CODE OF OPERATIONS
PART G

TECHNICAL

VERSION 5.04

Comprises version 5.04 published as of December 2019
incorporating the following Modifications

(1) Modification A087; Prepayment Metering
(2) Modification A100; Use of System Agreement – South-North Pipeline
(3) Modification A101; Extension of Daily Capacity Booking Window and to amend the multiplier for categories of Capacity Overrun Charges
(4) Modification A102; Shrinkage Gas Procurement
(5) Modification A103/103A; Removal of LDM GFPS Tolerance, NDM Forecast Tolerance, DM Exit Tolerance and associated redundant terminology
(6) Modification A104; Transfer payment of Capacity Overrun Charge Revenue from Capacity Overruns Disbursement Account to Allowed Revenue; remove caps for Supply Point Capacity Overruns
(7) Modification A104A; Removal of Scheduling Charges from Disbursements Account
(8) Modification A105; Removal of reference to Kinsale Field (Inch)
(9) Modification A106; Deletion of Entry Point Transfer provisions from Code of Operations
(10) Modification A107; Amendment to to remove annual caps on non-SPC Capacity Overrun Charges
(11) Modification A108; Amendment to incorporate the transfer of Shrinkage Gas Cost recovery from a separate Shipper Charge to allowed revenues from tariffs from the start of the Gas Year 2020/21

(12) Modification A109; Amendment to specify the basis of calculation of charge in respect of an adjustment to a metered quantity (Metered Quantity Adjustment) as referred to in Part G (*Technical*) Section 4.9

(13) Modification A110; Amendment to reduce the Annual Caps on the multipliers for certain Supply Point Capacity Overruns and to delete the Supply Point Capacity Overrun Disbursements Account

Part G

1. SPECIFICATIONS: QUALITY AND PRESSURE

1.1 Quality

1.1.1 Natural Gas delivered to, or tendered for delivery at, an IP Entry Point or an Entry Point shall (notwithstanding the provisions of any Interconnection Agreement or CSA) comply with the specification for Natural Gas entering the Transportation System as outlined in Appendix 1 ("**Entry Specification**"). A CSA may specify additional gas quality parameters (which may for the avoidance of doubt be subsets of the parameters set out in Appendix 1) and associated limits in respect of such parameters to apply at an individual RNG Entry Point or a category of RNG Entry Point(s) in which case the Entry Specification in respect of such RNG Entry Points shall include gas quality parameters so specified in addition to the parameters set out in Schedule 1). Where an Interconnection Agreement or a CSA in respect of any IP Entry Point, Entry Point or Bi-Directional CSP provides for a gas quality specification which is more restrictive than that outlined in Appendix 1 then the Entry Specification with respect to such IP Entry Point, Entry Point or Bi-Directional CSP shall be as specified in the applicable Interconnection Agreement, or CSA as notified by the Transporter to Shippers.

1.1.2 Natural Gas made available by the Transporter for offtake at an Offtake Point, at a Connected System Exit Point, at an IP CSEP or at the Sub-Sea I/C Offtake shall comply with the Offtake Specification for Natural Gas offtaken from the Transportation System outlined in Appendix 2 ("**Offtake Specification**").

1.1.3 Each Shipper shall use all reasonable endeavours to procure that the appropriate contractual arrangements are in place and to procure implementation of any quality control measures requested by the Transporter to ensure that the quality of all Natural Gas tendered for delivery by a Shipper to the Transportation System when delivered at the Entry Point or at an IP Entry Point accords to the Entry Specification as specified in Section 1.1.1.

1.1.4 Shippers acknowledge that the quality of Natural Gas delivered to or tendered for delivery at an IP Entry Point and/or at an Entry Point shall be monitored in accordance with the Natural Gas Emergency Plan and the applicable Procedure for the Monitoring and Management of Gas Quality.

1.2 Pressure

1.2.1 The Transporter shall make Natural Gas available for offtake from the Transmission System at an Exit Point and/or the IP CSEP and/or at the Sub-Sea I/C Offtake at a minimum pressure ("**Transmission Minimum Pressure**") (as measured at the relevant Exit Point, the IP CSEP or Sub-Sea I/C Offtake as the case may be) of not less than:

(a) eight (8) bar off the nineteen (19) bar system;

(b) nineteen (19) bar off the seventy (70) bar system (subject to (d) below);

(c) fifty (50) bar at the Sub-Sea I/C Offtake; and

(d) in accordance with the Interconnection Agreement at the IP CSEP.

1.2.2 The Transporter shall make Natural Gas available for offtake from the Distribution System at a pressure that is not less than the pressure required to ensure the safe operation of a Natural Gas Appliance.

1.2.3 The Transporter shall not be obliged to make Natural Gas available for offtake by a Shipper from the Transmission System at a pressure in excess of the Transmission Minimum Pressure. However, where a Shipper or End User requests Natural Gas to be made available for offtake at a pressure in excess of the Transmission Minimum Pressure then the Transporter may, if the Transporter agrees to provide such excess pressure, require the relevant Registered Shipper to enter into an agreement with the Transporter in respect of the provision of such excess pressure.

1.2.4 Where the pressure of Natural Gas immediately downstream of any or at the IP CSEP, the Sub-Sea I/C Offtake, LDM Exit Point or a TCDM Exit Point is in excess of the Transmission Minimum Pressure, the Transporter shall not be obliged to make Natural Gas available for offtake at such Offtake Point at the IP CSEP or at the Sub-Sea I/C Offtake and any such failure to make such Natural Gas available shall not be considered a breach of this Code and/or any Ancillary Agreement.

1.2.5 Where the pressure of Natural Gas immediately downstream of any Supply Point is in excess of the prevailing pressure in the relevant part of the Distribution System, the Transporter shall not be obliged to make Natural Gas available for offtake at such Supply Point and any such failure to make such Natural Gas available shall not be considered a breach of this Code and/or any Ancillary Agreement.

1.2.6 The Transporter may make Natural Gas available for offtake at the IP CSEP, the Sub-Sea I/C Offtake, LDM Exit Point or TCDM Exit Point at a pressure in excess of the Transmission Minimum Pressure and may make Natural Gas available for offtake from the Distribution System at a pressure in excess of the pressure referred to in Section 1.2.2.

1.2.7 Without prejudice to any other provisions of this Section 1, the availability of Natural Gas at any pressure shall be subject to the:

(a) MHQ and ramp rate for any LDM Offtake or the Sub-Sea I/C Offtake as the case may be not being exceeded;

(b) MHQ for any DM Offtake not being exceeded;

(c) relevant Shipper acting in accordance with the provisions of Part D (*Nominations, Allocations and NDM Supply Point Reconciliation*) Section 1 (*Nominations and Renominations*);

(d) provisions of Part H (*Operations*) Sections 1 (*Emergencies*) and 2 (*Congestion Management)*;

(e) the status of the valves at the South-North Interconnection Point or such other provisions with respect to the South-North Interconnection Point as notified by the Transporter to Shippers;

(f) provisions with respect to an IP CSEP as notified by the Transporter to Shippers;

(g) provisions with respect to the Sub-Sea I/C Offtake (including the Sub-Sea I/C Offtake Agreement(s)) as notified by the Transporter to Shippers; and/or

(h) the availability of pressure under the Use of System Agreement.

1.2.8 The Transporter shall be relieved of its obligations under this Section 1.2 if:

(a) in order to maintain the Transmission Minimum Pressure, it is required to undertake works to the Transportation System or other system enhancement measures as a result of building, mining or engineering developments of third parties or changes in population density which have occurred in the vicinity of the Transportation System, or any localised part thereof, and the works or other measures would be necessary in order to comply with the recommendations or standards recognised or promulgated pursuant to the Transportation Licences or by any independent standard making authority or professional engineering institution of Ireland and/or the United Kingdom concerning the maximum permissible operating pressure of Natural Gas pipelines; or

(b) it is not or ceases or shall cease to be feasible or safe or in accordance with the applicable standard to maintain at any LDM Exit Point, IP CSEP, the Sub-Sea I/C Offtake or TCDM Exit Point a pressure of at least the Transmission Minimum Pressure specified in Section 1.2, and the Transporter has, as soon as reasonably practicable after becoming aware that such Transmission Minimum Pressure cannot be maintained, informed the Shipper specifying the date with effect from which it shall be necessary to reduce such pressure and the reduced pressure which can (after such date) be so maintained.

1.2.9 With effect from the date specified by the Transporter pursuant to Section 1.2.8(b), the reduced pressure as specified by the Transporter shall be the revised Transmission Minimum Pressure.

1.2.10 The Transporter shall be relieved of its obligations to make Natural Gas available for offtake at a Supply Point if:

(a) in order to maintain the pressure as referred to in Section 1.2.2 upstream of the Supply Point to facilitate the offtake of Natural Gas at such Supply Point, it is required to undertake works to the Transportation System or other system enhancement measures as a result of building, mining or engineering developments of third parties or changes in population density which have occurred in the vicinity of the Transportation System, or any localised part thereof, and the works or other measures would be necessary in order to comply with the recommendations or standards recognised or promulgated pursuant to the Transportation Licences or by any independent standard making authority or professional engineering institution of Ireland and/or the United Kingdom concerning the maximum permissible operating pressure of Natural Gas pipelines; or

(b) it is not or ceases or shall cease to be feasible or safe or in accordance with the applicable standard to maintain the pressure upstream of any Supply Point to facilitate the offtake of Natural Gas at such Supply Point and the Transporter has, as soon as reasonably practicable after becoming aware that such pressure cannot be maintained, informed the Shipper specifying the date with effect from which it shall be necessary to reduce such pressure and the reduced pressure which can (after such date) be so maintained.

1.2.11 Subject to Section 5 (*Maintenance*), the Transporter shall not knowingly schedule operations which it believes would result in the pressure of the Transmission System or any localised part thereof falling below the levels specified in Section 1.2.1 above or which would otherwise jeopardise the integrity of the Transmission System or any localised part thereof and the ability of the Transporter to provide transmission services.

1.2.12 The Transporter and each Shipper acknowledge that Natural Gas delivered at any Entry Point shall be at the delivery pressure prevailing at those points from time to time.

1.2.13 Where Natural Gas is made available for offtake from the Transmission System at a Proposed Entry Point or at an Entry Point pursuant to any applicable Commissioning Reverse Flow Arrangements or Operational Reverse Flow Arrangements, such Natural Gas shall be made available for offtake at the prevailing pressure at such part of the Transportation System from time to time. For the avoidance of doubt the Transmission Minimum Pressure shall not apply with respect to such offtake of Natural Gas.

1.3 Non-Compliant Gas

1.3.1 Each Shipper shall use all reasonable endeavours (including ensuring that appropriate contractual arrangements are in place) to ensure that Natural Gas tendered for delivery at an Entry Point or an IP Entry Point shall conform with the relevant Entry Specification. Without prejudice to the foregoing if Natural Gas delivered by a Shipper forms part of a commingled stream, and if the commingled stream fails to conform to the relevant Entry Specification, then whatever may be the reason for such failure, all Natural Gas tendered for delivery by the Shippers at the Entry Point or IP Entry Point shall be deemed to have failed to conform to the Entry Specification.

1.3.2 If Natural Gas tendered for delivery at the IP Entry Point or the Entry Point fails to conform to the Entry Specification ("**Non-Compliant Gas"**), the Transporter shall comply with the Natural Gas Emergency Plan (where applicable) and with the Procedure for the Monitoring and Management of Gas Quality and subject thereto the Transporter may:

(a) refuse to accept delivery or continued delivery of such Non-Compliant Gas or any part thereof;

(b) (subject to any Legal Requirement) accept delivery of all or part of such Non-Compliant Gas; and/or

(c) take any steps available to it to limit the rate at which such Non-Compliant Gas is delivered to the Transportation System or to secure that such Non-Compliant Gas is not so delivered or is treated in such a way as to enable it to comply with the Entry Specification.

1.3.3 Where Non-Compliant Gas is delivered by a Shipper to the Transportation System, irrespective of whether such Non-Compliant Gas is accepted pursuant to Section 1.3.2 (including the Natural Gas Emergency Plan and/or the Procedure for the Monitoring and Management of Gas Quality) (or where the Transporter becomes aware that such Natural Gas is Non-Compliant Gas after the delivery of such Natural Gas to the Transportation System), then in such event the Shipper(s) who delivered such Non-Compliant Gas shall, subject to the limitation of liabilities under Section 1.3.5, indemnify the Transporter for all costs and expenses properly incurred by it as a consequence of the delivery of such Non-Compliant Gas, including costs and expenses incurred in taking whatever measures it considers are reasonably required:

(a) in cleaning all or any part of the Transportation System or rectifying any other damage thereto caused by the delivery of such Non-Compliant Gas;

(b) to ensure that the Transportation System can continue to be operated in accordance with the provisions of this Code notwithstanding the delivery or continued delivery of such Non-Compliant Gas; and/or

(c) to bring such Natural Gas within the Entry Specification.

1.3.4 Where Non-Compliant Gas is delivered to the Transportation System at an IP Entry Point or at an Entry Point then (without prejudice to section 1.3.3) the Transporter may take such steps as may be available to it to dispose of such Non-Compliant Gas including where practicable by procuring the return of it at the Entry Point or IP Entry Point at which it was delivered. Any Non-Compliant Gas delivered to the Transportation System on a Day which is disposed of by the Transporter pursuant to Section 1.3.4 is not and shall not be treated as Natural Gas delivered to the Transportation System in the relevant Day and accordingly, shall not be allocated pursuant to Part D (*Nominations, Allocations and Supply Point Reconciliation*) and the Allocable Quantity in respect of such Day shall (where necessary) be adjusted accordingly.

1.3.5 The costs and expenses incurred in accordance with Section 1.3.3 shall be recovered from each Shipper responsible, or deemed responsible, for such Non-Compliant Gas pro rata to their respective Final IP Entry Allocation(s) or Final Entry Allocation(s) at the IP Entry Point or Entry Point (as the case may be) on the Day, provided always that the Shipper's liability to the Transporter under Section 1.3.3 shall not, in respect of each delivery of Non-Compliant Gas, exceed ten (10) per cent of the amount determined by the Transporter as the Shipper's proportion of the total quantity of Non-Compliant Gas delivered to the Transportation System at the relevant IP Entry Point or Entry Point on the relevant Day multiplied by the Imbalance Price (RNG) for that Day.

1.3.6 Each Shipper acknowledges, for the purposes of this Section 1.3, that the volume, quantity and Delivery Characteristics of Natural Gas delivered to the Transportation System at an IP Entry Point and/or at an Entry Point, and the compliance or non-compliance with the applicable Entry Specification in respect thereof, will be determined by the Transporter.

1.4 Shippers' Natural Gas Deliveries

1.4.1 Where on a Day more than one Shipper delivers Natural Gas or tenders Natural Gas for delivery to the Transmission System at an Entry Point or at an IP Entry Point:

(a) each such Shipper shall be treated as delivering, or tendering for delivery, at such Entry Point, or IP Entry Point Natural Gas of the same Delivery Characteristics as that delivered, or tendered for delivery, at such Entry Point or IP Entry Point by each other Shipper; and

(b) subject to Part H (*Operations*) Section 3.8 (*Administrative Procedures at an Entry Point*) subject to any applicable OBA or IP OBA Provisions the Natural Gas delivered, or tendered for delivery, at each Entry Point or IP Entry Point at any time on such Day shall, irrespective of

differences in Delivery Characteristics at such Entry Point, or IP Entry Point be treated as delivered, or tendered for delivery, by each Shipper in proportion to each Shipper's Nominated Quantity.

1.4.2 All Natural Gas delivered or tendered for delivery to the Transmission System at an Entry Point or at an IP Entry Point on a Day by, or on behalf of, a Shipper shall be deemed to be delivered, or tendered for delivery (as the case may be) to the Transportation System, by such Shipper irrespective of any act or omission of the Connected System Operator or any other person, including any Counterparty IP Shipper, Third Party Shipper or the Transporter.

1.5 Off-Spec Gas

1.5.1 If Natural Gas fails to conform to the Offtake Specification when made available for offtake by the Transporter at an Offtake Point, or the Sub-Sea I/C Offtake ("**Off-Spec Gas**") then, until such time as the Transporter is able to make available for offtake Natural Gas in accordance with the Offtake Specification, the Shipper may, in its discretion, either:

(a) offtake or continue to offtake such Off-Spec Gas; or

(b) decline to offtake, or to continue to offtake, such Off-Spec Gas.

1.5.2 Where Off-Spec Gas has been offtaken on any Day from the Transmission System at an Exit Point, IP CSEP or at the Sub-Sea I/C Offtake, the Transporter shall only be liable to each Shipper for an amount determined in accordance with Section 1.5.3 save that if the Transporter shall have advised the Shipper that such Natural Gas was Off-Spec Gas prior to making the same available for offtake (such advice to be given to the Shippers by the Transporter as soon as is reasonably practicable following the Transporter becoming aware of the existence of Off-Spec Gas) the Transporter shall have no liability to the Shipper(s) as a consequence of the delivery of such Off-Spec Gas (whether or not such Off-Spec Gas was offtaken by the Shipper at such Exit Point, IP CSEP, or the Sub-Sea I/C Offtake) or in respect of the non-availability for offtake of Natural Gas (where the same was nonetheless available for offtake at such Exit Point, IP CSEP, or Sub-Sea I/C Offtake notwithstanding the Transporter's expectation that Off-Spec Gas would be available) or otherwise howsoever arising including as a result of the advice given by the Transporter in this Section 1.5.2.

1.5.3 Subject to Section 1.5.2, the Transporter's only liability to a Shipper under this Code for Off-Spec Gas shall be the costs and expenses properly incurred by the Shipper as a direct consequence of the offtake of the Off-Spec Gas, including costs and expenses incurred in taking whatever measures are reasonably required to ensure that:

(a) the Off-Spec Gas can be made fit for use in the relevant End User's Facility; and/or

(b) Not Used

(c) in the case of the IP CSEP at the South-North IP to ensure that the Interconnected System may accept such Off-Spec Gas (where practicable),

provided that the Transporter shall not be liable for any damage or loss caused to or suffered by any property of, or used by, the Shipper or any Connected System Operator (and the Shipper shall indemnify the Transporter with respect to any claim by an End User or Connected System Operator or Third Party Shipper in connection with such damage or loss), and further provided always that the Transporter's liability to a Shipper hereunder shall not exceed ten (10) per cent of the amount calculated as the Shipper's proportion of the total quantity of Off-Spec Gas offtaken from the Transmission System at the relevant Exit Point, the IP CSEP, or Sub-Sea I/C Offtake as the case may be on the relevant Day multiplied by the Imbalance Price (RNG)for that Day and subject always to, and only up to the extent specified in, Part I (*Legal and General*) Section 2 (*Liabilities and Indemnities*).

1.5.4 Where a Shipper incurs costs and expenses in accordance with this Section 1.5, the Shipper shall as soon as reasonably practicable notify the Transporter specifying:

(a) the relevant Exit Point, IP CSEP or Sub-Sea I/C Offtake and the Day or Days at, and on which, Off-Spec Gas was offtaken by the Shipper from the Transmission System;

(b) the total quantity of Off-Spec Gas offtaken by the Shipper at such Exit Point, the IP CSEP, or Sub-Sea I/C Offtake and reasonable details of the respect(s) in which the Off-Spec Gas did not comply with the Offtake Specification;

(c) reasonable details of the steps taken to make the Off-Spec Gas fit for use in an End User's Facility and the costs and expenses of this procedure;

(d) the identity of the Shipper(s); and

(e) in respect of Shippers to Multiple Shipper LDM Exit Points, the Shipper's offtake proportion of such Off-Spec Gas.

1.5.5 The Transporter shall not be liable to a Shipper for any damage or loss suffered as a result of the offtake of any Off-Spec Gas from the Distribution System. Each Shipper shall indemnify the Transporter for any action, cost, claim, damage or loss caused to or suffered by any End User as a result of the offtake of Off-Spec Gas from the Distribution System.

1.5.6 Failure to comply with the pressure requirements of Section 1.2.1 shall not render (or be deemed to render) Natural Gas as being Off-Spec Gas for the purposes of this Section 1.5 and the Transporter shall not be liable hereunder as a result thereof.

1.5.7 Each Shipper acknowledges that the compliance or non-compliance of Natural Gas, offtaken from the Transportation System at an Offtake Point, IP CSEP or the Sub-Sea I/C Offtake, with the Offtake Specification in respect thereof will be determined by the Transporter.

2. SYSTEM PLANNING

2.1 Estimates

2.1.1 For planning purposes, each Shipper shall supply the Transporter with such bona fide estimates of its anticipated short, medium and long-term capacity requirements at each Entry Point and at each Exit Point and/or Supply Point at which it is a Registered Shipper as may be practically possible. The estimates shall not be binding on a Shipper nor shall they impose any obligations on that Shipper or the Transporter.

2.1.2 Not later than the first Day of June in any year, each Shipper shall notify the Transporter of the Shipper's bona fide estimate of its maximum energy requirements (expressed in kWh/Day) and its maximum Flow Rate requirements (expressed in kW) for the following ten (10) Gas Years at:

(a) each IP Entry Point and each Entry Point;

(b) each Exit Point;

(c) each Gas Point within a Supply Point;

(d) each IP CSEP; and

(e) the Sub-Sea I/C Offtake,

at which the Shipper is then a Registered Shipper for each Gas Year in such following ten (10) year period.

2.1.3 Not later than the first Day of June in any year, each Shipper shall notify the Transporter of the Shipper's bona fide estimate of its maximum energy requirements (expressed in kWh/Day) and its maximum Flow Rate requirements (expressed in kW) to be:

(a) delivered at each IP Entry Point and at each Entry Point;

(b) offtaken at each Exit Point;

(c) offtaken at each Gas Point within a Supply Point;

(d) the Sub-Sea I/C Offtake;

(e) Not Used and

(f) at the South-North IP CSEP,

at which the Shipper is then a Registered Shipper, for each month of the immediately following Gas Year.

2.1.4 Not later than 31 August in any year, and, thereafter, thirty (30) Days before the first Day of each subsequent Quarter of a Gas Year, each Shipper shall notify the Transporter of the Shipper's bona fide estimate of its maximum

energy requirements (expressed in kWh/Day) and of its maximum Flow Rate requirements (expressed in kW) to be:

(a) delivered at each IP Entry and at each Entry Point;

(b) offtaken at each Exit Point;

(c) offtaken at each Gas Point within a Supply Point;

(d) the Sub-Sea I/C Offtake; and

(e) Not Used

(f) at the IP CSEP,

at which the Shipper has reserved capacity, on each Day (expressed as a maximum daily quantity) during each such subsequent Quarter.

2.1.5 No later than 10:00 hours on Wednesday of each week during the Gas Year, each Registered Shipper shall notify the Transporter of the Shipper's bona fide estimate of its maximum energy requirements (expressed in kWh/Day) for each Day of the following week, commencing on 06:00 hours on the following Sunday for:

(a) delivery at each Entry Point at which the Shipper is a Registered Shipper;

(b) offtake at each LDM Offtake(s) at which the Shipper is a Registered Shipper setting out an hourly profile of the flow required;

(c) offtake (in aggregate) at the DM Offtake(s) at which the Shipper is the Registered Shipper;

(d) offtake at the Sub-Sea I/C Offtake at which the Shipper is the Registered Shipper; and

(e) offtake at the IP CSEP.

2.2 Additional Information

2.2.1 Each Shipper shall use all reasonable endeavours to provide any additional information reasonably requested by the Transporter that would aid the Transporter in planning the future deliveries of Natural Gas to, or offtake of Natural Gas from, the Transportation System. The Transporter shall notify Shippers on an annual basis of the type of additional information it requires for the purposes of this Section 2.2.

2.2.2 For the purposes only of enabling the Transporter to fulfil any statutory or regulatory duty to furnish such information to any Competent Authority (including HM Customs and Excise as required by the Customs and Excise Management Act 1979 of the United Kingdom) each Shipper shall be

required to provide the Transporter, in respect of and in advance of each Month, with details of its Third Party Shippers including its Third Party Shippers on each Day of such Month and such other details concerning such Third Party Shippers as the Transporter may be required by law or regulation to furnish to such Competent Authority. Such information shall be provided no later than the fifteenth Day of the Month preceding such Month whenever practicable and shall subsequently be confirmed on each Day of the Month.

2.2.3 The fact that a Shipper has provided the Transporter with information in accordance with this Section 2 shall not relieve such Shipper from an obligation to provide the Transporter with the same information in accordance with any other provision of this Code and/or any Ancillary Agreement.

3. MEASUREMENT

3.1 General

3.1.1 The provisions of this Section 3 shall apply to all Entry Points and Offtake Points except where otherwise stated.

3.1.2 "**Measurement Provisions**" means the procedures, methods and standards by which:

(a) Natural Gas delivered to or tendered for delivery at IP Entry Point(s), Entry Points or made available for offtake at an Entry Point pursuant to any Commissioning Reverse Flow Arrangements or Operational Reverse Flow Arrangements is measured, sampled and analysed;

(b) Natural Gas offtaken at an Offtake Point or the Sub-Sea I/C Offtake or the South-North IP CSEP is measured and, where relevant, sampled and analysed; and

(c) the standard volume and Calorific Value of such Natural Gas are measured or determined.

3.1.3 Measurement Provisions may include:

(a) standards of accuracy and procedures for testing and calibration of Measurement Equipment;

(b) terms by which volume, quantity, or any Delivery Characteristic of Natural Gas delivered to, or tendered for delivery at an IP Entry Point or at an Entry Point to the Transportation System may be estimated in the case of failure or defect of any Measurement Equipment, non-compliance with any of the Measurement Provisions of the IP Entry Point or the Entry Point, or otherwise;

(c) terms upon which any difference or dispute between the Upstream Operator any Adjacent TSO and the Transporter as to the volume, quantity or Delivery Characteristics of Natural Gas delivered or tendered for delivery and/or with respect to the offtake of Natural Gas from the Transportation System shall be resolved (which may include resolution by agreement between them); or

(d) terms by which volume, quantity or characteristics of Natural Gas offtaken from the Transportation System at an Offtake Point or the Sub-Sea I/C Offtake or the South-North IP CSEP may be estimated or determined in the case of failure or defect of any Measurement Equipment (or part thereof) or non-compliance with any of the Measurement Provisions at an Offtake Point, or otherwise.

3.1.4 Each Shipper acknowledges that the volume, quantity and Delivery Characteristics of Natural Gas which it delivers to, or tenders for delivery to

the Transportation System at, an IP Entry Point or at an Entry Point (by Shippers in aggregate) including as set out in any applicable Interconnection Agreement, or CSA and the compliance or non-compliance with the applicable Entry Point Requirements or Entry Specification in respect thereof, shall be established in accordance with the Natural Gas Emergency Plan and/or the Procedure for the Monitoring and Management of Gas Quality and subject thereto by the Transporter and the Adjacent TSO (in accordance with the Interconnection Agreement) or Upstream Operator or Connected System Operator (pursuant to the Entry Point Requirements set out in Part H (*Operations*) Section 3.1 (*Entry Point Requirements*) or Section 5.2 (*Bi-Directional CSP Requirements*)) as the case may be in accordance with the applicable Measurement Provisions at the IP Entry Point or Entry Point and by means of the Measurement Equipment, and each Shipper shall be bound (for the purposes of this Code) by what is so established.

3.1.5 The Shipper acknowledges that the volume quantity and Delivery Characteristics of Natural Gas offtaken at the Sub-Sea I/C Offtake or the IP CSEP may be determined by the Transporter and the Adjacent TSO, operator of the Spur Pipeline or the operator of any Relevant Offtake Facility (pursuant to the Sub-Sea I/C Offtake Point Arrangements as referred to in Part H (*Operations*) Section 6 (*Sub-Sea I/C Offtake Agreement*) as the case may be in accordance with the applicable Measurement Provisions and by means of the Measurement Equipment and each Shipper shall be bound (for the purposes of this Code) by what is so established.

3.1.6 The Shipper acknowledges that the volume, quantity and Delivery Characteristics of Natural Gas offtaken at an Entry Point pursuant to any commissioning Reverse Flow Arrangements and/or Operational Reverse Flow Arrangements may be determined by the Transporter and the Operator of the Connected System upstream of such Entry Point in accordance with the applicable Measurement Provisions and by means of the Measurement Equipment and each Shipper shall be bound (for the purpose of this Code) by what is so established.

3.1.7 The procedures, methods and standards referred to in Section 3.1.2 shall be interpreted in accordance with:

(a) the Transporter's standards and policies;

(b) the relevant standards of CEN, NSAI and the ISO code; and/or

(c) applicable Legal Requirement(s) (if any).

3.2 Measurement Equipment

3.2.1 "**Measurement Equipment**" means that equipment installed, or required by the Transporter to be so installed, at an IP Entry Point, an Entry Point, or at

an Offtake Point or at or in respect of the Sub-Sea I/C Offtake for the purpose of measuring the volume of Natural Gas delivered to or offtaken from the Transportation System (as the case may be) comprising the primary metering equipment for measuring the primary gas flow and where applicable, secondary instrumentation. For the avoidance of doubt Measurement Equipment shall include Prepayment Meters (where applicable).

3.2.2 The Transporter shall ensure, or shall procure, the installation of Measurement Equipment at each IP Entry Point, Entry Point and at the IP CSEP and in respect of the Sub-Sea I/C Offtake.

3.2.3 The Transporter shall ensure, or shall procure, the installation of appropriate Measurement Equipment at each Offtake Point and shall operate and maintain and/or shall procure, the operation and maintenance of Measurement Equipment at each Offtake Point.

3.2.4 The Measurement Equipment in respect of the Sub-Sea I/C Offtake is located at the point after the outlet Fire Valve 070.HV.01 at which Natural Gas is offtaken from the Spur Pipeline and is located at the most easterly boundary of the shore station at the Isle of Man.

3.3 Entry Point Measurement, South-North IP CSEP Measurement and Sub-Sea I/C Offtake Measurement

3.3.1 The quantity of Natural Gas delivered to an IP Entry Point or Entry Point and offtaken at the South-North IP CSEP or at the Sub-Sea I/C Offtake shall be the aggregate volume measured by the Measurement Equipment multiplied by the Calorific Value at such IP Entry Point, Entry Point or the South-North IP CSEP or at the Sub-Sea I/C Offtake as the case may be and shall be allocated in accordance with Part D (*Nominations, Allocations and NDM Supply Point Reconciliation*) Section 2 (*Allocations*) and Section 3 (*Interconnection Point Allocation*).

3.3.2 Where Natural Gas is offtaken at an Entry Point pursuant to arrangements entered into under Part H (*Operations*) Sections 3.8 and/or 5.5 the quantity of Natural Gas so offtaken at such Entry Point shall be the aggregate volume measured by the Measurement Equipment multiplied by the Calorific Value at such Entry Point and shall be allocated in accordance with the applicable agreements entered into by the Transporter (with the approval of the Commission) in accordance with Part H (*Operations*) Sections 3.8 and/or 5.5 (as the case may be).

3.4 LDM Offtake Measurement

3.4.1 The quantity of Natural Gas offtaken by a Shipper at a LDM Offtake on a Day shall be the volume of Natural Gas metered or determined by the Transporter as having been offtaken at such LDM Offtake on such Day multiplied by the applicable Calorific Value of such Natural Gas and shall be

allocated in accordance with Part D (*Nominations, Allocations and NDM Supply Point Reconciliation)* Section 2 (*Allocations*).

3.4.2 If requested by a Shipper, the Transporter shall provide the Shipper, subject to such Shipper reimbursing the Transporter for its reasonable costs in providing such information, with the following data from the LDM Offtake at which the Shipper is offtaking Natural Gas, in respect of such offtaken Natural Gas, and as soon as the same is reasonably available:

(a) Instantaneous Flow Rate;

(b) cumulative volume;

(c) Instantaneous Energy Rate;

(d) cumulative energy; and

(e) Calorific Value or applicable Calorific Value where relevant.

3.5 Absence of Valid Reads at LDM Offtakes

In the absence of a Valid Meter Read(s) from the Measurement Equipment at a LDM Offtake in respect of a Day, the Transporter may determine the quantity of Natural Gas flowing through such Measurement Equipment by either:

(a) using appropriate Natural Gas engineering technology; or

(b) estimating such quantities by flowing Natural Gas through the same Measurement Equipment under similar conditions.

3.6 DM Offtake Measurement

The quantity of Natural Gas offtaken by a Shipper at a DM Offtake on a Day shall be the volume of Natural Gas metered or determined by the Transporter as having been offtaken at such DM Offtake on such Day multiplied by the applicable Calorific Value of such Natural Gas.

3.7 Absence of Valid Meter Reads at DM Offtakes

3.7.1 If a Valid Meter Read is unavailable at a DM Offtake in respect of a Day, a quantity of Natural Gas shall be allocated in accordance with Part D (*Nominations, Allocations and NDM Supply Point Reconciliation*) Section 2 (*Allocations)*.

3.7.2 If a Valid Meter Read from a DM Offtake is unavailable for more than five (5) consecutive Days, the Transporter shall reasonably determine the most appropriate solution and inform the Shipper within two (2) Days.

3.8 NDM Supply Point Measurement

The quantity of Natural Gas offtaken at a NDM Supply Point in respect of a period shall be the volume of Natural Gas metered or determined by the Transporter (in accordance with Part F (*Administration*) Section 5 (*Meter Data Services*) and the Meter Data Services Procedures) as having been offtaken at such NDM Supply Point during such period multiplied by the applicable Calorific Value.

3.9 **Meter Data Cleansing**

3.9.1 The Transporter may, following the end of each Month and prior to the issue of a Monthly Invoice(s) which includes an Invoice Item(s) calculated by reference to meter data (or, in the absence of relevant meter data, pursuant to Sections 3.4, 3.5, 3.6 or 3.7), review such meter data and undertake a meter data cleansing process. Following such meter data cleansing process, Monthly Invoice(s) may include an Invoice Item with respect to the adjustment of the commodity component of the applicable Tariff(s) payable by Shippers to reflect the outcome of such meter data cleansing process.

For the avoidance of doubt, an adjustment of the commodity component of the Tariff to reflect any adjustment to the quantity of Natural Gas offtaken from the Transportation System as a result of the meter data cleansing process shall not affect Shippers' Final Allocations. The Transporter shall, when undertaking reconciliation in accordance with the Reconciliation Procedures, take account of any such adjustment.

3.10 **Sub-Sea I/C Offtake Measurement**

3.10.1 The quantity of Natural Gas offtaken at the Sub-Sea I/C Offtake shall be the volume of Natural Gas metered or determined by the Transporter as having been offtaken at the Sub-Sea I/C Offtake on such Day multiplied by the applicable calorific value of such Natural Gas and shall be allocated in accordance with Part D (*Nominations, Allocations and NDM Supply Point Reconciliation*) Section 2 (*Allocations*).

3.10.2 If requested by a Shipper registered at the Sub-Sea I/C Offtake the Transporter shall provide such Shipper, subject to such Shipper reimbursing the Transporter for its reasonable costs in providing such information, the following data from the Sub-Sea I/C Offtake in respect of such offtake of Natural Gas, and as soon as same is reasonably available:

(a) instantaneous flow rate;

(b) cumulative volume;

(c) instantaneous energy rate;

(d) cumulative energy; and

(e) calorific value.

3.11 **Absence of reliable readings from the Measurement Equipment with respect to the Sub-Sea I/C Offtake or the South-North IP CSEP**

3.11.1 In the absence of reliable readings from any Measurement Equipment in respect of the Sub-Sea I/C Offtake or the South-North IP CSEP or in the event that any of such Measurement Equipment is not functioning from time to time, the Transporter may calculate the quantity of Natural Gas flowing through such Measurement Equipment by either:

(a) using appropriate gas engineering technology; or

(b) estimating such quantities by flowing Natural Gas through the same Measurement Equipment under similar conditions during other periods.

3.12 Interpretation of Standards

The Transporter shall be responsible for the interpretation of standards, guidelines and specifications used in the design, installation, operation and maintenance of the Measurement Equipment.

4. MEASUREMENT EQUIPMENT VERIFICATION

4.1 General

This Section 4 includes the standards of accuracy and the procedures for the testing and calibration of Measurement Equipment and the terms upon which any difference or dispute between the Transporter and a Shipper as to volume, Calorific Value or quantity of Natural Gas delivered is resolved.

4.2 Measurement Equipment Uncertainty

4.2.1 The uncertainty in the Measurement Equipment shall in all steady-state flow conditions not exceed:

(a) with respect to an IP Entry Point, or Entry Point or the South-North IP CSEP, that uncertainty specified in the relevant Interconnection Agreement or CSA, and if the uncertainty is not specified in the applicable Interconnection Agreement, or CSA, +/- 1 per cent (volume) and +/- 1.1 per cent (energy) over the range of 20 - 100 per cent of the Maximum Flow Rate for such IP Entry Point, Entry Point, or South-North IP CSEP as the case may be;

(b) with respect to a LDM Offtake, +/- 1 per cent (volume) and +/-1.1 per cent (energy) over the range of 20 - 100 per cent of the Maximum Flow Rate for such offtakes;

(c) with respect to a DM Offtake, +/- 1 per cent (volume) and +/- 1.1 per cent (energy) over the range of 20 - 100 per cent of the Maximum Flow Rate for such offtakes;

(d) with respect to a NDM Supply Point, +/- 3 per cent (volume) over the range of 20 - 100 per cent of the Maximum Flow Rate for NDM Supply Points; and

(e) with respect to the Sub-Sea I/C Offtake, the uncertainty specified in the Sub-Sea I/C Offtake Agreement, and if the uncertainty is not so specified in the Sub-Sea I/C Offtake Agreement, +/- 1% (volume) and +/- 1.1% (energy) over the range of 20 – 100 per cent of the Maximum Flow Rate for the Sub-Sea I/C Offtake,

(each of (a), (b), (c), (d) and (e) being the "**Permitted Range**" and together, the "**Permitted Ranges**").

4.2.2 The levels of uncertainty specified in Section 4.2.1 shall be calculated:

(a) with respect to IP Entry Points, Entry Points, IP CSEP, he Sub-Sea I/C Offtake or LDM Offtakes, using the method specified in ISO 5167/5168 for orifice plate meters, BS 7965:2000 for ultrasonic meters and/or EN 12261 for turbine meters (as appropriate); and/or

(b) with respect to DM Offtakes, using the method specified in EN 12261 for turbine meters and/or EN 12480 for rotary displacement meters (as appropriate); and/or

(c) with respect to NDM Supply Points, using the method specified in EN 12261 for turbine meters, EN 12480 for rotary displacement meters and/or EN 1359 for diaphragm meters (as appropriate),

for the determination of uncertainties of the measurement of those volume flow rates that are used to compute flow rates.

4.3 **Secondary Instrumentation Uncertainty**

The uncertainty of Secondary Instrumentation shall not exceed the level of uncertainty published by the Transporter from time to time.

4.4 **Shipper Access to Measurement Equipment**

A Shipper shall have a right of access, on giving reasonable notice to the Transporter, to the Measurement Equipment at an Offtake Point at which such Shipper is offtaking Natural Gas and is the Registered Shipper provided that such Shipper utilises such access rights at reasonable times and at such Shipper's own risk.

4.5 **Verification of Entry Point Measurement**

4.5.1 Following a verification in accordance with this Section 4, if the Measurement Equipment at an IP Entry Point, an Entry Point or the South-North IP CSEP or in respect of the Sub-Sea I/C Offtake is found to register outside the Permitted Range, the Measurement Equipment shall be assumed to have registered outside the Permitted Range during the latter half of the period since the date on which the Measurement Equipment was last verified and found to produce readings within the Permitted Range except where there is satisfactory evidence which indicates that the Measurement Equipment commenced to register outside the Permitted Range on some other date.

4.5.2 At:

(a) the Moffat IP Entry Point, the Moffat Measurement Equipment is operated and maintained by NGG, the Adjacent TSO. The Transporter shall procure that NGG, the Adjacent TSO carries out verification of the Measurement Equipment at the Moffat IP Entry Point in accordance with the Moffat Interconnection Agreement. The Beattock Measurement Equipment at the Moffat IP Entry Point is operated and maintained by the Transporter. The Transporter shall carry out verification of the Beattock Measurement Equipment in accordance with the Moffat Interconnection Agreement;

(b)

(c) The Bellanaboy Entry Point the Measurement Equipment is operated and maintained by the Bellanaboy Connected System Operator. The Transporter shall verify, or shall procure that the Bellanaboy Connected System Operator carries out verification of the Measurement Equipment at the Bellanaboy Entry Point in accordance with any applicable CSA;

(d) any new Entry Point or IP Entry Point, the Measurement Equipment shall be operated and maintained in accordance with the provisions of the relevant CSA or Interconnection Agreement as appropriate. The Transporter shall procure that verification of Measurement Equipment at a new Entry Point is carried out;

(e) at the Sub-Sea I/C Offtake, the Measurement Equipment shall be operated and maintained pursuant to the Sub-Sea I/C Offtake Agreement; and

(f) at the South-North IP CSEP the Measurement Equipment shall be operated and maintained in accordance with the relevant Interconnection Agreement. The Transporter shall verify or procure the verification of the Measurement Equipment at the South-North IP CSEP in accordance with any applicable Interconnection Agreement.

4.5.3 The Transporter shall, where relevant, use reasonable endeavours to exercise its rights under the relevant CSA or Interconnection Agreement in relation to the verification of any Measurement Equipment at an IP Entry Point or Entry Point. The Transporter shall where relevant use reasonable endeavours to exercise its rights under the relevant Sub-Sea I/C Offtake Agreement in relation to the verification of the Measurement Equipment at the Sub-Sea I/C Offtake.

4.5.4 The quantities of Natural Gas registered as being delivered at an IP Entry Point or Entry Point during the period when Measurement Equipment at such Entry Point) is assumed, or evidenced, to have registered outside the Permitted Range shall be adjusted by a quantity corresponding to the quantity by which the Measurement Equipment at such IP Entry Point or Entry Point was found on verification to register outside the Permitted Range ("**Entry Point Adjustment Quantity**"). The Entry Point Adjustment Quantity shall exclude any quantity which is addressed in accordance with any applicable IP OBA Provisions.

4.5.5 Each Shipper's share of the Entry Point Adjustment Quantity at the relevant Entry Point shall be shown in the next monthly statement rendered by the Transporter. Notwithstanding the deadline of D+5 for determining Final Allocations (as referred to in Part D (*Nominations, Allocations and NDM Supply Point Reconciliation*) Section 2 (*Allocations*) and Section 3 (*IP Allocations*)), in the event of an Entry Point Adjustment Quantity having to be made, an appropriate adjustment shall be made to what would otherwise have been such Final Allocation amount to reflect the corrected meter

readings as set forth in this Section 4 and the Unaccounted For Gas shall be adjusted accordingly. For the avoidance of doubt, any such adjustment shall not affect such Shipper's Daily Imbalance Quantity and/or Overrun Quantity.

4.5.6 The quantities of Natural Gas registered as being offtaken at the South-North IP CSEP during the period when Measurement Equipment at such IP CSEP is assumed, or evidenced, to have registered outside the Permitted Range shall be adjusted by a quantity corresponding to the quantity by which the Measurement Equipment at the IP CSEP was found on verification to register outside the Permitted Range ("**CSEP Adjustment Quantity**"). The CSEP Adjustment Quantity shall exclude any quantity which is otherwise addressed in accordance with any applicable IP OBA provisions.

4.5.7 Each Shipper's share of the CSEP Adjustment Quantity at the relevant IP CSEP shall be shown in the next monthly statement rendered by the Transporter. Notwithstanding the deadline of D+5 for determining Final Allocations (as referred to in Part D (*Nominations, Allocations and NDM Supply Point Reconciliation*) Section 2 (*Allocations*)), in the event of a CSEP Adjustment Quantity having to be made, an appropriate adjustment shall be made to what would otherwise have been such Final Allocation amount to reflect the corrected meter readings as set forth in this Section 4 and the Unaccounted For Gas shall be adjusted accordingly. For the avoidance of doubt, any such adjustment shall not affect such Shipper's Daily Imbalance Quantity and/or Overrun Quantity.

4.5.8 The quantities of Natural Gas registered as having been offtaken at the Sub-Sea I/C Offtake during the period when Measurement Equipment at the Sub-Sea I/C Offtake is assumed, or evidenced, to have registered outside the Permitted Range shall be adjusted by a quantity corresponding to the quantity by which the Measurement Equipment at the Sub-Sea I/C Offtake was found on verification to register outside the Permitted Range ("**Sub-Sea I/C Offtake Adjustment Quantity**"). Each Shippers share of the Sub-Sea I/C Offtake Adjustment Quantity at the Sub-Sea I/C Offtake shall be shown in the next monthly statement rendered by the Transporter. Notwithstanding the deadline of D + 5 for determining Final Allocations (as referred to in Part D (*Nominations, Allocations and NDM Supply Point Reconciliation*) Section 2 (*Allocations*)), in the event of a Sub-Sea I/C Offtake Adjustment Quantity having to be made, an appropriate adjustment shall be made to what would otherwise have been such Final Allocation amount to reflect the corrected meter readings as set forth in this Section 4 and the Unaccounted For Gas shall be adjusted accordingly. For the avoidance of doubt, any such adjustment shall not affect such Shipper's Daily Imbalance Quantity and/or Overrun Quantity.

4.5.9 The quantities of Natural Gas registered as having been offtaken at an Entry Point pursuant to any agreements entered into pursuant to Part H (*Operations*) Sections 3.8 and/or 5.5 during the period when any applicable Measurement

Equipment is assumed, or evidenced, to have registered outside the Permitted Range shall be adjusted by a quantity corresponding to the quantity by which the applicable Measurement Equipment was found on verification to registered outside the Permitted Range ("**Entry Point Offtake Adjustment Quantity**"). The Entry Point Offtake Adjustment Quantity shall be allocated in accordance with the Agreements entered into pursuant to Part H (*Operations*) Sections 3.8 and 5.5.

4.6 **Verification of Secondary Instrumentation**

4.6.1 The Transporter shall verify the Secondary Instrumentation with respect to Measurement Equipment at each LDM Offtake at least twice in each Gas Year. The Transporter shall verify the Secondary Instrumentation with respect to Measurement Equipment at each DM Offtake at least once in each Gas Year.

4.6.2 Subject to Section 4.8, where the Transporter of its own accord completes a verification of the Secondary Instrumentation with respect to Measurement Equipment at a LDM Offtake or a DM Offtake, the Transporter shall bear the cost of such verification.

4.6.3 A Shipper may at any time request that the Transporter carries out a verification of the Secondary Instrumentation with respect to Measurement Equipment at any LDM Offtake or DM Offtake at which such Shipper is offtaking Natural Gas and is the Registered Shipper.

4.6.4 Where the Transporter's verification in accordance with Section 4.6.1 was in the case of a LDM Offtake less than six (6) Months or, in the case of a DM Offtake less than twelve (12) Months prior to the date of the receipt by the Transporter of the request for such verification pursuant to Section 4.6.3, the Shipper shall be required to pay the cost of such verification to the Transporter.

4.6.5 The Transporter shall carry out a verification requested in accordance with Section 4.6.3 as soon as practicable after receipt by the Transporter of such request and (where required) payment of the cost of such verification in accordance with Section 4.6.4.

4.6.6 If a Shipper has requested that the Transporter carries out a verification of the Secondary Instrumentation in accordance with Section 4.6.3 and the Shipper has paid the cost of such verification pursuant to Section 4.6.4 and the verification proves that the Secondary Instrumentation is outside the level of uncertainty published by the Transporter pursuant to Section 4.3, then subject to Section 4.8, the Transporter shall credit such costs to the Shipper in the next Monthly Invoice.

4.6.7 Following verification in accordance with this Section 4.6, the Secondary Instrumentation of the Measurement Equipment shall, where found to read

outside of the level of uncertainty published by the Transporter pursuant to Section 4.3, be adjusted, repaired or replaced to read centrally. Subject to Section 4.8, where such adjustment, repair or replacement is required, the Transporter shall bear the cost.

4.6.8 Any verification of the Secondary Instrumentation of the Measurement Equipment at LDM Offtakes and DM Offtakes in accordance with Section 4.6.3 shall be conducted by or on behalf of the Transporter. The Transporter shall give at least fourteen (14) Days' notice of such verification to the Shipper who shall be entitled to be present or be represented. The Shipper shall be liable for its own costs of attending any such verification of Secondary Instrumentation of the Measurement Equipment at a LDM Offtake or DM Offtake. The Transporter shall provide a verification report to the Shipper within ten (10) Business Days of the completion of any verification pursuant to Section 4.6.3 stating the results of the verification. The results of such verification shall be binding on both the Transporter and the Shipper unless the Shipper disputes the accuracy of the verification in a written notice to the Transporter within fifteen (15) Business Days of notification of the results of the verification. In the event that such dispute is not resolved within fifteen (15) Business Days of the Shipper serving such notice on the Transporter, either party may refer the matter for determination in accordance with Part I (*Legal and General)* Section 6 (*Dispute Resolution*).

4.6.9 Following a verification in accordance with this Section 4.6, if the Secondary Instrumentation of the Measurement Equipment at such LDM Offtake or DM Offtake is found to be outside the level of uncertainty published by the Transporter pursuant to Section 4.3, such Secondary Instrumentation shall be assumed to be outside the level of uncertainty during the lesser of: (a) the previous six (6) Month period; or (b) the latter half of the period of time since the last verification of the Secondary Instrumentation in accordance with Section 4.6, except where it is proved that the Secondary Instrumentation commenced to register outside the level of uncertainty on some other date.

4.6.10 The quantities of Natural Gas registered as offtaken during the lesser of the period since:

(a) the Measurement Equipment is assumed or is proved to have registered outside the level of uncertainty pursuant to Section 4.6.9; or

(b) the Shipper became the Registered Shipper at such LDM Offtake or DM Offtake,

shall, notwithstanding the deadline of D+5 for determining Final Allocations (as referred to in Part D (*Nominations, Allocations and NDM Supply Point Reconciliation*) Section 2 (*Allocations*)) be adjusted by increasing or decreasing the metered quantity of Natural Gas at the Offtake Point for such period by a quantity corresponding to the quantity by which the Measurement Equipment was found on verification to register outside the applicable level

of uncertainty and such adjustment shall be processed in accordance with Section **Error! Reference source not found.**.

4.7 Full Verification of Measurement Equipment

4.7.1 The Transporter shall have the right to conduct a verification of Measurement Equipment at an Offtake Point (including the primary and secondary elements) at any time. Where the Transporter of its own accord completes a verification of Measurement Equipment at a LDM Offtake or DM Offtake, the Transporter shall bear the cost of such verification.

4.7.2 A Shipper may at any time request that the Transporter carries out a verification of Measurement Equipment (including the primary and secondary elements) at any LDM Offtake or DM Offtake at which such Shipper is offtaking Natural Gas and is the Registered Shipper. The Shipper shall be required to pay the cost of such verification to the Transporter.

4.7.3 The Transporter shall carry out the verification requested in accordance with Section 4.7.2 as soon as practicable after receipt by the Transporter of such verification request.

4.7.4 Where a Shipper has requested the Transporter to verify the Measurement Equipment pursuant to Section 4.7.2, the Shipper shall be obliged to pay the costs of such verification notified by the Transporter prior to the Transporter undertaking the verification, provided that, subject to Section 4.8, should the results of the verification prove that the Measurement Equipment recorded outside the Permitted Range, the Transporter shall be required to credit such costs previously paid by the Shipper to such Shipper in the next Monthly Invoice.

4.7.5 Any verification of the Measurement Equipment at LDM Offtakes and DM Offtakes in accordance with Section 4.7.2 shall be conducted by or on behalf of the Transporter. The Transporter shall give at least fourteen (14) Days' notice of such verification to the Shipper who shall be entitled to be present or be represented. The Shipper shall be liable for its own costs of attending any such verification of the Measurement Equipment at a LDM Offtake or DM Offtake. The Transporter shall provide a verification report to the Shipper within ten (10) Business Days of the completion of a verification stating the results of the verification requested in accordance with Section 4.7.2. The results of such verification shall be binding on both the Transporter and the Shipper unless the Shipper disputes the accuracy of the verification in a written notice to the Transporter within fifteen (15) Business Days of notification of the results of the verification. In the event that such dispute is not resolved within fifteen (15) Business Days of the Shipper serving such notice on the Transporter, either party may refer the matter for determination in accordance with Part I (*Legal and General)* Section 6 (*Dispute Resolution*).

4.7.6 Following verification in accordance with this Section 4.7, the Measurement Equipment at a LDM Offtake or DM Offtake shall, where found to read outside the Permitted Range, be adjusted, repaired or, if necessary, replaced with Measurement Equipment which reads within the Permitted Range. Subject to Section 4.8, where such adjustment, repair or replacement is required, the Transporter shall bear the cost.

4.7.7 Following a verification in accordance with this Section 4.7, if the Measurement Equipment at a LDM Offtake or DM Offtake is found to register outside the Permitted Range, such Measurement Equipment shall be assumed to have registered outside the Permitted Range during the lesser of: (a) the previous six (6) Month period; (b) the latter half of the period of time since the last verification of the Measurement Equipment in accordance with Section 4.7; or (c) the period since the last Valid Meter Read, except where it is proved that the Measurement Equipment commenced to register outside the Permitted Range on some other date.

4.7.8 The quantities of Natural Gas registered as offtaken during the lesser of the period since:

(a) the Measurement Equipment is assumed or is proved to have registered outside the Permitted Range pursuant to Section 4.7.7; or

(b) the Shipper became the Registered Shipper at such LDM Offtake or DM Offtake,

shall, notwithstanding the deadline of D+5 for determining Final Allocations (as referred to in Part D (*Nominations, Allocations and NDM Supply Point Reconciliation)* Section 2 (*Allocations*)) be adjusted by increasing or decreasing the metered quantity of Natural Gas at such offtake for such period by a quantity corresponding to the quantity by which the Measurement Equipment was found on verification to register outside the Permitted Range and such adjustment shall be processed in accordance with Section **Error! Reference source not found.**.

4.8 Damage to Measurement Equipment

If the Transporter determines that the Measurement Equipment or any part thereof requires adjustment, replacement or repair due to any act, omission, negligence or default of any person other than the Transporter, the Shipper shall indemnify the Transporter for the costs of verification, adjustment, replacement and/or repair.

4.9 Adjustment to Metered Quantity and associated charges

4.9.1 Any adjustment to the Metered Quantity of Natural Gas offtaken as referred to in Section 4.6.10 or Section 4.7.8 a "**Metered Quantity Adjustment**" and the associated charge (the "**Metered Quantity Adjustment Charge**") calculated in accordance with Section 4.9.4 by reference to the Metered Quantity Adjustment Price shall be shown in the Monthly Invoice rendered

by the Transporter to the Registered Shipper following the determination of the Metered Adjustment Quantity and calculation of the Metered Quantity Adjustment Charge; Unaccounted For Gas shall be adjusted accordingly.

4.9.2 A Metered Quantity Adjustment can be either negative or positive according to the following:

(a) If the quantity of Natural Gas registered as offtaken at an Offtake Point is increased pursuant to Section 4.6.10 or Section 4.7.5 the Metered Adjustment Quantity is negative;

(b) If the quantity of Natural Gas registered as offtaken at an Offtake Point is decreased pursuant to Section 4.6.10 or Section 4.7.5 the Metered Adjustment Quantity is positive.

4.9.3 The price ("**Metered Quantity Adjustment Price**") means a price calculated as follows:

(a) where the Metered Adjustment Quantity is positive the average Imbalance Price (Non RNG) for a positive Imbalance Quantity over the Adjustment Period; and

(b) where the Metered Quantity Adjustment is negative the average Imbalance Price (Non RNG) in respect of a negative Imbalance Quantity over the Adjustment Period; and

4.9.4 The Metered Quantity Adjustment Charge shall be calculated as follows:

MQC = MQA x MOP

Where:

MQC means the Metered Quantity Adjustment Charge.

MQA means the Metered Quantity Adjustment.

MQP means the Metered Quantity Adjustment Price.

4.9.5 Notwithstanding the foregoing a Metered Quantity Adjustment shall not affect a Shipper's Daily Imbalance Quantity and/or Overrun Quantity.

4.10 Verification of Measurement Equipment at NDM Supply Points

4.10.1 The validation of a Meter Read with respect to a NDM Supply Point shall be conducted in accordance with the Meter Data Services Procedures.

4.10.2 A Shipper may request the testing of Measurement Equipment at a NDM Supply Point by making a request to the Transporter pursuant to any applicable procedures.

4.10.3 A Shipper may query a Meter Read with respect to a NDM Supply Point by submitting a query to the Transporter in accordance with the Meter Read Query Resolution Policy.

5. MAINTENANCE AND SYSTEM UPGRADE

5.1 General

5.1.1 The Transporter shall operate, maintain and repair the Transportation System in accordance with the provision of this Code. The Use of System Agreement governs the operation, maintenance and repair of the GNI (UK) System and the capacity held under the Use of System Agreement and the remaining provisions of this Section 5 shall be construed accordingly.

5.1.2 In maintaining the Transportation System, the Transporter shall comply fully with all Legal Requirements that are in force in the jurisdiction where the Transportation System is situated.

5.1.3 For the purposes of this Code:

(a) "**Maintenance**" includes any inspection, overhaul, modification, repair, replacement, reinstatement, recommissioning, upgrade or extension of any part of the Transportation System and includes any works preparatory to such maintenance or required for the return to service of any part of the Transportation System after such maintenance;

(b) "**Maintenance Days**" means the Days, whether consecutive or not, nominated by the Transporter pursuant to this Section 5 as Days during which (i) acceptance of Natural Gas for delivery to that part of the Transportation System as may be subject to Maintenance, or (ii) making Natural Gas available for offtake from that part of the Transportation System as may be affected by Scheduled Maintenance, may be reduced (if necessary down to zero) due to Maintenance on the Transportation System (and "**Maintenance Day**" shall be construed accordingly); and

(c) "**Scheduled Maintenance**" means planned Maintenance which is routine in nature and which an RPO would reasonably be expected to schedule in annual maintenance planning and that would affect or limit the Transporter's ability to transport Natural Gas through the Transportation System or localised part thereof.

5.2 Maintenance

5.2.1 The Transporter shall carry out Scheduled Maintenance on the Transportation System during a Maintenance Day.

5.2.2 The Transporter shall determine the Maintenance required in respect of the Transportation System.

5.2.3 Subject to the limitation of the number of permitted Maintenance Days with respect to the Transportation System set out in Section 5.6.1, the Transporter shall be permitted to carry out Scheduled Maintenance on the Transportation System on any Day in a Gas Year.

5.3 Maintenance Planning

5.3.1 Each Shipper shall provide the Transporter as soon as reasonably practicable with the information the Transporter may require to:

(a) plan the Maintenance of the Transportation System;

(b) comply with its obligations in respect of the Legal Requirements in relation to the Maintenance of the Transportation System; and

(c) prepare Maintenance Programmes.

5.3.2 The Transporter shall establish a provisional maintenance programme ("**Maintenance Programme**") which the Transporter shall make available to Shippers in respect of each Gas Year. The Maintenance Programme shall specify such maintenance as may affect delivery of Natural Gas to, or offtake of Natural Gas from, the Transportation System.

5.3.3 The Transporter shall plan the Scheduled Maintenance to minimise disruption to the Transportation System during Maintenance Days in as cost-effective, efficient and commercially prudent a manner as possible and to reconcile maintenance on any Connected Systems, Exit Points and Supply Points by co-ordinating where possible the Maintenance Days with the maintenance of any Connected Systems, Exit Points and Supply Points.

5.3.4 The Transporter may agree to exchange information with any Adjacent TSO or Connected System Operator as to the plans for maintenance and to take reasonable steps to co-ordinate plans for maintenance of parts of the Transportation System adjacent to the Interconnection Point or Connected System Point.

5.4 Timetable

5.4.1 The timetable for preparation of the Maintenance Programme for each Gas Year shall be as follows:

(a) the Shippers will meet with the Transporter to discuss the Maintenance Programme for the following Gas Year during February and March of the preceding Gas Year and such consultations shall conclude before 30 April of such preceding Gas Year; and

(b) the Transporter shall notify the Shippers of Scheduled Maintenance for the following Gas Year by 31 May of the preceding Gas Year.

5.4.2 For each Gas Year, the Shippers will notify the Transporter of the maintenance requirements of their plant or systems (including any End User's Facilities) prior to 30 April of the preceding Gas Year.

5.4.3 The Transporter may revise the nature, timing and duration of any Maintenance Days notified to the Shippers as a result of circumstances that a Reasonable and Prudent Operator is unlikely to have foreseen by providing for additional Maintenance and/or by varying the dates or period(s) of any Scheduled Maintenance by giving affected Shippers:

(a) which are the Registered Shipper at an affected IP Entry Point and/or at an affected Entry Point not less than seven (7) days notice;

(b) which are Registered Shippers at affected LDM Exit Points or TCDM Exit Points not less than thirty (30) days notice;

(c) which are Registered Shippers at affected LDM Supply Points or DM Supply Points not less than seven (7) days' notice; and

(d) which are Registered Shippers at the Sub-Sea I/C Offtake not less than thirty (30) days notice;

and in either case subject to a shorter period of notice being agreed between the Transporter and the affected Shippers.

5.5 Transporter's Obligations

To the extent that the Transporter cannot make Natural Gas available for offtake or accept into the Transportation System Natural Gas tendered for delivery at an Entry Point or at an IP Entry Point as a direct result of Maintenance, the Transporter will be relieved of its obligations to transport Natural Gas including under this Code.

5.6 Maintenance Limits

5.6.1 Subject to Part I (*Legal and General*) Section 3 (*Force Majeure)*, the Transporter will be limited to a maximum number of Maintenance Days for the carrying out of Scheduled Maintenance on the Transportation System or any localised part thereof as follows:

(a) in respect of each Interconnection Point or Entry Point a maximum of five (5) Maintenance Days in aggregate in any Gas Year, provided that, in addition to such Maintenance Days, the Transporter may take such additional Maintenance Days in respect of an Interconnection Point or Entry Point as are permitted in the relevant Interconnection Agreement or CSA to carry out Scheduled Maintenance;

(b) in respect of each LDM Exit Point, a maximum of five (5) Maintenance Days in aggregate in any Gas Year, provided that in addition to such Maintenance Days, the Transporter may take such additional

Maintenance Days in respect of the LDM Exit Point as may be notified by the Transporter to the Shipper(s) from time to time;

(c) in respect of each LDM Supply Point, a maximum of eight (8) Maintenance Days in aggregate in any Gas Year and twenty (20) Maintenance Days in aggregate in any three (3) consecutive Gas Years, provided that in addition to such Maintenance Days, the Transporter may take such additional Maintenance Days in respect of such LDM Supply Point as may be notified by the Transporter to the Shipper(s) from time to time;

(d) in respect of DM Offtakes, to a maximum of eight (8) Maintenance Days in aggregate in any Gas Year and twenty (20) Maintenance Days in aggregate in any three (3) consecutive Gas Years at each DM Offtake;

(e) in respect of NDM Supply Points, to a maximum of eight (8) Maintenance Days in aggregate in any Gas Year and twenty (20) Maintenance Days in aggregate in any three (3) consecutive Gas Years at each NDM Supply Point; and

(f) in respect of the Sub-Sea I/C Offtake a maximum of five (5) Maintenance Days in aggregate in any Gas Year provided that, in addition to such Maintenance Days, the Transporter may take such additional Maintenance Days in respect of the Sub-Sea I/C Offtake as may be permitted or required pursuant to the Sub-Sea I/C Offtake Agreement(s) or be notified by the Transporter to the Shippers from time to time.

5.6.2 The limitations set out in Section 5.6.1 above shall be without prejudice to the rights of the Transporter to carry out any unscheduled Maintenance or maintenance due to unforeseen circumstances which may be considered by the Transporter to be necessary and/or prudent in order to ensure the operational integrity and security of the Transportation System, subject to the Transporter having given each affected Shipper such notice as is reasonably practicable, recognising that such maintenance is unscheduled or as a result of unforeseen circumstances.

5.7 Capacity

5.7.1 Subject to Section 5.10 Shippers shall remain liable to pay the applicable Tariff during Maintenance Days and any other periods during which the acceptance of the delivery of Natural Gas to the Transportation System or the offtake of Natural Gas from the Transportation System is affected in accordance with the provisions of this Code and/or any Ancillary Agreement.

5.7.2 The Transporter shall apply any reduction of capacity in the Transportation System resulting from Maintenance (or maintenance as referred to in Section

5.6.2) amongst any or all of the Shippers directly affected by such Maintenance on a fair, open (subject to relevant confidentiality obligations) and not unduly discriminatory basis. In applying any reduction in capacity between Shippers, the Transporter shall have regard to the order of priority set out in Part H (*Operations*) Section 1.9 (*Offtake Point Control*) and where a Restricted Capacity Day is declared in accordance with Part H (*Operations*) Section 2.3 the Restricted Capacity at an Affected IP Entry Point and/or an Affected Entry Point shall be applied in accordance with Part H (*Operations*) Section 2.5.

5.7.3 The Transporter shall apply any reduction in capacity affecting part of the Transportation System arising as a result of Maintenance amongst Shippers utilising that part of the Transportation System on a fair, open (subject to relevant confidentiality obligations) and not unduly discriminatory basis.

5.7.4 The Shippers shall assist the Transporter in its Scheduled Maintenance by using reasonable endeavours to offtake Natural Gas at an offtake in the manner requested by the Transporter.

5.8 **Maintenance at LDM Offtake**

The Transporter shall consult directly with each Registered Shipper at a LDM Offtake with respect to the effect of Maintenance on that part of the Transportation System in which the LDM Offtake is located.

5.9 **Maintenance at the Sub-Sea I/C Offtake**

The Transporter shall be entitled to consult with the operator of the Spur Pipeline with respect to maintenance at the Sub-Sea I/C Offtake and with respect to the effect of maintenance in that part of the Transmission System in which the Sub-Sea I/C Offtake is located.

5.10 **IP Entry Capacity and Entry Capacity Tariff Rebate**

5.10.1 Registered Shippers at an Affected IP Entry Point or an Affected Entry Point shall be entitled to rebate of the Capacity Charges (a "**Capacity Charge Rebate**") in respect of an amount of capacity held by the Shipper at an IP Entry Point and/or at an Entry Point (as the case may be) (calculated in accordance with the remaining provisions of this Section 5.10).

5.10.2 A Capacity Charge Rebate shall apply where:

(a) the Transporter declares a Restricted Capacity Day at an IP Entry Point (an "Affected IP Entry Point") or at an Entry Point (an "Affected Entry Point"); and

(b) the Restricted Capacity Day is declared to facilitate or as a result of Scheduled Maintenance which affects the availability of capacity at the

Affected IP Entry Point or at the Affected Entry Point (as the case may be);

(c) the Restricted Capacity Day is not within the Maintenance limits as outlined in Section 5.6.1(a) at the Affected IP Entry Point or the Affected Entry Point (as the case may be) in the applicable Year; and for the avoidance of doubt where the Transporter revises the date or dates for Scheduled Maintenance but does not give the required notice under Section 5.4.3(a) such revised date or dates shall not be treated as within the Maintenance Limits outlined in Schedule 5.6.1(a); and

(d) the availability of capacity at the Affected IP Entry Point or at the Affected Entry Point is not otherwise reduced or adversely affected for any reason other than the relevant Maintenance.

5.10.3 Where the Shipper's Available Active IP Entry Capacity or Active Entry Capacity at the Affected IP Entry Point or Affected Entry Point comprises capacity booked for different durations (and accordingly subject to different applicable Tariffs) then the Transporter shall:

(a) determine the proportion of the Shipper's Active IP Entry Capacity and/or Active Entry Capacity (as the case may be) to which different applicable Tariffs apply; and

(b) treat the amount of capacity in respect of which a rebate is to be applied as being held in the same proportions as the Shipper's Active Capacity;

and the applicable Tariff for the purpose of the rebate shall be applied to each amount of capacity (as calculated in accordance with this Section 5.10) for which the rebate applies in the same proportions.

5.10.4 The amount of the Shipper's Capacity Charge Rebate shall be calculated as follows:

$CR = AC_R \times RT$

Where:

CR = The financial amount of the Capacity Charge Rebate to which the Shipper is entitled

AC_R = The amount of the Shipper's capacity which qualifies for a rebate being

(i) in the case of an IP Entry Point the difference between the Shipper's Active IP Entry Capacity and the Shipper's Available Active IP Entry Capacity at the Affected IP Entry Point on the Day; and

(ii) in the case of an Entry Point the difference between the Shipper's Active Entry Capacity and the Shipper's Available Active Entry Capacity at the Affected Entry Point on the Day.

RT = The applicable Tariff (as determined in accordance with Section 5.10.3 and this Section 5.10.4).

and such that where the amount of capacity held by the Shipper which qualifies for a rebate is subject to more than one applicable Tariff the above calculation shall be undertaken separately in respect of each amount of capacity to which a separate Tariff applies, and the Shipper's Capacity Charge Rebate for the Day shall be the sum of such calculations.

Any Capacity Charge Rebate shall be included in the invoice in respect of the Month following the Month in which the relevant Restricted Capacity Day occurs.

5.10.5 For the avoidance of doubt a Capacity Charge Rebate shall only apply at an Affected Entry Point or at an Affected IP Entry Point and as provided in Section 5.10.1 and shall not apply in respect of the unavailability of capacity (in whole or in part) for any other reason including:

(a) for any Maintenance Day which is scheduled in accordance with Section 5.4 and is within the Maintenance limits specified in Section 5.6.1;

(b) due to Maintenance on a Day or Days on which capacity is otherwise unavailable at the relevant Entry Point or IP Entry Point;

(c) due to Force Majeure;

(d) as a result of an Emergency; or

(e) where the Maintenance takes place on a Day on which any Connected System or Upstream Facilities are unavailable to facilitate the offtake of Natural Gas from the Connected System or Upstream Facilities and delivery to the Transportation System.

(f) where a Restricted Capacity Day is declared other than due to Scheduled Maintenance.

APPENDIX 1
QUALITY SPECIFICATION OF NATURAL GAS AT IP ENTRY POINTS AND ENTRY POINTS

Appendix 1
QUALITY SPECIFICATION OF NATURAL GAS AT ENTRY POINTS

Parameter	Entry
Total Sulphur	< 50mg/m^3 (including H_2S)
Oxygen	≤ 0.2 mol% * See Renewable Natural Gas Notes
Carbon Dioxide	≤ 2.5 mol % See Note 1
Hydrogen Sulphide	≤ 5mg/m^3
Water Content	≤ 50mg/m^3
Gross Calorific Value (Real Gross Dry)	36.9 - 42.3 MJ/m^3
Wobbe Index (Real Gross Dry)	47.2 – 51.41 MJ/m^3
Contaminants & Odour	See Notes 2 and 3
Incomplete Combustion Factor	< 0.48
Delivery Temperature	1°C to 38°C
Hydrogen	< 0.1 mol%
Soot Index	< 0.60
Organo Halides	< 1.5 mg/m^3
Radioactivity	< 5 Becquerels/g
Ethane	< 12 mol%
Nitrogen	≤ 5 mol %
Hydrocarbon Dewpoint	≤ - 2°C up to 85 barg

Reference Conditions
All measurements at 15º Celsius and 101.325kPa

Note 1 The CO2 limit of 2.5% will not be considered breached if the total inerts (including CO2) in the gas is less than 8% where:
"inerts" in natural gas means carbon dioxide(CO2), nitrogen(N2), helium(He), argon(Ar), and oxygen(O2).

Note 2 Natural Gas shall not contain solid liquid or gaseous material which may interfere with the integrity or operation of pipes or any Natural Gas appliance which a consumer or transporter could reasonably be expected to operate. With respect to Mist, Dust,

Liquid, gas delivered shall be technically free in accordance with BS3156 11.0 [1998].

Note 3 Natural Gas shall have no odour that might contravene the obligation of the Transporter to transmit gas which possesses a distinctive and characteristic odour. Where the Transporter requires gas to be odourised, the gas shall be odourised in accordance with the following specification:
- Odour intensity of 2 olfactory degrees on the SALES Scale (Ref-IGE/SR/16/1989), or
- such other specification determined by the Transporter acting as an RPO

Emergency Gas Quality Specification
In the event of an Emergency, and at the sole discretion of the National Gas Emergency Manager, gas outside of the Entry Specification may be admitted to the system. Without prejudice to the generality of this, the emergency limits as outlined in the Natural Gas Emergency Plan NGEP may be adopted by the Transporter.

Renewable Natural Gas Notes

1. Oxygen content for gas derived from Renewable Natural Gas at an RNG Entry Point connected to the Distribution System shall be up to 1 mol% where there is provision for automatic discontinuation of gas flows for non-compliance with the applicable Entry Specification. Such automatic discontinuation shall comprise of the discontinuation of gas flow based on preprogrammed criteria, such criteria determined by the Transporter and embodied in an automated process, all as outlined in the applicable CSA.

2. The CSA in respect of any RNG Delivery Facility may subject to the approval of the Commission specify additional gas quality parameters (which may for avoidance of doubt be subsets of the parameters set out above) and associated limits in respect of such parameters to apply at the individual RNG Entry Point or category of RNG Entry Point in which case the gas quality parameters so specified shall (subject to Renewable Natural Gas Note 1 above) apply at such RNG Entry Point(s) in addition to the parameters set out above. [**Note: Refer Part G (*Technical*) Section 1.1.1**]

APPENDIX 2

QUALITY SPECIFICATION OF NATURAL GAS AT OFFTAKE POINTS OR CSEP

(A) Gas Combustion Characteristics

Type of Gas	2nd Family Group H
Wobbe Index	45.7 to 54.7MJ /m^3 (Real Gross Dry)

(B) Upper Limits of Natural Gas Impurities

Hydrogen Sulphide Content	Not more than 5mg/m^3
Total Sulphur Content	Not more than 50mg/m^3
Oxygen Content	(i) Not more than 0.2% (molar) (for Offtake Points and CSEP's connected to the Transmission System) (ii) Not more than 1.0% (molar) for Offtake Points connected to the Distribution System.
Contaminants	Natural Gas shall not contain solid matter which would have a material adverse impact on the ability to use Natural Gas at an Offtake Point.

(C) Reference Conditions

All measurements at 15ºCelsius and 101.325kPa.