall issue a fully itemised Invoice to each shipper incurring charges in that Contract Month for the amount payable in respect of the Gas Transmission Services, showing the amount payable.

Art.8.12 Any delay, error or omission by the NGTU in preparing and submitting an Invoice shall not prejudice the liability of a shipper for the amounts shown thereon.

Art.8.13 On receipt of notice of any omission or error, the NGTU shall use reasonable endeavours to correct it as soon as possible.

SECTION 9 QUALITY STANDARDS AND MEASUREMENTS

Gas Quality

- Art.9.00 A shipper shall make gas available at the entry point which conforms to the gas specification set out in Part A of the Schedule from the start date in respect of any Gas Transmission Service Agreement until its expiry.
- Art.9.01 Any gas delivered at an entry point which does not conform to the gas specification specified in Part A of the Schedule shall be deemed to be non-compliant gas
- Art.9.02 The NGTU shall prevent the entry of non-compliant gas to the transmission system at the entry points.
- Art.9.03 Despite Art.9.02 the NGTU may accept non-compliant gas and allow such gas to enter the NGITS provided that:
- (a) the gas shall not cause damage to the NGITS or any equipment or facility whether owned by the NGTU or a third party, and
 - (b) the combined gas after the entry point would conform to the off-take specifications, or
 - (c) all off-takers receiving the combined gas agree to accept the resulting gas composition.
- Art.9.04 If, at any time, a shipper becomes aware that any gas intended for delivery to the NGTU at the entry point is, or may be, gas that does not meet the entry gas specification, the shipper shall, promptly upon becoming aware, inform the NGTU giving, where possible and in such detail as may reasonably be available,
- (a) such information about the actual specification of such gas as a shipper shall possess and
 - (b) an estimate of the duration of the non-compliance.
- Art.9.05 Upon receipt of any notification from the shipper in accordance with Art.9.03 the NGTU may:
- (a) refuse to take delivery until the non-compliance has been remedied;

- (b) agree on a temporary waiver to the gas specification, including any conditions it deems necessary in the circumstances, and provide Transmission Services in respect of such gas in accordance with such temporary waiver the duration of which shall not exceed fourteen days.

Art.9.06 The NGTU shall notify the shipper as soon as practicable if it becomes aware that any gas made available by the shipper at the entry point does not meet the entry gas specification.

Art.9.07 Upon notification of the shipper in accordance with Art.9.06 the NGTU may

- (a) cease to take delivery until the non-compliance has been remedied;
or
- (b) agree on a temporary waiver to the gas specification, including any conditions it deems necessary in the circumstances, and provide Transmission Services in respect of such gas in accordance with such temporary waiver the duration of which shall not exceed fourteen days but waivers may be consecutive.

Art.9.08 To the extent that the NGTU is unable to deliver gas that meets the off-take gas specification to a shipper at the off-take point as a consequence of accepting gas that did not meet the entry gas specification pursuant to Art.9.05 the NGTU shall have no obligation to deliver gas that meets the off-take gas specification to that shipper at any off-take point.

Art.9.09 In the event that gas does not meet the entry gas specification, or the terms of a waiver agreed in accordance with the provisions in Art.9.05(b), the shipper shall reimburse the NGTU for all reasonable costs incurred by the NGTU in rectifying damage to the NGITS, including the cost of any action the NGTU considers appropriate or necessary to preserve the structural, environmental or economic integrity of the NGITS, provided that;

- (a) the off-spec gas supplied by the shipper was the direct cause of damage to the NGITS or any equipment or facility whether owned by the NGTU or a third party,
- (b) the damage or cost was not caused or contributed to by the NGTU's negligence or willful misconduct,
- (c) the NGTU takes or has taken all reasonable steps to mitigate its loss, and

(d) the NGTU carries out or has carried out the works necessary to repair such damage actively and diligently as a reasonable and prudent operator.

Art.9.10 The NGTU shall make gas available for acceptance at the off-take point which conforms with the off-take gas specification set out in Part A of the Schedule from the start date in respect of any Gas Transmission Service Agreement until its expiry.

Art.9.11 The NGTU shall inform shippers if gas to be delivered to the off-take point does not or is not anticipated to meet the gas specification, and provide such information about the manner in which the gas fails to conform to the off-take gas specification as the NGTU possesses and an estimate of the duration of the non-conformance.

Art.9.12 A shipper may either:

(a) Subject to Art.9.06, refuse to take delivery until the non-conformity has been remedied, or

(b) take delivery of the gas.

Art.9.13 The NGTU shall indemnify the shipper in respect of any direct loss incurred by the shipper in the event that gas which does not meet the gas specification is delivered at any off-take point in any particular circumstance or series of related circumstances unless:

(a) a shipper knew that the gas did not meet the gas specification, and

(b) the shipper knew or should have known that the gas would cause damage to equipment or facilities and that such gas was the direct cause of damage to equipment or facilities.

Art.9.14 The NGTU's obligation to indemnify the shipper pursuant to Art.9.13 shall only arise:

(a) if the delivery of gas that does not meet the off-take gas specification is the direct cause of damage to equipment or facilities,

(b) if the shipper, or the owner or operator of the equipment or facilities has taken all reasonable steps, or guaranteed that such reasonable steps are taken, to prevent and mitigate its loss and repair any damage actively and diligently, and

- (c) to the extent that such loss was not caused or contributed to by the negligence or willful misconduct of the shipper, or the owner or operator of the equipment or facilities.

Art.9.15 If a shipper takes delivery of gas pursuant to Art.9.12 or the NGTU reimburses the shipper in accordance with Art.9.14, then:

- (a) the NGTU shall incur or owe no further liability whatsoever to the shipper, or any Person claiming by, through or under the shipper, in respect of such gas that does not meet the gas specification, and
- (b) the shipper shall hold harmless and indemnify the NGTU from and against any claims, demands, actions, proceedings or liabilities brought against the NGTU and arising from delivery of such gas in the circumstances specified in Art.9.14.

Gas Entry - Measurement and Testing at the Entry Point

Art.9.16 The shipper shall deliver gas to the Pipeline System at the Entry Point consistent with the terms of the Network Connection Agreement.

Art.9.17 The NGTU shall establish an Entry Point Measuring Station at or near the Entry point where the measurement and testing equipment and systems set shall be installed and maintained.

Art.9.18 The shipper and the NGTU shall exchange information on the dates of installation of the Measuring Station and of the initial calibration of all measurement equipment, meters and instruments.

Art.9.19 Both the shipper and the NGTU shall each be entitled to have a representative present to witness such installation and calibration and such calibration shall meet the specifications set out in Part B of the Schedule, provided that each Party shall exercise such right at its cost and risk and shall have no liability to the other in respect of the exercise of such right.

Art.9.20 The shipper shall ensure that the quality and quantity of gas made available for acceptance at the entry point shall be measured and tested in accordance with the methods and procedures and using the equipment specified in Part B of the Schedule

Art.9.21 Due to improvements in gas measurement and testing technology, alternate gas measurement equipment may be installed and the NGTU shall not

unreasonably withhold its consent to installation of such alternate gas measurement and testing equipment.

- Art.9.22 The NGTU shall ensure that the shipper has free access to the Entry Point Measuring Station at all times including public holidays.
- Art.9.23 The NGTU shall permit the shipper to install, maintain and operate, at its own risk and expense, check measuring equipment, provided that such check measuring equipment is equivalent to that installed at the Entry Point Measuring Station and is installed, operated and maintained in a manner which does not interfere with the operation of the Entry Point Measuring Station.
- Art.9.24 The NGTU shall undertake the reading of instruments at the Entry Point Measuring Station and collection and processing of data.
- Art.9.25 The NGTU shall retain such data for a period of twenty-four months from the end of the Contract Year to which they relate unless there is a dispute, in which case such records shall be retained until the resolution of the dispute and shall be available for the shipper's review during such period.
- Art.9.26 The NGTU shall permit the shipper to check calculations made relating to the Entry Point Measuring Station.
- Art.9.27 The shipper shall exercise such right at its own cost and risk without any liability whatsoever to the NGTU.
- Art.9.28 In case of disagreement, the calculations shall be checked jointly by both Parties. Any such disagreement which cannot be settled through direct discussions by the Parties shall be finally determined by an arbitrator.
- Art.9.29 The NGTU shall test the accuracy of all measuring instruments at the Entry Point Measuring Station including instruments used in the measurement or calculation of the Higher Heating Value at least once in each Contract Month.
- Art.9.30 The NGTU shall give the shipper reasonable notice of the date and hour of each such test and that the shipper shall be entitled to have a representative present to witness such measuring equipment tests.
- Art.9.31 Should the shipper fail to be present, the findings of the NGTU shall be considered valid notwithstanding the absence of the shipper.

- Art.9.32 In addition to the regular inspection of measurement equipment, the meters, instruments and equipment installed by or on behalf of any Party shall be subject to inspection by, or on behalf of, any other having legitimate reason at all reasonable times.
- Art.9.33 Any Party may request that a test be made of another party's meters or instruments in each case at the requesting Party's risk and cost.
- Art.9.34 If on such test in accordance with Art.9.33 the percentage of inaccuracy of the metering equipment in question is found to be:
- (a) less than one percent., then no correction of previous reading shall be made for the period since the last test, or
 - (b) in excess of one percent., then the previous readings of such equipment shall be corrected for any period which is definitely known or agreed upon, but in case such period is not so known or agreed upon, such correction shall be made for a period covering the last half of the period since the last test.
- Art.9.35 If for any reason any part of the Entry Point Measuring Station is out of service or out of repair so that the amount of gas delivered to the Pipeline System cannot be ascertained or computed from the readings thereof, the amount of gas delivered to the Pipeline System during such period shall be estimated and agreed upon between the NGTU and all affected Shippers by the use of the first of the following methods which is feasible:
- (a) by correcting the error if the percentage of error is ascertainable by calibration, test or mathematical calculation, or
 - (b) in the absence of (a), by using the registration of any check measuring equipment if installed and accurately registered, or
 - (c) in the absence of (a) and (b), by estimating the quantity delivered by reference to actual deliveries during preceding periods under similar conditions when the equipment in question was registering accurately.
- Art.9.36 The NGTU shall
- (a) undertake, complete and report all measurement readings and calculations for any Contract Month not later than three days after the end of that Contract Month,

- (b) record any measurement prior to the period of corrections for the Contract Month to which such corrections relate,
- (c) report any such corrections as a revised total quantity for the relevant day and Contract Month, and
- (d) estimate any missing or late measurement data.

Art.9.37 The actual quantity and volume, once ascertained, shall be treated as an adjustment to the measurement readings and calculations in the Contract Month to which they relate.

Art.9.38 Following a determination made in accordance with Art.9.34(b), Art.9.35 and Art.9.36 any amount determined to be payable by the shipper but not effected or for which the shipper has overpaid shall be shown in the next Invoice either as an amount payable by that shipper or as a credit in favour of that shipper.

Art.9.39 The NGTU and shippers shall each retain a full record of any action taken by them or on their behalf to recalibrate, repair or replace any measuring or testing equipment for twenty four months following the action.

Art.9.40 The NGTU shall ensure that each measuring equipment at any Entry Point Measuring Station found to be inaccurate or out of calibration or otherwise defective is repaired and/or replaced.

New Entry Points

Art.9.41 The NGTU shall, subject to Art.9.40 and Art.9.41 facilitate new entry points for delivering gas into the Pipeline System when and wherever practicable in order to ensure a diverse, safe, economic and secure supply of gas in so far as possible to the Pipeline System.

Art.9.42 The NGTU shall enter into good faith negotiations on Network Connection Agreement(s) in respect of proposed new Entry point(s) on appropriate terms.

- Art.9.43 Subject to Art.9.43, Gas shall enter the Pipeline System from such new entry point(s) under terms consistent with the provisions of the relevant Network Connection Agreement for such new entry point(s).
- Art.9.44 The NGTU shall not enter into any Network Connection Agreement which would in the reasonable opinion of the NGTU have a material adverse impact on Shippers in general without first advising shippers of the provision which the NGTU believes shall have such material effect.
- Art.9.45 Subject to the agreement of the other contracting parties thereto, each Network Connection Agreement for any new entry point shall be made publicly available by the NGTU following its execution.

Gas Off-Take - Measurement and Testing at Off-Take Points

- Art.9.46 The NGTU shall carry out measurement, testing and calculation of the quality and quantity of Gas delivered at the off-take point in compliance with this Access Code and Regulations.
- Art.9.47 The NGTU shall establish an Off-Take Point Measuring Station at or near each off-take point where the measurement and testing equipment and systems set out in Part B of the Schedule or the relevant delivery point agreement shall be installed and maintained.
- Art.9.48 NGTU shall give the shippers and off-takers at that off-take point reasonable notice of the date of installation of the Off-Take Point Measuring Station and the initial calibration of all measurement equipment, meters and instruments.
- Art.9.49 The shippers and off-takers at that off-take point shall be entitled to have a representative present to witness such installation and calibration and such calibration shall meet the specifications set out in Part B of the Schedule or the relevant off-take point agreement.
- Art.9.50 A shipper or an off-taker shall exercise such right at its cost and risk and the NGTU shall have no liability to the shipper or off-taker in respect of the exercise of such right by it.
- Art.9.51 The NGTU shall measure and test the quality and quantity of gas delivered at each Off-Take Point Measuring Station as described in Part B of the Schedule or the relevant delivery point agreement, in accordance with the methods and procedures and using the equipment specified in that Part B of the Schedule or agreement.
- Art.9.52 The reading of instruments at each Off-Take Point Measuring Station and the collection and processing of data shall be carried out by the NGTU.
- Art.9.53 A shipper shall
- (a) obtain the consent necessary from any customer of the shipper to the installation of such gas measurement and testing equipment reasonably required by the NGTU for the carrying out of its duties under this Access code and other Regulations;

- (b) ensure the free access to any property on which such equipment is installed as reasonably required by the NGTU for the carrying out of its duties under this Access Code and other Regulations at all times including public holidays for the purpose of installation, operation, maintenance, repair or removal.

Art.9.54 The NGTU shall retain the data used to determine invoiced quantities for a period of twenty four months from the end of the calendar year to which they relate unless there is a dispute, in which case such records shall be retained until the resolution of the dispute, and such records shall be available for any shipper's review during such period, but only to the extent that they relate to a Gas Transmission Service Agreement with shipper.

Art.9.55 The accuracy of all measuring instruments owned and/or operated by the NGTU shall be tested by the NGTU at least at such other frequency as may be specified in the Regulations.

Art.9.56 If on any such test, in accordance with Art.9.55 the percentage of inaccuracy of the metering equipment in question is found to be:

- (a) less than one percent, then no correction of previous reading shall be made for the period since the last test; or
- (b) in excess of one percent, previous readings of such equipment shall be corrected for any period which is definitely known or agreed upon, but in case such period is not so known or agreed upon, such correction shall be made for a period covering the last half of the period since the last test.

Art.9.57 If for any reason, any measuring equipment is out of service or out of repair so that the amount of gas delivered to a off-take point cannot be ascertained or computed from the readings thereof, the amount of gas delivered to that off-take point during such period shall be estimated and agreed upon between the NGTU and those shippers having Gas Transmission Service Agreements specifying that off-take point by the use of the first of the following methods which is feasible:

- (a) by correcting the error if the percentage of error is ascertainable by calibration, test or mathematical calculation; or
- (b) in the absence of (a), by using the registration of any check measuring equipment if installed and accurately registered, or

(c) in the absence of (a) and (b), by estimating the quantity delivered by reference to actual deliveries during preceding periods under similar conditions when the equipment in question was registering accurately.

Art.9.58 Following a determination made in accordance with Art.9.53(b) or Art.9.54, any amount determined to be payable by a shipper but not effected or for which a shipper has overpaid shall be shown in the next Invoice either as an amount payable by, or as a credit in favour of, that shipper.

Art.9.59 The NGTU shall retain a full record of any action taken to recalibrate, repair or replace any measuring or testing equipment for twenty four months following the action.

New Off-take Points

Art.9.60 The NGTU shall, subject to and Art.9.62, facilitate new off-take points to the Pipeline System when and wherever practicable.

Art.9.61 The NGTU shall enter into negotiations on tie-in or other agreement(s) in respect of proposed new off-take point(s) on appropriate terms.

Art.9.62 The NGTU shall not enter into any agreement for any new off-take point which would in the opinion of the NGTU have a material adverse impact on shippers in general without first advising shippers of the provision which the NGTU believes will have such material effect.

Art.9.63 Subject to the agreement of the other contracting parties thereto, each agreement for any new off-take point shall be made publicly available by the NGTU following its execution.

SECTION 10 OPERATIONAL PROCEDURES

Art.10.00 The NGTU shall maintain:

- (a) an operational centre which shall be attended to twenty four hours a day for management of gas transportation and deliveries; and
- (b) a nomination and scheduling centre to be attended to during normal working hours.

Art.10.01 A shipper shall ensure that the suppliers and customers of that shipper establish:

- (a) operational centres which shall be attended to twenty four hours a day for management of gas production and delivery; and
- (b) nomination and scheduling centres to be attended to during normal working hours

both for the purpose of sending and receiving notices and information required to be sent or received by the provisions of this Access Code or the Regulations.

Art.10.02 Where a Gas Transmission Service Agreement exists between the NGTU and a shipper, that shipper shall establish and maintain:

- (a) a process for receiving and acting upon any emergency information which shall be operational twenty four hours a day; and
- (b) a nomination and scheduling centre which shall be attended to during normal working hours.

Art.10.03 The operational and nomination/scheduling centres shall be connected by a reliable electronic communication system or such other means of instantaneous communication as the NGTU shall require to be used for the exchange of information.

Nomination Procedures

Art.10.04 From the start date for the duration of each Gas Transmission Service Agreement,

- (a) each shipper shall have the right in accordance with Art.10.06 on each day to request transport and delivery at the off-take point of a quantity of gas not less than the Minimum Quantity and not more than the Daily Reserved Capacity specified in each relevant Gas Transmission Service Agreement.
- (b) Shippers shall use reasonable endeavours to take delivery of Gas at a uniform rate throughout the day and shall not at any time take delivery of Gas at an instantaneous rate which if continued for twenty four hours would result in a delivery to the shipper of less than the Minimum Quantity or more than the Daily Reserved Capacity.
- (c) The NGTU shall not be obligated to make Gas available for acceptance at an instantaneous rate which if continued for twenty four hours would result in a delivery to the shipper of less than the Minimum Quantity or more than the Daily Reserved Capacity.

Art.10.05 For informational purposes and in order to maintain a gas transportation requirement forecast on or before the tenth day of the first and each subsequent Contract Month.

- (a) each shipper shall inform the NGTU in writing of its forecast in respect of each Gas Transmission Service Agreement for Gas transport and delivery requirement for each Contract Month of the subsequent twelve Contract Months (Gas Transport Forecast).
- (b) The Gas Transport Forecast shall specifically address the maintenance activities of the shipper's customers.

Art.10.06 A shipper shall not later than six days before the start of each Contract Month, issue in writing a Gas Transport Notice to the NGTU.

- Art.10.07 The Gas Transport Notice shall indicate the requirements for gas delivery to each Delivery Point in respect of each Gas Transmission Service Agreement, during each day of the Contract Month.
- Art.10.08 The daily quantities specified in a Gas Transport Notice shall constitute the daily nominations for the respective Contract Month.
- Art.10.09 A shipper may change any Daily Nomination by notice in writing given to the NGTU within terms and timelines determined by the NGTU.
- Art.10.10 For the purposes of this Access Code a requests for Gas Transmission Services shall be deemed to have been properly nominated if:
- (a) the shipper has made Daily Nomination in accordance with Art.10.06 to Art.10.08 or has changed Daily Nominations in accordance with Art.10.09 and complied with the operating procedures of the NGTU;
 - (b) it is as a result of a reduction in the Daily Contract Quantity for exceptional Maintenance; or
 - (c) a Daily Nomination has been adjusted in accordance with Art.10.11; and
 - (d) the NGTU has otherwise complied with its obligations and this Access Code subject to Art.10.11.

- Art.10.11 The NGTU may, without being in default under this Access Code, adjust any Daily Nomination due to operational constraints in the Pipeline System caused by any shipper not taking at the off-take point quantities of gas equal to the Properly Nominated Quantity on any day.
- Art.10.12 The NGTU shall within two hours notify the shipper of any adjustment to the Daily Nomination and the Daily Nomination for the relevant day shall be deemed to be as set out in the notice from the NGTU to the Shipper.
- Art.10.13 The NGTU shall, as soon as reasonably practicable, notify the shipper of any anticipated or actual inability to deliver at the off-take point the Properly Nominated Quantity irrespective of whether the NGTU is relieved from its obligations to do so through an Event of Force Majeure or on other grounds, together with the NGTU's best estimate of the extent and duration of such inability.
- Art.10.14 The NGTU shall keep the shipper apprised of any changes in such estimate, including any anticipated or actual ability on the part of the NGTU to resume making the Properly Nominated Quantity of gas available for acceptance.
- Art.10.15 A shipper shall, as soon as reasonably practicable, notify the NGTU of any anticipated or actual inability to take delivery of the Properly Nominated Quantity or to make gas available at the entry point in accordance with this Access Code, irrespective of whether the shipper is relieved from its payment obligations under this Access Code, through an event of Force Majeure or on other grounds, together with the shipper's best estimate of the extent and duration of such inability.
- Art.10.16 The shipper shall keep the NGTU informed of any changes in such estimate, including any anticipated or actual ability on the part of the Shipper to resume taking the Properly Nominated Quantity of gas.
- Art.10.17 If an event of Force Majeure which prevents the NGTU from making gas available or the shipper taking gas occurs and lasts for a period longer than a full day, the shipper shall be deemed to have Properly Nominated the quantity of gas specified in the Daily Nomination for the day immediately preceding the first full day of the duration of the event of Force Majeure.
- Art.10.18 The NGTU shall inform each shipper of the percentage of gas required as Fuel Gas to be applied for a Contract Month no later than ten days prior to

the start of that Contract Month, which shall, in the absence of any such notification, be the same as that previously notified.

Art.10.19 On each day, the NGTU shall have the right to nominate the quantity of gas required by it for its operations.

Art.10.20 The NGTU shall publish and maintain operating procedures, with which shippers and the NGTU shall comply at all times.

Art.10.21 Such procedures may be published as a printed manual or electronically, as the NGTU determines.

Art.10.22 The operating procedures published by the NGTU shall be incorporated in each Gas Transmission Service Agreement.

Line Pack and Fuel Gas

Art.10.23 The NGTU shall, at its own cost and without any right to claim reimbursement from shipper, obtain

- (a) any quantities of gas required for Line Pack in the NGITS at any time;
- (b) any quantities of gas required to commission the NGITS or any part of it and any of its associated equipment; and
- (c) Fuel Gas which is not Chargeable Fuel Gas in accordance with Art.10.24

Art.10.24 At the end of each Contract Month the NGTU shall calculate the Fuel Gas and the Chargeable Fuel Gas for that Contract Month in accordance with a formula to be produced by the NGTU and approved by the Energy Commission.

Allocation and Imbalances

Art.10.25 Each shipper agrees that the total quantity of gas delivered at the entry point shall be allocated between the NGTU and all shippers as follows:

- (a) the quantity nominated by the NGTU in accordance with Art.10.19 shall be allocated to the NGTU, and
- (b) the remaining quantity shall be allocated between shippers in proportion to the total quantity delivered to each shipper at all off-

take points, except as otherwise agreed between shippers and notified in advance to the NGTU.

Art.10.26 Where more than one shipper nominates Gas for delivery on any day at the same off-take point, the total quantity delivered at such off-take point on such day shall be pro-rated based on the Properly Nominated Quantity for delivery to each shipper at such off-take point.

Art.10.27 The NGTU shall notify all shippers in advance of this allocation except as otherwise agreed between such shippers.

Art.10.28 The NGTU may require each shipper to provide a proportion of the Chargeable Fuel Gas.

Art.10.29 The allocation of the total quantity of Chargeable Fuel Gas for each Contract Month shall be calculated in accordance with Art.10.24

Art.10.30 The allocation of the total quantity of chargeable fuel gas between shippers shall be in proportion to the quantity of gas delivered to each shipper at all off-take points in the Contract Month.

Art.10.31 A Shipper's Imbalance at the end of a Contract Month shall be calculated as follows:

$$\text{Shipper's Imbalance} = \text{QEP} - \text{QOP} - \text{QCFG} + \text{OSI}$$

Where:

QEP = the quantity of gas delivered to the NGTU at the entry point and allocated to that shipper,

QOP = the quantity of gas delivered to that shipper at any off-take point or if applicable, allocated to that shipper at any off-take point,

QCFG = the quantity of Chargeable Fuel Gas allocated to that shipper. In each case aggregated for all the days in that Contract Month, and

OSI = the opening Shipper's Imbalance for that shipper at the start of that Contract Month.

- Art.10.32 The NGTU and each shipper shall in each Contract Month work together to minimise the total size of that Shipper's Imbalance.
- Art.10.33 A shipper may trade all or part of its Imbalance with any other shipper.
- Art.10.34 The NGTU shall make appropriate adjustments to the relevant Shipper(s)' Imbalances following receipt of written confirmation of the details of a trade from both shippers that are party to any such trade.
- Art.10.35 If, following the end of a Contract Month, a Shipper's Imbalance calculated in accordance with Art.10.31, and taking account of any adjustments exceeds five per cent of that Shipper's Daily Reserved Capacity multiplied by the number of days in that Contract Month, then that shipper shall, from the 10th day after the beginning of the following Contract Month, adjust daily deliveries of Receipt Gas with the aim of achieving a zero Shipper's Imbalance by the end of such Contract Month.
- Art.10.36 At any time that the NGTU considers, that it does not operate satisfactorily to preserve the operational integrity of the NGITS, it may give three calendar months' prior notice of the introduction of a Balancing Instruction.
- Art.10.37 A Balancing Instruction may, without limiting the generality thereof, include provisions for different balancing periods, for financial incentives for balancing and for tolerances and such other matters as the NGTU deems necessary.
- Art.10.38 Shippers shall comply with the provisions of any Balancing Instruction from the day of its introduction to the day of its withdrawal.

Capacity and Curtailment

- Art.10.39 All available gas shall be supplied in priority to satisfy domestic requirements before export.
- Art.10.40 If there is restriction in available capacity in the NGITS on any day, priority for the supply of gas to the domestic market shall be in the following order:
- (a) Others;
 - (b) Other Petrochemicals;
 - (c) Industrial Heating;
 - (d) Fertilizer; and
 - (e) Power Plants

Art.10.41 A shipper shall be entitled to use its reserved capacity to transport gas belonging to it or other persons provided that shipper shall manage the nominations, receipt and deliveries of gas for such other persons as part of its own nominations, receipt and deliveries without conferring any rights or obligations to such persons under this Access Code.

Art.10.42 The shipper shall remain liable in respect of such gas and such reserved capacity under this Access Code.

Performance reporting

Art.10.43 The NGTU shall prepare a quarterly statement indicating compliance with Natural Gas Transmission Utility (Standards of Performance), Regulations, 2008, L.I 1936 in respect of its operations and the level of performance achieved with regard to the performance indicators specified in the Third Schedule of Natural Gas Transmission Utility (Standards of Performance), 2008, L.I.1936, in a form and content that can reasonably be understood by shippers, bulk customers or distribution companies.

Art.10.44 The NGTU shall:

- (a) lodge a copy of the statement, and any revision made to that statement with the Commission and the Public Utilities Regulatory Commission, before releasing it to shippers, bulk customers or distribution companies,
- (b) dispatch to each shipper, bulk customer or distribution company, a copy of the quarterly statement after lodging a copy to the Commission and PURC,
- (c) display a copy of the statement in its current form for inspection at its facility, and
- (d) make available a copy of the statement in its current form to any person who requests for it.

- 5.1.1.1 The NGTU shall submit to the Commission, not later than the 15th of March of each year, an annual report as per recommendation of the licensing conditions in respect of the NGITS for the preceding year.

Safety of Supply

Art.10.45 The NGTU shall comply with operational safety requirement contained in the regulations for natural gas in respect of occupational health and safety.

Art.10.46 The NGTU shall produce a manual for operation of pipelines which shall include the following matters:

- (a) The operation, maintenance and repair of pipelines;
- (b) Control corrosion in accordance with the operations and maintenance requirements of the Eighth Schedule of Natural Gas Pipeline Safety (Construction, Operation and Maintenance) Regulations, 2012, L.I. 2189;
- (c) Accessibility of construction records, maps and operation history to appropriate operating personnel;
- (d) Collation of data required for the report of incidents in a timely and effective manner;
- (e) The procedure for the start up and shut down of any part of the pipeline in a manner designed to assure operation within the maximum allowable operating pressure limits prescribed and the building up allowed for the operation of any pressure-limiting and control device;
- (f) Procedure for the commencement, operation and shut down of gas compressor units;
- (g) Provision for systematic and routine testing and inspection of pipe-type or bottle holders including
 - (i) The provision for the detection of external corrosion before the strength of the container has been impaired,
 - (ii) Periodic sampling and testing of gas storage to determine the dew point of vapours contained in the stored gas which, if

condensed, might cause internal corrosion or interfere with the safe operation of the storage plant,

- (iii) Periodic inspection and testing of pressure limiting equipment to determine that it is in a safe operating condition and has adequate capacity.
- (h) Provision for periodic review of the work done by operator personnel to determine the effectiveness and adequacy of the procedures used in normal operations and maintenance and modification of the procedures when deficiencies are detected;
- (i) Provision of adequate precautions in excavated trenches to protect personnel from the hazard of unsafe accumulation of vapour or gas and the availability when needed at the excavation of an emergency rescue equipment, including a breathing apparatus and a rescue harness and line;
- (j) The prompt response to the report detection of gas presence inside or near a building, subject to the application of an operator's emergency procedures.

Continuing surveillance

Art.10.47 The NGTU shall establish a procedure for continuous surveillance of its facilities to:

(a) determine matters that deal with any change in class location, failure, corrosion, substantial change in cathodic protection requirements, and any other unusual operation and maintenance condition, and

(b) examine leakage history

and take appropriate action.

Art.10.48 Where a segment of pipeline is determined to be in unsatisfactory condition but no immediate hazard exists, the NGTU shall initiate a programme to recondition or phase out the segment involved or reduce the maximum allowable operating pressure.

Damage prevention programme

Art.10.49 The NGTU shall establish a written damage prevention programme for prevention of damage to its pipeline during excavation activities.

Art.10.50 The damage prevention programme required by excavation activities must, at least:

(a) Include the identity, of any person who normally engage in excavation activities in the area in which the pipeline is located;

(b) Provide for notification to the public in the vicinity of the pipeline and actual notification of the persons identified in (a) above of the following as often as needed to make them aware of the damage prevention programme:

(i) The programme's existence and purpose; and

(ii) How to identify the location of underground pipelines before excavation activities are begun;

(c) Provide for a means of receiving and recording notification of planned excavation activities;

- (d) Provide for temporary marking system of buried pipelines in the area of excavation activity before, as far as practical, the activity begins;
- (e) If the NGTU has buried pipelines in the area of excavation activity, provide for actual notification of persons who give notice of their intent to excavate of the type of temporary marking system to be provided and how to identify the markings;
- (f) Provides the following arrangements for inspection of pipelines if the NGTU has reason to believe that they could be damaged by excavation activities:
 - (i) The inspection must be done as frequently as necessary during and after the activities to verify the integrity of the pipeline, and
 - (ii) In the case of blasting, any inspection must include leakage surveys.

Emergency procedures

Art.10.51 The NGTU shall establish a written procedure to minimise the hazard that may result from a gas pipeline emergency.

Art.10.52 The emergency procedures shall provide for the following:

- (a) Receipt, identification and classification of notices of events which require immediate response by the NGTU;
- (b) Establishment and maintenance of adequate means of communication with the appropriate fire, police or other public officer;
- (c) The prompt and effective response to a notice of each type of emergency, including
 - (i) gas detected inside or near a building,
 - (ii) fire located near or directly involving a pipeline facility
 - (iii) any explosion occurring near or directly involving a pipeline facility, and

- (iv) natural disaster;
- (d) The availability of personnel, equipment, tools and materials, as required at the scene of an emergency;
- (e) Actions directed toward the protection of people first and then property;
- (f) Emergency shut down and pressure reduction in any section of the NGTU's pipeline system necessary to minimize any hazard to life or property;
- (g) Safety measures against any actual or potential hazard to life or property;
- (h) Notification of appropriate fire, police or other public officer of gas pipeline emergency and coordination with the official planned response and actual response during an emergency;
- (i) Safe restoration of any service outage; and
- (j) The initiation of investigations under Art.10.64 and Art.10.65 as applicable, as soon as practicable after the emergency.

Art.10.53 The NGTU shall:

- (a) Furnish its management personnel who are responsible for emergency action with a copy of the latest edition of the emergency procedures established under Art.10.52 and Art.10.53;
- (b) Train appropriate operating personnel to ensure that they are knowledgeable of the emergency procedures and verify that the training is effective; and
- (c) Review employee activity to determine whether the emergency procedures were effectively followed in each emergency.

Art.10.54 The NGTU shall establish and maintain liaison with the appropriate public officer to

- (a) Understudy the responsibility and resources of each government organization that is required to respond to a gas pipeline emergency,

- (b) Acquaint the public officer with the NGTU's ability in response to a gas pipeline emergency,
- (c) Identify the types of gas pipeline emergencies of which the NGTU is required to notify the public officer, and
- (d) Plan how the NGTU and the public officer can engage in mutual assistance to minimize hazard to life and property.

Public Awareness

Art.10.55 The NGTU shall develop and implement a written continuous public education programme that follows the guidelines specified in Part C of the Fifteenth Schedule of Natural Gas Pipeline Safety (Construction, Operation and Maintenance) Regulations, 2012, L.I. 2189.

Art.10.56 The NGTU's programme shall follow the general programme recommendations specified in Part A of the Fifteenth Schedule of Natural Gas Pipeline Safety (Construction, Operation and Maintenance) Regulations, 2012, L.I. 2189 to assess the unique attributes and characteristics of the operator's pipeline and facility.

Art.10.57 The NGTU shall follow the general programme recommendations specified in Part A of the Fifteenth Schedule of Natural Gas Pipeline Safety (Construction, Operation and Maintenance) Regulations, 2012 L.I. 2189 unless the NGTU provides justification in its programme or procedural manual as to why compliance with any of the provisions of the recommended practice is not practicable and not necessary for safety.

Art.10.58 The NGTU's programme shall specifically include provisions to educate the public, appropriate government department or agency and any person engaged in excavation related activity on the

- (a) Use of a one-call notification system prior to excavation and other damage prevention activity,
- (b) Possible hazards associated with the unintended release of gas from a gas pipeline facility,
- (c) Physical indications that the release of gas may have occurred,
- (d) Steps that are required to be taken for public safety in the event of a gas pipeline release, and

(e) Procedures for reporting on a gas pipeline release.

Art.10.59 The programme shall include activities to advise an affected municipality, school district, business and residents of a pipeline facility location.

Art.10.60 The media used shall have reasonable coverage in the areas in which the NGTU transports gas.

Art.10.61 The programme shall be conducted in English and in any other Ghanaian language commonly understood by a significant concentration of the population in the NGTU's area of operation.

Art.10.62 The NGTU's programme documentation and evaluation results shall be made available for periodic review by the relevant appropriate regulatory agencies.

Investigation of an Accident or a Failure

Art.10.63 The NGTU shall establish a procedure for investigating an accident or failure of an equipment for the purpose of determining the cause the accident or the failure and take steps to minimise the possibility of a recurrence.

Art.10.64 The procedure shall include a process for the selection of samples of the failed facility or equipment for laboratory examination where applicable.

Notification

Art.10.65 The NGTU shall provide an emergency contact facility to shipper, bulk customers, distribution companies and the general public to enable them contact the NGTU in case of emergency.

Art.10.66 Where the NGTU becomes aware either by information from the public or otherwise that its transmission system at a particular locality is faulty and may pose danger to the public, the NGTU shall visit the locality and

(a) Place notices to warn the public of the danger

(b) Isolate the faulty part of the transmission system

(c) take other measures necessary to ensure the safety of the public.

SECTION 11 MAINTENANCE AND SYSTEM PLANNING

Maintenance

- Art.11.00 The NGTU shall ensure that the Pipeline System is operated, repaired and maintained in good working order and condition.
- Art.11.01 The NGTU and shippers shall co-ordinate the maintenance activities of the NGTU, connected gas consumers and the gas producers with a view to minimising in each Contract Year, the reduction in gas deliveries due to maintenance.
- Art.11.02 To facilitate such co-ordination, all shippers shall advise the NGTU by notice of their intended maintenance activities for the following twelve months by a date to be specified by the NGTU as the Gas Maintenance Date, and include with such notice the dates of any maintenance and the quantity of gas expected to be required on each day.
- Art.11.03 If the necessities of a scheduled maintenance in any Contract Year would result in a reduction of the NGTU's ability to provide Transmission Services, the NGTU may reduce or limit the Properly Nominated Quantity of shippers to a level at which it is able to provide Transmission Services and the NGTU shall specify the period during which such limit shall apply.
- Art.11.04 In order for such Scheduled Maintenance to be carried out, the NGTU shall not be obliged to provide Transmission Service in excess of the reduced Properly Nominated Quantity provided that:
- (a) The NGTU shall give to each shipper a reasonable estimate of the timing and duration of the Scheduled Maintenance and of the limit in the Properly Nominated Quantity within fifteen days of the Gas Maintenance Date in the calendar year immediately preceding the Contract Year in which the Scheduled Maintenance is to be carried out;
 - (b) Such notice shall also include information available to the NGTU regarding Scheduled Maintenance for the subsequent two Contract Years;
 - (c) The Scheduled Maintenance Period shall not exceed five days in any Contract Year.; and

(d) The NGTU may utilize any unused portion of the Scheduled Maintenance period in a Contract Year in the immediately succeeding Contract Year provided that the total number of days available for Scheduled Maintenance in any Contract Year shall in no event exceed ten days.

Art.11.05 During the Scheduled Maintenance Period, the maximum Properly Nominated Quantity for which the NGTU may be required to provide Transmission Services shall be that specified in the notice given under Art.11.02.

Art.11.06 The nominations to be made by the shipper shall be for any quantity of Gas not less than any minimum quantity in the Gas Transmission Service Agreement in respect of which the nomination is made, and not more than such Maintenance Properly Nominated Quantity.

Art.11.07 In addition to any Scheduled Maintenance and without being in default under this Access Code, the NGTU may declare an Emergency Maintenance Period during which it may limit the maximum Properly Nominated Quantity for additional periods in a Contract Year in respect of maintenance for which the need has arisen such as:

(a) A direct result of legislation or a requirement or direction from Energy Commission in respect of all or any part of the Pipeline System, any Gas supply facilities or a connected consumer of Gas; or

(b) To conform to good safety or environmental standards or to take action in an emergency, in respect of all or any part of the Pipeline System.

- Art.11.08 The NGTU shall use reasonable endeavours, taking into account the reason for which such Exceptional Maintenance is required, to give any affected shipper not less than thirty days notice of any Exceptional Maintenance and, in any event, to give as much notice as practicable in the circumstances.
- Art.11.09 The notice for Exceptional Maintenance shall contain the NGTU's reasonable estimate of the duration of the Exceptional Maintenance and of the reduction in the limit on the Properly Nominated Quantity for such period.
- Art.11.10 The period for Exceptional Maintenance shall not exceed three days in any Contract Year.
- Art.11.11 The NGTU may utilize any unused portion of the Exceptional Maintenance period in a Contract Year, in the immediately succeeding Contract Year,
- Art.11.12 The total number of days available for Exceptional Maintenance in any Contract Year shall in no event exceed six days.
- Art.11.13 During the Exceptional Maintenance period, the maximum Properly Nominated Quantity for which the NGTU shall:
- (a) be required to provide Transmission Services shall be that specified in the notice given to each affected shipper,
 - (b) be for any quantity of gas not less than any minimum quantity in the Gas Transmission Service Agreement in respect of which the nomination is made, and not more than such Exceptional Maintenance Properly Nominated Quantity as that quantity may be revised.
- Art.11.14 If a Daily Nomination has been made prior to the Exceptional Maintenance Notice that is greater than the Exceptional Maintenance Properly Nominated Quantity, then such nomination shall be deemed to be for the Exceptional Maintenance Properly Nominated Quantity.
- Art.11.15 The NGTU may, at any time after giving a Scheduled Maintenance Notice or an Exceptional Maintenance Notice, notify shippers of any revision to the Maintenance Properly Nominated Quantity or the Exceptional Maintenance Properly Nominated Quantity that would increase the quantity of gas which the NGTU is able to make available on any day during that Scheduled Maintenance Period or Exceptional Maintenance Period.

Art.11.16 A shipper shall be entitled to accept or reject such increase to the Maintenance Properly Nominated Quantity or Exceptional Maintenance Properly Nominated Quantity within a day after the date of the notification from the NGTU.

System Planning

Art.11.17 For purpose of enabling the NGTU to plan the efficient and timely provision of current and future capacity in the Pipeline System, each shipper shall supply the NGTU with bona fide estimates of its requirements for Transmission Services over a five year time horizon or as otherwise requested by the NGTU, which shall:

- (a) not be binding on a shipper, and
- (b) not imply that capacity will be available.

- Art.11.18 The NGTU shall produce in each calendar year or at such other period as may be agreed with the Commission a five year plan with respect to existing and projected availability of capacity reserved and available for reservation, reinforcement and development of the Pipeline System.
- Art.11.19 The five year plan shall be subject to change on reasonable ground.
- Art.11.20 The estimates required by the NGTU shall be submitted in writing each Contract Year by a time determined by the NGTU and expressed in such units as the NGTU may request at each off-take point for each of the following five Contract Years.
- Art.11.21 Each shipper shall use all reasonable endeavours to provide any additional information requested by the NGTU which would, in the opinion of the NGTU, aid in the planning of future deliveries of gas through the Pipeline System.
- Art.11.22 The information provided by shippers shall be confidential but shall be disclosed to the Commission upon request.
- Art.11.23 The NGTU shall expand the capacity of the Pipeline System from time to time in response to requests for capacity by shippers in accordance with the provisions of this Access Code.

Title, Property and Custody

- Art.11.24 Subject to the provision of this Access Code, title and risk in gas delivered to the NGTU at the Entry Point shall pass to the NGTU.
- Art.11.25 Each shipper warrants to the NGTU:
- (a) that it or its representative will have title at the point of delivery to all gas delivered or made available for delivery by it to the NGTU at the entry point, and
 - (b) that all such gas shall at that point be free of any lien, charge, encumbrance or adverse claim as to title or otherwise, including any claim for any tax, royalty or other charge in respect of the production, gathering, processing and making available of gas arising on or before delivery thereof.
- Art.11.26 Each shipper shall indemnify the NGTU and hold it harmless against any loss, liability, damage, claim, action, proceeding, cost and expense suffered

or incurred by or made or brought against the shipper in consequence of any breach of the warranties.

Art.11.27 The warranty shall be treated as satisfied where a shipper has arranged for delivery or making available for delivery of gas to the NGTU by a person or persons who has or jointly have title (at the point of delivery) to such gas, and such person passes or persons jointly pass title to the NGTU.

Art.11.28 Subject to the provision of this Access Code title and risk in gas delivered to each shipper at the off-take point shall pass to that shipper or as the shipper may direct.

Art.11.29 Subject to any breach of the shipper's warranty, the NGTU warrants to each shipper:

(a) that the NGTU shall have title at the point of delivery to all gas delivered or made available for acceptance at the off-take point by it; and

(b) that all such gas shall at such point be free of any lien, charge, encumbrance or adverse claim as to title or otherwise, including any claim for any tax, royalty or other charge in respect of the production, gathering, processing and making available of gas arising on or before delivery thereof.

Art.11.30 The NGTU shall indemnify the shipper and hold it harmless against any loss, liability, damage, claim, action, proceeding, cost and expense suffered or incurred by or made or brought against it in consequence of any breach of the warranties.

Art.11.31 The warranty shall be treated as satisfied where the NGTU has arranged for delivery or make available for delivery of gas to a shipper by a person or persons who has or jointly have title at the point of delivery to such gas and such person passes or persons jointly pass title to such gas to that shipper.

SECTION 12 EMERGENCIES

Responsibilities of Parties under Emergency

- Art.12.00 The existence of an emergency shall be determined by the NGTU, irrespective of the cause of the emergency and of whether the NGTU or another person may have caused or contributed to the emergency.
- Art.12.01 An emergency shall continue up to a time when the NGTU determines that the circumstances giving rise to the declaration of the emergency no longer exist and that normal operations of the transmission system and full implementation of provisions of this Access Code may be resumed.
- Art.12.02 Where an emergency arises, the NGTU shall:
- (a) Promptly inform shippers, bulk customers and distribution companies, the Commission and the general public of the commencement, nature, extent and expected duration of the emergency by means reasonably available to the NGTU at the time; and
 - (b) As far as practicable keep the shipper, bulk customer or distribution company informed of material changes and developments in respect of the emergency and notify the shipper, bulk customer, or distribution company as soon as is reasonably practicable of the time at which the NGTU considers the emergency would cease.
- Art.12.03 Each shipper, bulk customer or distribution company shall:
- (a) comply with the emergency measures as instructed by the NGTU;
 - (b) ensure that the final consumer complies with emergency measures instructed by the NGTU to the shipper, bulk customer or distribution company;
 - (c) notify the NGTU of the action taken by the shipper, bulk customer or distribution company and notify the final consumer to comply with the emergency measures; and
 - (d) comply with directions issued by the NGTU to bring the emergency to a halt or to prevent an emergency.

Art.12.04 The NGTU may, impose on the shipper, bulk customer or distribution company an obligation it considers reasonable or necessary to resolve or mitigate the impact of the emergency by way of notice to each shipper, bulk customer or distribution company during an emergency and each shipper, bulk customer or distribution company shall comply with the obligation upon receipt of the notice.

Art.12.05 The NGTU may to the extent it considers necessary take measures and require a shipper, bulk customer or distribution company 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 transmission system in the course of and after taking emergency measures.

Actions Under Emergency

- Art.12.06 Emergency measures may include action to be taken or not to be taken by the NGTU, a shipper, a bulk customer or distribution company as instructed by the NGTU.
- Art.12.07 The NGTU and each shipper, bulk customer or distribution company may acknowledge that in an emergency their respective interests shall be subordinated to the need to take emergency measures in accordance with Art.12.04
- Art.12.08 To ensure co-ordination of emergency measures, a shipper, bulk customer or distribution company shall only take emergency measures in accordance with Art.12.04 and in accordance with instructions given by the NGTU.

Breaches Under Emergency

- Art.12.09 An emergency measure taken by the NGTU, a shipper, bulk customer or distribution company in compliance with a requirement of Art.12.05 shall not be considered to be a breach of this Access Code, Natural Gas Transmission Utility (Technical and Operation) Rules 2007, the framework agreement or an ancillary agreement.
- Art.12.10 The NGTU shall not be in breach of its obligation to accept natural gas tendered for delivery to the transmission system at an entry point or to make natural gas available for off-take from the transmission system 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.12.11 In the event of an emergency, the NGTU shall implement the relevant transmission system emergency procedures in addition to measures specified in Art.12.05.
- Art.12.12 Subject to the obligations set out in Art.12.05 where emergency measures include increasing or decreasing the delivery or rate of flow of natural gas to an entry point, the NGTU may issue appropriate instructions in respect of the increase or decrease to the shipper utilizing the entry point.
- Art.12.13 In the event that the bulk customer or distribution company is not a shipper, the bulk customer or distribution company shall in turn exercise nomination rights under the respective agreements with the shippers as

necessary and as requested by the NGTU to a practical extent but at all times use reasonable endeavours.

Off-take point control during emergency

Art.12.14 Where emergency measures include the reduction or discontinuance of off-take of gas at an off-take point on the transmission system, the NGTU shall first seek voluntary reductions of off-take by bulk customers and distribution companies, where practicable and if the utility cannot achieve the requisite reduction of off-take voluntarily in a timely manner, the utility may require a bulk customer or distribution company to reduce demand for gas on the transmission system.

Art.12.15 In reducing demand of a bulk customer or distribution company, the NGTU shall give due consideration on timely notification to a bulk customer or distribution company, and where appropriate, include in the negotiation of the relevant framework agreement, practical terms and conditions to enable a bulk customer or distribution company 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.12.16 Where the NGTU is unable to take an emergency measure and to exercise other rights which the NGTU has under these rules, the NGTU may disconnect natural gas at an off-take point if a bulk customer or distribution company and the final consumer do not comply with an instruction given under Art.12.04.

Art.12.17 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 G.M.T. after the NGTU shall have notified the relevant bulk customer or distribution company of the abatement of the emergency.

Consequences of emergency

Art.12.18 In the event of an emergency, the NGTU may suspend the Framework Agreement and Gas Transmission Service Agreement except for the financial obligations of a shipper, bulk customer or distribution company under this Access Code, the Framework Agreement and Gas Transmission Service Agreement with respect to a shipper, bulk customer or distribution company.

Art.12.19 The NGTU and each shipper, bulk customer or distribution company 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.12.20 An impairment resulting from a diversion of resources may constitute force majeure but shall not constitute a breach of this Access Code, Framework Agreement or Gas Transmission Service Agreement.

Emergency Costs

Art.12.21 The NGTU shall:

- (a) Not be liable for costs arising out of an emergency incurred by a shipper, bulk customer or distribution company or as a result of taking emergency measures imposed by the NGTU; and
- (b) Not engage in any cash transactions with regard to costs incurred by the NGTU in respect of an emergency or as a result of taking an emergency measure or other measure imposed by the NGTU and charged to a disbursement account.

Art.12.22 Subject to Art.12.23 and Art.12.24 each bulk customer or distribution company shall be personally liable for its own costs incurred in respect of an emergency.

Art.12.23 A bulk customer or distribution company is not personally liable for its costs if:

- (a) The off-take of natural gas by the bulk customer or distribution company who voluntarily reduces its off-take in accordance with Art.12.14; and
- (b) The effect is that the first bulk customer or the distribution company's natural gas is off-taken by another bulk customer or distribution company.

Art.12.24 A bulk customer or distribution company is not personally liable for its costs in accordance with Art.12.23, the benefitting bulk customer or distribution company shall on behalf of the first bulk customer or distribution company pay the price for the quantity of the first bulk customer's or distribution company's natural gas off-taken by the benefitting

bulk customer or distribution company to the NGTU which shall pay the sums received to the first bulk customer or distribution company.

Emergency Reporting and Audit

Art.12.25 The NGTU shall prepare an emergency report within fourteen days after the emergency and shall submit a copy of the report to the Commission.

Art.12.26 In the event of an emergency, either the Commission or the affected shipper, bulk customer or distribution company may within six 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 minimize the likelihood of the reoccurrence of the emergency and require submission of the audit report.

Art.12.27 Where the Commission or the affected shipper, bulk customer or distribution company requires the appointment of an independent expert, the NGTU 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 minimize the likelihood of the re-occurrence of the emergency.

Art.12.28 The cost of an audit shall be borne by the affected shipper, bulk customer or distribution company if the audit was requested by the shipper, bulk customer or distribution company.

Art.12.29 A copy of the audit report prepared shall be submitted to the Commission.

Art.12.30 A copy of the audit report shall be made available to the affected shipper, bulk customer or distribution company.

Art.12.31 The cost of a remedial measure as a result of the audit and effected by the NGTU 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.12.32 The NGTU may appeal against a determination in accordance with dispute resolution procedures provided for by law in respect of natural gas transmission utility standards of performance where the result of an audit

determines that the emergency would not have occurred but for the willful misconduct of the NGTU.

Art.12.33 The NGTU is liable to the shipper, bulk customer or distribution company for the contravention of the standards of performance as required by law for the transmission of natural gas.

System Emergency manager

Art.12.34 The NGTU is the system emergency manager.

Art.12.35 The NGTU shall prepare a manual containing details of arrangements and procedures established by the NGTU for system emergency management as approved by the Commission.

Art.12.36 The manual shall be approved by the Commission.

Art.12.37 The NGTU shall provide each shipper, bulk customer or distribution company with a copy of the manual.

SECTION 13 FORCE MAJEURE

Force Majeure

Art.13.00 An event of Force Majeure means any event or circumstance which is beyond the control of a Party, each such Affected Party 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 Party;
- (b) such event or circumstance prevents the Affected Party from performing its obligations in this Access Code;
- (c) the Affected Party 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.13.01 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 NGTU;
 - (ii) the failure to comply with 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 NGTU should have had such equipment or spare parts available.
- (b) the failure to pay money or the non-availability or lack of funds.
- (c) any event or circumstance which is within the reasonable control of or caused by any act or omission of:
 - (i) NGTU;
 - (ii) a shipper;

- (iii) an Upstream Operator;
- (iv) the owner or operator of the gas production facilities from which a shipper purchases gas for transportation in the Pipeline System;
- (v) the owner or operator of the gas consumer's facilities to which a shipper sells and delivers or intends to sell and deliver gas which is transported in the Pipeline System; and
- (vi) any Person engaged by:
 1. an Upstream Operator to construct, operate and maintain any part of its upstream pipeline transportation system which is connected to the Pipeline System;
 2. the owner or operator of the gas production facilities from which a shipper purchases gas for transportation in the Pipeline System to construct, operate and maintain any part of those facilities;
 3. the owner or operator of the gas consumer's facilities to which a shipper sells and delivers or intends to sell and deliver gas which is transported in the Pipeline System to construct, operate and maintain any part of those facilities;
 4. NGTU to construct, operate and maintain any part of the Pipeline System.

- Art.13.02 Where a shipper, bulk customer or distribution company is affected by the NGTU's inability to perform its obligations under Act 541, this Access Code, Gas Transmission Service Agreement or the framework agreement as a result of force majeure, the NGTU shall notify that shipper, bulk customer or distribution company as soon as possible.
- Art.13.03 The NGTU shall in writing notify a shipper, bulk customer or distribution company affected by the NGTU's inability to perform its obligations under Act 541, this Access Code, Gas Transmission Service Agreement or the Framework Agreement as a result of Force Majeure.
- Art.13.04 The NGTU shall suspend the obligations of the shipper, bulk customer or distribution company to the extent that the shipper, bulk customer or distribution company's ability to perform is hindered by Force Majeure.
- Art.13.05 Where the NGTU considers an event of which it is notified by a shipper, bulk customer or the distribution company to constitute Force Majeure which affects the Transmission System, the NGTU shall as soon as is reasonably practicable declare Force Majeure and obligations of the NGTU and each shipper, bulk customer or distribution company will be suspended to the extent hindered by the force majeure.

Extent of Relief from Force Majeure

- Art.13.06 Force Majeure shall not relieve the NGTU, a shipper, bulk customer or distribution company from a liability or obligation to:
- (a) make payments due under existing Regulations 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 this Access Code, existing Regulations, the framework agreement, the Gas Transmission Service Agreement and any ancillary agreement between a shipper, bulk customer or distribution company, except where either the NGTU, supplier or bulk customer 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 NGTU.

Art.13.07 The affected party shall be relieved of liability under Art.13.02 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 party shall not be required to settle any strikes, lock-out or other industrial trade disputes which constitute Force Majeure.

Art.13.08 The other party shall be relieved of liability to perform its obligations under this Access Code and any ancillary agreement to the extent that, that party is rendered unable to perform any of its obligations as a result of the affected party being prevented from, delayed or hindered in the performance of any of its obligations by reason of Force Majeure.

Information

Art.13.09 Relief in relation to an entry point or an off-take point shall not be given under Art.13.02 unless, the affected party has within twenty one days of the occurrence of the Force Majeure, or within a period approved by the Commission, supplied the other party 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.13.10 The party may in relation to Force Majeure that relates to an off-take point, request the affected party to supply the other party with a report containing details of the matters specified in Art.13.09(a) and Art.13.09(b).

Art.13.11 The report shall be supplied by the affected party to the other party within twenty-one days from the date of the request.

Resumption of Performance

Art.13.12 A party who has been relieved under Art.13.02 of a liability arising from a failure to perform an obligation, shall after the removal of the cause of the failure, notify the other party and resume the performance of the obligation.

Notices to the Commission

Art.13.13 The NGTU shall provide to the Commission a copy of each notification issued by the NGTU pursuant to Art.13.02.

Art.13.14 A shipper, bulk customer or distribution company shall provide to the Commission a copy of each notification issued by the shipper, bulk customer or distribution company pursuant Art.13.03.

Assignment

Art.13.15 A shipper shall not assign to any Person any of its rights, or transfer to such person any of its obligations, arising under this Access Code, Gas Transmission Service Agreement or ancillary agreement without the prior written consent of the NGTU, which consent shall not be unreasonably withheld or delayed if the shipper wishing to assign or transfer its rights and obligations has demonstrated to the reasonable satisfaction of the NGTU that the proposed assignee or transferee:

- (a) is qualified as a shipper, and
- (b) has the financial and technical capacity to perform its obligations as a shipper.

Art.13.16 Any assignment and assumption of a shipper's rights and obligations shall not take effect until the assignee has qualified as a shipper.

Art.13.17 All the stipulations, terms and conditions of this Access Code shall extend to and be binding upon the respective successors and assigns of the Parties.

Art.13.18 This provision shall be without prejudice to the entitlement of a shipper to trade its Reserved Capacity rights in accordance with this Access Code.

SECTION 14 MODIFICATION

- Art.14.00 The NGTU shall establish and operate such procedures as are mentioned in Art.14.02 for the modification of the Access Code.
- Art.14.01 The procedures referred to in Art.14.00 shall be such to provide for the
- (a) making of proposals for such modification either by the NGTU or by a shipper;
 - (b) giving of adequate publicity to any such proposal including, in particular, drawing it to the attention of all shippers and sending a copy of the proposal to any other person who may ask for it;
 - (c) consideration of any representations relating to such a proposal made (and not withdrawn) by a shipper or by any other person likely to be materially affected were the proposal to be implemented.
- Art.14.02 The NGTU shall:
- (a) prepare a document setting out the procedures established for the modification of the Access Code and furnish the Commission with a copy thereof;
 - (b) not make any change in this Access Code modification rules except after consulting all shippers and considering any representations made by such shippers.
- Art.14.03 Where a proposal is made in accordance with the code modification rules to modify the Access Code, the NGTU shall as soon as is reasonably practicable, give notice to the Commission
- (a) giving particulars of the proposal;
 - (b) where the proposal is made by a relevant shipper, drawing attention to any alternative proposal to modify the Access Code in respect of the same matter which has been made by the shipper;
 - (c) giving particulars of any representations by a shipper or other person with respect to those proposals;

- (d) stating whether, in the NGTU's opinion, any proposed modification shall or shall not be made;
- (e) stating the factors which, in its opinion, justify the making or not making of a proposed modification; and
- (f) giving such further information as may be required to be given to the Commission by the code modification rules.

SECTION 15 MISCELLANEOUS PROVISION

Dispute Resolution

- Art.15.00 Where a dispute arises between the NGTU and a Shipper, the aggrieved Party shall send notice to the other of the existence of such Dispute or a Payment Dispute notice in the case of a dispute relating to payment.
- Art.15.01 If the Parties are unable to resolve the dispute within ten days after the receipt of the notice, either Party may submit the Dispute to the **Arbitration Committee** of the Commission for settlement under the **Arbitration Rules of the Commission**.
- Art.15.02 The Arbitration Committee shall within ten days of receiving the Dispute appoint an arbitral tribunal of a sole arbitrator or an arbitration panel to determine the matter, including the fees and costs for the arbitration process.
- Art.15.03 A director, employee, advisor, contractor service provider of a Party or a person who has previously acted in such capacity may not be appointed as an arbitrator.
- Art.15.04 A Party may challenge the appointment of an arbitrator within five day of receiving notification of the appointment or within five day from the date the Party became aware of the existence of circumstances which will make an arbitrator unsuitable for the settlement of the dispute.
- Art.15.05 Notice of the challenge shall be submitted to the other Party and the Arbitration Committee which shall decide on the matter.
- Art.15.06 The Arbitration Committee shall at the request of the arbitration tribunal appoint an Expert to assist the arbitration tribunal in determining the matter.
- Art.15.07 The arbitration tribunal shall render a decision within sixty days of its appointment.
- Art.15.08 The decision of arbitration tribunal including the arbitration award shall be binding on the Parties.
- Art.15.09 Unless otherwise determined by the arbitration panel, the Parties shall perform their duties under this Access Code, the Transmission Service Agreement or ancillary service agreement in the course of the arbitration.

SECTION 16 SCHEDULES

PART A GAS SPECIFICATIONS

COMPOSITION (BY VOL %)

<i>Gas components</i>	<i>Maximum</i>	<i>Minimum</i>
Methane	95	85
Ethane	10	0
Propane	8	0
Butane + Paraffine (C4+)	5	0
CO₂	8	
N₂	6	
Total Inlet (CO₂ + N₂)	12	
O₂ (by volume)	10 ppm	
Water Content	7 Ibs/MMscf	
H₂S (by Volume)	4 ppm	
Total Sulfur	28 ppm	0 ppm

PART B GAS MEASUREMENT AND TESTING

The NGTU shall notify Commission and shippers prior to adopting any change or revision to any listed measurement standard in this **Part B**.

1. Measurement Equipment

- (a) Orifice meters will be used with flange-type connections and with electronic Gas measurement equipment and any other auxiliary measuring equipment such as continuous sampling devices and/or on-line gas chromatographs necessary to accomplish accurate measurement of the quality and quantity of gas delivered.
- (b) Electronic Gas measurement installations will be used, including electronic means for recording flow data and calculation of gas volumes, and using instrumentation for each meter run that at a minimum consists of differential pressure, static pressure, and temperature transmitters, including the use of smart transmitters (devices which self-correct the effects of temperature and when applicable pressure on the output signal of a transmitter) and a flow computer that performs flow calculations including compressibility.

2. Volume Measurement

(a) Standards

Measuring stations and measurement equipment shall be designed and installed in accordance with ***International Organization for Standardization Standards 5167-1 and 5167-2 (ISO 5167)*** and ***API Manual of Petroleum Measurement Standard 21.1: Electronic Gas Measurement***.

(b) General

- (i) In determining the gas flow rate and volumes of gas delivered during any period, electronic gas measurement shall be used. Calculations shall be carried out in accordance with ***ISO 5167*** and results shall be reported in Mscf and Cubic meters.

- (ii) The unit of volume reported for one thousand (1,000) Cubic Feet of Gas (1 Mscf) and for Cubic Meters shall be at base conditions of 14.73 psia (1.01560 bar) and 60°F (15.5°C).
 - (iii) Volumes shall be corrected for temperature and specific gravity as provided in **Item (c)** below.
 - (iv) For the purposes of measurement and meter calibration, the atmospheric pressure shall be assumed to be constant at an absolute pressure of 14.73 psia (1.01560 bar).
- (c) Calculations
- (i) Volumes shall be computed in accordance with the instructions for computing the flow of gas through orifice meters contained in **ISO 5167**. In the event physical properties of the gas are not within the variations provided in **ISO 5167**, volume shall be calculated by such method as may be mutually agreed upon between NGTU and shipper or shipper's representative.
 - (ii) The temperature of the gas shall be determined by means of a temperature averaging device, flow computer, or a recording thermometer of standard manufacture. Volumes shall be corrected for each degree of variation in the average temperature from 60° F (15.5°C) per **ISO 5167**.
 - (iii) Corrections of volumes for deviation from Boyle's Law shall be made in accordance with the procedures published in **American Gas Association Report No. 8: Compressibility Factors for Natural Gas and Other Related Hydrocarbon Gases**.

3. Heating Value Measurement

- (a) Equipment

Unless otherwise agreed upon between NGTU and shipper or shipper's representative, the Higher Heating Value of gas delivered hereunder shall be determined from read-outs of one or more of the following:

- (i) on-line gas chromatograph; or
- (ii) continuous composite sampler.

(b) **Standards**

Analysis of gas with gas chromatographs shall comply with the standards set forth in ***ASTM D-1945: Standard Test Method for Analysis of Natural Gas by Gas Chromatography***. Collecting and handling of gas samples shall follow standards set forth in ***ISO 10715: Natural Gas – Sampling Guidelines***. The Higher Heating Value of gas shall be determined by applying the calculation method from ***ISO 6976: Natural Gas – Calculation of calorific values, density, relative density and Wobbe index from composition***.

(c) **Calculation**

In determining the Higher Heating Value and the density of gas delivered during any period, the gas components as determined by continuous proportional flow sampling or an on-line gas chromatograph shall be used. Calculations shall be carried out in accordance with ***ISO 6976***

(d) **Reporting**

Higher Heating Value shall be converted and reported for contractual and operational purposes to British Thermal Units (Btu) at standard conditions of 14.73 psia (1.01560 bar) and 60° F (15.5°C). One Btu is equal to one thousand and fifty five point zero six (1055.06) joules.

(4) **Quality Testing**

The quality of the gas received and delivered shall be determined by tests which include the component analysis, hydrocarbon dew point and total heating value of

the gas utilizing daily analysis and monthly cumulative analysis as required and as described hereunder:

Monthly cumulative analysis: Composite Gas samples shall be taken using an automatic proportional flow sampler in accordance with ***API Manual of Measurement Standards Chapter 14, Section 1***. An extended analysis (up to C9+) must be performed by an independent or approved operator's laboratory utilizing temperature programmed gas chromatography in accordance with ***GPA Standard 2286***.

Daily Testing: A daily field test shall be conducted by either utilizing a manual spot sample or an in-line chromatograph capable of analysis up to C9+. All sampling shall be done in accordance with ***API Manual of Measurement Standards Chapter 14, Section 1***. For manual spot samples, an extended analysis (up to C9+) must be performed utilizing temperature programmed gas chromatography in accordance with ***GPA Standard 2286***.