

Guidance for Interconnection Agreements

Introduction

The purpose of this document is, in line with the recommendation received from ACER, to provide guidance concerning the application of the default rules contained in the final Interconnection Agreement Template published by ENTSOG, along with samples of existing interconnection agreements (IAs)

The document is divided into different chapters covering the same mandatory terms as the IA Template. Each chapter begins with guidance on default rules, extracted from the Interoperability Network Code (EC Regulation 703/2015), and ends with text examples (in italics) from some IAs in place between European TSOs.

Disclaimer

This document and its annexes do not place any additional obligations (contractual or otherwise) upon TSOs beyond those contained in the Interoperability Network Code and are not intended to, nor are they required to, serve as a complete IA.

ENTSOG is not responsible for the usability of the guidance for IAs and for the texts provided as examples. Nothing contained in this document can be deemed as a source of obligations, duties and liabilities for ENTSOG. In light of that, ENTSOG and its officers, board, employees as well as staff members shall however be considered, jointly and severally, released and discharged from any and all actions, causes of actions, claims and demands for, upon or by reason of any damage or loss, which hereafter may be sustained by the adoption of the samples or the compliance with this document. The present guidance and its content cannot lead to any liability of or acceptance of assumption of responsibility by ENTSOG, its officers, board, employees and staff members, jointly and severally, for all damages and expenses for which every user or stakeholder, its officers, board, employees and staff members become liable as a result of the adhesion to the document or its use.

Scope

When concluding or amending an IA, adjacent transmission system operators (TSOs) will not need to apply the IA template unless they fail to agree on one or more of the mandatory terms.

If that is the case, the template can be used as an annex indicating the default rules to be applied.

In case further non-binding guidance is required for drafting the terms of the interconnection agreement, the text examples from existing IAs included in this document could be considered for finding solutions.

Adjacent transmission system operators may still be required to develop their IA content by agreeing further details which may include but shall not be limited to:

- a) any necessary details to complete the content of this document such as values for the limits of the operational balancing account, reference to control, measurement, nominations (single/double sided), matching, dispatching and allocation procedures;
- b) any mention to additional TSOs and their role in case there are more than two of them involved in the interconnection point and if necessary to Virtual Interconnection Points.
- c) the mandatory terms required by the Interoperability Code which are outside the scope of the template: amendment process and settlement of disputes;
- d) other articles to cover other terms outside the scope of the network code such as definitions, liability, confidentiality, shut-off, force majeure termination, swap procedures, gas quality and pressure;
- e) the requirements foreseen by relevant national legislation

Flow control

In line with Article 6 of the Interoperability Network Code TSOs shall do the following.

Adjacent TSOs shall cooperate to facilitate a controllable, accurate, predictable and efficient gas flow across the interconnection point.

Gas flow shall be steered at a level of accuracy sufficient to minimise the deviations from the agreed gas flow and at a level of stability in line with the efficient use of the gas transmission networks.

TSOs shall decide on the quantity and direction of the gas flow for each hour of the gas day. Both decisions shall reflect:

- (a) the result of the matching process;
- (b) the operational balancing account correction;
- (c) any efficient flow control arrangements for purposes such as ramp-up, ramp-down, minimum flow, split of the flow at the virtual interconnection point if any, and/or switch of flow direction or operational cost efficiency;
- (d) any arrangement managing cross-border trade restrictions due to gas quality differences and/or odourisation practices.

The quantity of gas or the gas flow direction or both may be altered, if this is needed, in order to:

- (a) comply with provisions laid down in national or Union safety legislation applicable to the interconnection point;
- (b) comply with requirements laid down in Emergency Plans and Preventive Action Plans developed in accordance with Regulation (EU) No 994/2010 of the European Parliament and of the Council¹;
- (c) react in case the operator's system is affected by an exceptional event.

¹ Regulation (EU) No 994/2010 of the European Parliament and of the Council of 20 October 2010 concerning measures to safeguard security of gas supply and repealing Council Directive 2004/67/EC (OJ L 295, 12.11.2010, p.1)

Samples from existing IAs: Rules for flow control – Sample 1

All Parties shall cooperate to set up a controllable, accurate, predictable and efficient gas flow across the Interconnection Point in due consideration of the confirmed quantities, the respective technical requirements of each party and the respective country-specific legislation.

Each Party shall act as a reasonable and prudent operator. In particular, each Party has the responsibility to maintain and develop its facilities in a safe, efficient and reliable way with due respect to the health and safety for any person getting close to the facilities and the natural environment. Therefore, each Party has the obligation to keep its facilities technically and operationally compatible so that the Parties' facilities are safely connected and the gas can enter and leave the Parties' facilities safely, controllably and measurably.

The Parties agree to perform the Flow Control at the Interconnection Point on the basis of an OBA.

TSO_1 shall operate the flow control on their equipment at the Interconnection Point.

The flow control shall be performed in such a manner that at any time the steering difference between the Confirmed Quantity - including agreed adjustments of the OBA - and the measured flow shall be as close as possible to zero (0), unless otherwise agreed upon. Handling of operational disturbances shall be in line with the provisions of the EASEE-gas CBP 2005-003-01 "Constraints". On a day during which the physical flow direction changes, the Parties shall contact each other in an appropriate way to coordinate dispatching actions, in particular in relation to the hours immediately before and after the change of physical flow direction. After a change of physical direction, the Parties shall confirm each other that the necessary physical operations have been completed prior to the flow being effectively resumed at the Interconnection Point. The Parties may, in case of successive short term flow transitions, agree on a new flow schedule limiting the number of changes of flow direction.

If at any time during the day the flow rate at the Interconnection Point drops below the minimum operational flow rate or exceeds the maximum flow capacity of the metering lines, the Parties shall contact each other in the most appropriate way and agree on how to appropriately arrange the flow (e.g. arrange to flow intermittently). The minimum and maximum metering capacities are given in Appendix E. The Parties shall take care that the flow never exceeds the metering capacities.

The pressure shall be XX barg at minimum; the maximal pressure shall be XX barg. Appendix C describes the pressure safeguarding in relation to the technical integrity of the connection of the gas respective transmission pipeline of the Parties. TSO_X is responsible for the (passively acting) pressure control and the safety devices of the TSO_X transmission grid in case of a gas flow from [direction...]. TSO_Y is responsible for the (passively acting) pressure control and the safety devices of the TSO_Y transmission grid in case of a Gas flow from [direction...]. The Parties are

Samples from existing IAs: Rules for flow control – Sample 1

responsible for preventing a higher pressure than the Maximal Incidental Pressure (MIP) of the gas transmission grid. The pressure in the gas transmission grid of both Parties may never exceed the Maximum Incidental Pressure (MIP). The Parties agree to exchange pressure safeguarding information on request of one of the Parties. Prior to any intended modification by either Party of the pressure control and/or pressure safety system, Parties shall agree on the proposed modification, including an exchange of all relevant updated documents.

The Gas at the Interconnection Point shall comply with the quality and pressure specifications as provided for in Appendix B. (Table with Quality Specification)

Each Party shall as soon as possible notify the other Party in case it detects that the gas at the Interconnection Point does not comply with the quality and/or pressure specifications and arrangements as provided for in Appendices B and C. Each Party shall with all possible diligence and speed take the required actions within its control to expeditiously remedy the cause and resulting situation and inform the other Party about extent and duration of the situation.

If the Gas at the Interconnection Point does not comply with the quality and/or pressure specifications as provided for in Appendix B, the receiving Party shall have the right to refuse the gas in whole or in part and to shut off the connection. The handling of such cases shall be in line with the provisions of the EASEE-gas CBP 2005-003-01 “Constraints” and Article 15 of the Network Code Interoperability.

Each Party shall be entitled to shut off the Connection between the Parties’ facilities without prior notification if continuing the operation of the Parties’ facilities in case of a situation of Force Majeure poses a threat to the normal functioning of the gas transmission grid at either side of the Connection and/or the safety of the Parties’ facilities and/or to the health of people and/or the natural environment. The relevant Party shall again open up the Connection if the situation is remedied.

If a Party is unable to fulfil any or parts of its obligations under the Agreement due to Force Majeure, this Party shall be relieved of its obligations under the Agreement to the extent that the fulfilment of these obligations is rendered impossible by such Force Majeure. The Party claiming Force Majeure shall give written notice and reasonably full particulars to the other Party promptly after the occurrence of such Force Majeure and shall also notify the other Party of the period of time which said Party estimates it shall require to remedy the Force Majeure situation and shall keep the other Party regularly informed as to the progress of such remedy.

If any Party claims Force Majeure under the Agreement, the other Party shall not be entitled to suspend any of its obligations under the Agreement or to terminate the Agreement on the grounds of such Force Majeure.

Samples from existing IAs: Rules for flow control – Sample 2

The parties agree to steer the flow at a level of stability in line with the efficient use of the gas transmission networks. For this purpose, TSO 2 and TSO 1 shall ensure that on daily basis the total quantities of Natural Gas actually transported for the IP are as close as possible to the Allocated Scheduled Quantity, as communicated by the physical dispatching of TSO 1 to TSO 2 according to the Operational Balancing Agreement, and they shall coordinate activities in order to optimise the hourly profile. Furthermore TSO 1 and TSO 2 shall make their best efforts to control the Gas Flow in order to ensure that the Cumulated Daily and Monthly Unbalance Account shall be as close as possible to zero unless temporally agreed in writing by the Parties.

In case the pressure level at the IP does not allow to off-take the Confirmed Quantities of gas, TSO 2 shall promptly inform TSO 1. In case the pressure level at the IP does not allow delivering the Confirmed Quantities of gas, TSO 1 shall promptly inform TSO 2.

Samples from existing IAs: Rules for flow control – Sample 3

The Parties agree that TSO B is responsible for flow control at the Interconnection Point.

For each Day, TSO B shall use all reasonable endeavours to steer a quantity of gas equal to the Agreed Target Quantity prevailing following each Nomination or Renomination Cycle.

Measurement principles for gas quantity and quality

In line with Article 7 of the Interoperability Network Code TSOs shall do the following.

In respect of the measurement principles for volume, energy and gas quality, the adjacent transmission system operators shall ensure that the details of the measurement standards applicable at the interconnection point are established; the technical requirements imposed by national regulations are duly taken into account; and the measurement principles listed in Article 7 are agreed upon.

The transmission system operator in control of the measurement equipment shall have the obligation to make all relevant information and data in respect of the measurement of gas flows at the interconnection point available to the other TSOs in a timely manner.

Samples from existing IAs – Measurement principles - Sample 1

TSO_X shall build, maintain and operate the Metering Station. Both Parties shall have access to all information from the metering and analysing systems and shall be free to use the information where necessary to fulfil their obligations under the Agreement.

This Metering Station shall be designed and equipped with the equipment and instruments needed for accurate measurement of the relevant quantities and physical properties of the Gas in accordance with the relevant national and international regulations, with the regulations as provided for in the Agreement and with the European standard EN 1776 “Gas Supply – Natural Gas Measuring Stations – Functional Requirements”.

A Gas Flow that is measured at the Metering Station is deemed to be measured at the Interconnection Point.

The detailed methods and type of instruments used for metering, the procedures for maintenance and calibration, the methods and criteria by which measurement corrections shall be made and/or other items relevant to the measurement of the Gas at the Metering Station, are specified in the Metering Handbook (Appendix E).

The data for TSO_X dispatching as well as a diagram of Telemetry and Data transfer is mentioned in Appendix D.

Where no mutual understanding as to correct operation of the metering appliances can be achieved, each Party is entitled to demand a check by a neutral institution and has the right to choose this neutral institution in consultation with the other parties. The other parties shall not unreasonably withhold its consent. The Parties shall acknowledge the result of this check. The costs of the checking procedure shall be borne by the Party proven to be wrong or be split equally if both are wrong.

Samples from existing IAs – Measurement principles - Sample 1

If the period for the correction is not known or agreed upon half of the period since the last inspection shall be used. In any case corrections are only allowed within the last ... months. Any corrections of the metered quantity in accordance with the metering handbook (Appendix E) shall be entered into the OBA as correction quantity.

TSO_X gives TSO_Y full access to the Metering Station. Both Parties shall have access to all information from the metering and analysing systems and shall be free to use the information where necessary to fulfil their obligations under the Agreement.

In case one of the Parties doubts the correctness of the measurements, the Parties shall jointly try to clarify the issue and take all necessary actions in order to ensure that the energy is determined without any known systematic error.

TSO_X shall inform TSO_Y in time of all intended checks, recalibrations and/or modifications of the metering equipment in order to allow TSO_Y to delegate a representative to be present on such occasions.

Samples from existing IAs – Measurement principles - Sample 2

The Gas quality specification control is carried out at TSO 1 System in compliance with the procedures defined by TSO 1. As far as the Interconnection Point is concerned the results of the quality control will be transmitted by TSO 1 to TSO 2 on line via dispatching.

The quality of Natural Gas shall comply with the specification laid down as follows:

Parameter	Unit	Values
Carbon dioxide (CO ₂)		
Oxygen (O ₂)		
Hydrogen sulphide (H ₂ S)		
Mercaptan sulphur		
Total sulphur		
Gross calorific value		
Wobbe index		
Water Dew point		
Hydrocarbons Dew point		
Relative density		
Gas Temperature		

Delivery Pressure:

Minimum not lower than [value] bar/a

Maximum not higher than [value] bar/a

In case of an off-spec of Gas quality specification and in order to optimize the management, preventive information about circumstances which could cause an off-spec condition relevant for the Interconnection Point shall be exchanged between the physical dispatching centres of TSO 1 and TSO 2

Border Metering Station shall be managed according to the Operating Manual.

Energy and quality measurement shall be determined in accordance with international standards (for example EN and ISO) and the best prevailing industry practices.

It is however agreed by the Parties that the main control and calibration operations shall be carried out by TSO 1 in presence of TSO 2 (principle of dual control).

The control and calibration results shall be tracked in specific reports signed by TSO 2 and TSO 1. In case of absence of TSO 2, the results of the control shall be valid and the report(s) shall be made available to TSO 2 by TSO 1.

TSO 2 has the right to ask TSO 1 for additional verifications (about quantity and quality measurement). The procedures shall be agreed and determined in the Operating Manual. If the verification result is outside the allowable criteria, TSO 1 in presence of TSO 2 shall take all the necessary actions to restore the correct functionality. In case of absence of TSO 2, the results of the control shall be valid and the report(s) shall be made available to TSO 2 by TSO 1.

The costs of additional verifications shall be charged to TSO 2 except in cases where an error in the measurement process (both quantity and quality) exceeding the limits defined in the Operating Manual is found.

TSO 1 shall inform TSO 2 of any modification which affects energy determination (for example: modifications to the piping, primary elements, instrumentation, calculation methodology, control procedures and frequencies) and the Operating Manual shall be updated accordingly.

TSO [1 or 2] shall guarantee to the representatives of TSO [1 or 2], free access to the Border Measuring Station on Working Days within normal working hours, at the request in good time.

The Parties shall appoint representatives and their respective responsibilities. In case of substitution of the representative of a Party, said Party shall communicate to the other Party the name of the new person(s) in writing. The relevant security procedures shall be applied.

Samples from existing IAs – Measurement principles - Sample 3

1.1.1 Measurement Equipment

The Measurement Provisions shall be as set out in this section. The provisions of this section as to the measurement of flow (and determination of volume and energy) and the determination of gas quality, including Gross Calorific Value of gas, delivered to or from the TSO A System shall apply at TSO B Facilities

1.1.2 Installation, Commissioning, Operation and Maintenance of the Measurement Equipment

(a) *This section specifies the metering, sampling, analysis and other equipment (the Measurement Equipment) at TSO B Facilities. The Measurement Equipment shall be installed and maintained to meet the requirements of the Gas (Meters) Regulations 1983, the Regulations, the Gas Act 1986 and the Gas (Calculation of Thermal Energy) Regulations 1996 (as appropriate).*

(b) General Requirements

(A) *The Measurement Equipment must comply with standards that allow for the determination of the gas quality parameters that are defined in this agreement;*

(B) *The Measurement Equipment must also determine the volume and energy of all gas transferred between the TSO A System and TSO B Facilities under the relevant contractual and regulatory obligations, where applicable. The requirements for these determinations that must be met or exceeded are set out within these Measurement Provisions;*

(C) *The Measurement Equipment shall be validated prior to any gas flow being allowed to or from the TSO A System.*

(c) Gas Quality

Samples from existing IAs – Measurement principles - Sample 3

- (A) TSO B shall install, commission, operate and maintain equipment to determine the characteristics defined in the Gas Entry Conditions of any gas that is passed from TSO B Facilities to the TSO A System and from the TSO A System to TSO B Facilities;
- (B) The Parties agree that, , the equipment referred to in this paragraph shall constitute the sole equipment for the measurement of gas quality for the purposes of this Agreement. This equipment shall, subject to continuing and satisfactory maintenance and calibration by TSO B acting as a Reasonable and Prudent Operator, be accepted by both Parties as proving accurate and reliable measurements;
- (C) Either Party may request a validation of the gas quality measurement equipment except that such validation shall be undertaken with twenty-four (24) hours of such request and both Parties shall be entitled to witness the validation. Both Parties accept that it may not be possible to give adequate advance notification of the timing of such validation, but the Party arranging the validation will use reasonable endeavours to ensure that the other Party is able to witness the validation. Until such time as validation is complete the gas quality measurement equipment shall be considered to be operating in a true and accurate manner;
- (D) Such equipment shall meet the following criteria:
- 1) All measurement biases shall as far as is practicable be eliminated or compensated for;
 - 2) The uncertainty of measurement shall be such that the risk of TSO B and TSO A flowing gas that they are both unaware is out with Schedule 3 of the Regulations is minimised. The uncertainties shall be better than those in the specified

Samples from existing IAs – Measurement principles - Sample 3

ranges;

- 3) *The sampling system used to obtain the sample of gas for quality measurements shall ensure that the sample is representative of the gas passed between the TSO A System and TSO B Facilities and that no change to the gas composition occurs between the sample point and the analytical instrument; and*
- 4) *Measurements and validation of equipment to make such measurement shall, where feasible, be traceable to national or international standards.*

(d) *Energy and Volume*

TSO B shall install, commission, operate and maintain flow measurement equipment to determine instantaneous and integrated volume and energy flows into and out of TSO B Facilities such that:

- (A) *All volume and energy flows to and from the TSO A System shall comply with this paragraph;*
- (B) *All volumes shall be corrected to zero degrees Celsius (0°C) and Normal Pressure conditions, and reported as Normal Cubic Metres of Natural Gas;*
- (C) *The measurement of volume shall be without bias and with an uncertainty of better than plus or minus 1.0% of reading over the specified flow range; and*
- (D) *The uncertainty of the energy flow must be better than $\pm 1.1\%$ of reading over the specified flow range.*

(e) *Volume and Energy Calculation*

- (A) *Volume flowrate shall be calculated in accordance with the*

Samples from existing IAs – Measurement principles - Sample 3

appropriate standard using a dedicated flow computer that shall accept all signals necessary for the calculation of the total station volume and energy flowrate.

(B) The live input signals from each ultrasonic metering stream shall include but not be limited to:

- 1) ultrasonic meter pulses (or ultrasonic meter parameters via serial link);*
- 2) pressure transmitter;*
- 3) temperature transmitter;*
- 4) line density (if a chromatograph is not installed);*
- 5) relative density (if a chromatograph is not installed); and*
- 6) gas composition (if a chromatograph is installed).*

(C) The flow computer shall accept the results of a calibration carried out at a suitably accredited facility to minimise the error of measurement. For turbine and ultrasonic meter calibrations, the number of calibration points that can be entered shall not be less than five.

(f) Volume Measurement

(A) The flow Measurement Equipment shall be designed, built and installed to BS EN 1776. Further guidance is given in the Institute of Gas Engineers' reports IGE/GM/1 and IGE/GM/4. In addition, the following standards/guidelines shall also apply:

- 1) For ultrasonic metering systems, BS 7965, AGA 9 or such standards/guidelines as may be agreed by TSO A "between the parties"; and*

Samples from existing IAs – Measurement principles - Sample 3

2) *For any other metering system, such standards/guidelines as may be agreed between the Parties.*

(B) *The uncertainty of the Measurement Equipments must be assessed in accordance with ISO5168 and the relevant parts of ISO5167, ISO9951 and BS 7965 as may be applicable (or such other standards as may be agreed between the Parties).*

(C) *The calculation of density for the purpose of calculating volume flow and for correction to standard conditions shall be such that:*

1) *All densities shall be determined as kilograms per Normal Cubic Metre (kg/NCM);*

2) *The line density shall be calculated from a gas composition obtained via a gas chromatograph. The calculation of line density will be in accordance with the latest version of AGA8 (detailed Characterisation) using a live pressure and temperature; and*

3) *The reference density shall be calculated from gas composition obtained via a gas chromatograph. The calculation of reference density will be in accordance with the latest version of the ISO 6976 using Normal Pressure and zero degrees Celsius (0°C).*

(D) *The measurement of temperature for the purpose of calculating volume flow and for correction to standard conditions shall be such that:*

1) *Temperatures shall be determined as degrees Celsius (°C); and*

2) *The requirements of the relevant parts of ISO5167, ISO9951 and BS 7965 as may be applicable (or such other standards*

Samples from existing IAs – Measurement principles - Sample 3

as may be agreed between the Parties) are met.

(E) The measurement of pressure for the purpose of calculating volume flow and for correction to standard conditions shall be such that:

- 1) Pressure shall be determined as bar absolute ($P_{\text{gauge}} + P_{\text{baro}}$); and*
- 2) The requirements of the relevant parts of ISO5167, ISO9951 and BS 7965 as may be applicable (or such other standards as may be agreed between the Parties) are met.*

(g) Gross Calorific Value

(A) The Gross Calorific Value of the gas offtaken from or delivered to the National Grid System at the IP shall be determined by the gas analysis equipment. TSO B shall install, commission, operate and maintain gas analysis equipment that operates by chromatography such that:

- 1) All Gross Calorific Values shall be corrected to twenty-five degrees Celsius (25°C) and Normal Pressure and reported as Megajoules per Normal Cubic Metre; and*
- 2) The equipment shall read without bias and the uncertainty of the Gross Calorific Value must be better than plus or minus 0.1MJ/NCM over the specified Gross Calorific Value range. The determination of uncertainty shall be traceable to national or international standards as appropriate.*

(B) The design and operation of the Measurement Equipment shall follow all relevant national or international standards, specifically:

- 1) Where the Gross Calorific Value is determined by analysis of the gas composition, it shall typically be determined*

Samples from existing IAs – Measurement principles - Sample 3

according to ISO 6976 (1995) or better; and

2) *Where an on-line analytical system is used, its performance shall normally be evaluated according to ISO 10723 (1995) or better.*

(C) *TSO A may evaluate all instruments used in the determination of the Gross Calorific Value and witness the calibrations or perform tests on the apparatus.*

(h) *Permitted Ranges*

(A) *The range of measurement (the **Permitted Range**) and the uncertainty of parameters determined by the Measurement Equipment shall be better than the values defined in the table below, and the frequency with which measurements are taken shall be not less than that specified in the table below:*

Samples from existing IAs – Measurement principles - Sample 3

Characteristic	Unit	Permitted Range	Uncertainty	Frequency of Measurement
Volume Flow Rate	MNCM/day	0 – 60	±1% of flow	15 sec
Energy Flow Rate	MMJ/day	0 – 2600	±1.1% of flow	15 sec
Gas Pressure	barg	0 – 85	±0.5 barg	15 sec
Gas Temperature	°C	-10 – +40	±1 °C	15 sec
Hydrocarbon Dewpoint	°C at 27 barg	-30 – +10	±1 °C	20 min
Water Dewpoint	°C at line pressure	-60 – +20	±1 °C	20 min
Hydrogen	Mole %	0 – 1.5	±0.01	15 min
Oxygen	Mole %	0 – 0.0015	±0.0001 mol%	15 min
Hydrogen Sulphide and COS	ppm	0 – 5	±10%	4 min
Total Sulphur	Mg/NCM	0 – 100	±10%	4 min#
Incomplete Combustion Factor		-3 – +4	±0.02	15 min
Soot Index		0 – 1	±0.02	15 min
Inert Gases (including Carbon Dioxide and Nitrogen)	Mole%	0 – 10	±0.1 mol%	15 min
Nitrogen	Mole%	0 – 10	0.1 mol %	15 min
Carbon Dioxide	Mole%	0 – 5	0.1 mol %	15 min
Gross Calorific Value	MJ/NCM	38 – 49	±0.1 MJ/NCM	15 min
Relative Density		0.5 – 0.8	±0.01	15 min
Wobbe	MJ/NCM	48 – 58	±0.15 MJ/NCM	15 min

(B) For the avoidance of doubt, the maximum hourly flow rate set out in the table above is quoted in respect of volume, as Normal Cubic Metres of gas and, in respect of energy, in Megajoules, both as defined in this Agreement. Such rate does not constitute for the purposes of the Network Code or otherwise an indication of the available capacity in respect of the System Entry Point or System Exit Point.

Samples from existing IAs – Measurement principles - Sample 3

(C) The values in paragraph (a) are (where relevant) expressed on the basis of the reference temperature applying from 28 October 2015 and prior to that date such values shall be the values (if different) specified in this Agreement prior to its amendment and restatement as of [] 2015.

(i) Communication Interface

(A) Communications are required for two purposes; operational monitoring and control and measurement validation.

(B) TSO B shall install, commission, operate and maintain communication equipment to provide signals to TSO A of type, quality, quantity and frequency to be agreed between TSO A and TSO B. The requirement shall include:

Characteristic	Unit	Permitted Range	Transmittal mode	Frequency of Telecomms
Instantaneous standard volume flow rate (Forward)	MNCM/day	0 – 60	Serial Analogue	Less than 10 secs
Instantaneous energy flow rate (Forward)	MMJ/day	0 – 2600	Serial Analogue	Less than 10 secs
Instantaneous standard volume flow rate (Reverse)	MNCM/day	0 – 60	Serial Analogue	Less than 10 secs

Samples from existing IAs – Measurement principles - Sample 3

Instantaneous energy flow rate (Reverse)	MMJ/day	0 – 2600	Serial Analogue	Less than 10 secs
Integrated standard volume flow (Forward)	KNCM	0 – 999999	Serial Counter	Less than 10 secs
Integrated energy flow (Forward)	GJ	0 – 999999	Serial Counter	Less than 10 secs
Integrated standard volume flow (Reverse)	KNCM	0 – 999999	Serial Counter	Less than 10 secs
Integrated energy flow (Reverse)	GJ	0 – 999999	Serial Counter	Less than 10 secs
Forward Flow			Serial Counter	Less than 10 secs
Reverse Flow			Serial Counter	Less than 10 secs
Gas Pressure	barg	0 – 85	Serial Analogue	Less than 10 secs
Gas Temperature	°C	-10 – 40	Serial Analogue	Less than 10 secs
Hydrocarbon Dewpoint	°C at 27 barg	-30 – 10	Serial Analogue	Less than 10 secs
Water Dewpoint	°C at line pressure	-60 – +20	Serial Analogue	Less than 10 secs
Oxygen	Mole %	0 -0.0015	Serial Analogue	Less than 10 secs
Hydrogen	Mole%	0 – 1.5	Serial Analogue	Less than 10 secs
Hydrogen Sulphide	ppm	0 – 5	Serial Analogue	Less than 10 secs
Total Sulphur	mg/NCM	0 – 100	Serial Analogue	Less than 10 secs
Incomplete Combustion factor		-3 - +2	Serial Analogue	Less than 10 secs

Samples from existing IAs – Measurement principles - Sample 3

Soot Index		0 – 1	Serial Analogue	Less than 10 secs
Inert Gases (including Carbon Dioxide and Nitrogen)	Mole%	0 – 10	Serial Analogue	Less than 10 secs
Nitrogen	Mole%	0 – 10	Serial Analogue	Less than 10 secs
Carbon Dioxide	Mole%	0 – 5	Serial Analogue	Less than 10 secs
Gross Calorific Value	MJ/NCM	38 – 49	Serial Analogue	Less than 10 secs
Relative Density		0.5 – 0.8	Serial Analogue	Less than 10 secs
Wobbe	MJ/NCM	48 – 58	Serial Analogue	Less than 10 secs
Flow measurement fault alarm			Serial Digital	Less than 10 secs
GS(M)R compliance alarm			Serial Digital	Less than 10 secs
Gas quality measurement fault alarm (TSO A System 1)			Serial Digital	Less than 10 secs
Comms link Route one health Gas quality measurement comms fault			Serial Digital	Less than 10 secs
Comms link Route one Health			Serial Signal	Less than 10 secs
Comms link Route two Healthy			Serial Signal	Less than 10 secs
Export Valve XZV 27320	Open Position		Serial Digital	Less than 10 secs
Export Valve XZV 27320	Closed Position		Serial Digital	Less than 10 secs
Filter Separator S- 2101	Differential Pressure	0 – 15 Barg Alarm @ 1.0 Barg rising	Serial Analogue	Less than 10 secs

Samples from existing IAs – Measurement principles - Sample 3

Filter Separator S- 2102	Differential Pressure	0 – 15 Barg Alarm @ 1.0 Barg rising	Serial Analogue	Less than 10 secs
Filter Separator S- 2103	Differential Pressure	0 – 15 Barg Alarm @1.0 Barg rising	Serial Analogue	Less than 10 secs
Filter Separator S2104	Differential Pressure	0 – 15 Barg Alarm @1.0 Barg Rising	Serial Analogue	Less than 10 secs

The values in this paragraph are (where relevant) expressed on the basis of the reference temperature applying from 28 October 2015 and prior to that date such values shall be the values (if different) specified in this Agreement prior to its amendment and restatement as of [] 2015.

- (C) TSO A shall install, commission, operate and maintain communication equipment to provide signals to TSO B of type, quantity and frequency to be agreed between TSO A and TSO B. The requirement shall include:

Characteristic	Unit	Transmittal mode
Inlet Valve	Open Position	Serial Digital
Inlet Valve	Closed Position	Serial Digital

- (D) The flow measurement alarm shall indicate the presence of a fault on any equipment used to provide TSO A with the instantaneous flow rate or integrated standard volume flow signals as defined above. The gas quality measurement fault alarm shall indicate the presence of a fault on any of the equipment used to provide TSO A with measurements of gas quality parameters listed in the table above. The gas quality measurement communications fault shall indicate that there is a fault on the datalink(s) providing the signals listed above to TSO A. The GS(M)R compliance alarm shall indicate that one or more of the gas quality parameters has been measured as being outside of the values described in the Regulations, Schedule 3 Part 1; for the purposes of hydrocarbon dewpoint and water dewpoint, these limits should be interpreted as those

Samples from existing IAs – Measurement principles - Sample 3

*described in Appendix 1, **Error! Reference source not found.**, paragraph **Error! Reference source not found.****Error! Reference source not found.** and **Error! Reference source not found.****Error! Reference source not found.***

(E) *The signals provided pursuant to this paragraph shall be provided as RS232 MODBUS as agreed by both Parties.*

(j) **Validation**

(A) *The Measurement Equipment shall be validated prior to any gas flow being allowed to or from the TSO A System.*

(B) *The procedures for the validation and subsequent revalidation shall be agreed between both Parties.*

(C) *Either Party may request that the Measurement Equipment be validated at any time in which case any such validation shall be carried out as soon as reasonably practicable. The costs and expense of such validation, and any adjustment or replacement of the components of the Measurement Equipment made as a result of any validation made pursuant to this paragraph shall, if the Measurement Equipment is found to read without discernable bias and within the Permitted Range, be paid by the Party requesting the validation and in any other case by the operator of the relevant part of the Measurement Equipment.*

(D) *Either Party may request that the Measurement Equipment be validated if the previous validation took place more than one (1) month previously, and any validation pursuant to this paragraph shall be carried out as soon as reasonably practicable. The operator of the relevant part of the Measurement Equipment shall bear the costs and expenses of such validation and any adjustment or replacement of the components of the Measurement Equipment made as a result thereof.*

Samples from existing IAs – Measurement principles - Sample 3

- (E) *The operator of the relevant part of the Measurement Equipment may at its own expense undertake validation of the Measurement Equipment and may adjust or replace the components of the Measurement Equipment also at its own expense at any time.*
- (F) *Immediately following validation, the individual components of the Measurement Equipment shall be adjusted or replaced as necessary so that the Measurement Equipment reads without bias and within the Permitted Range. Each individual component of the Measurement Equipment shall read within its recommended tolerance. Where the Measurement Equipment is found when so validated to read with a discernable bias, regardless of whether it is within the Permitted Range, then:*
- 1) *the Measurement Equipment shall be assumed to have read with bias during the latter half of the period since last validated and found to be without bias or, if later, since last adjusted to read without bias (except in the case where it is proved that the Measurement Equipment has begun to read outside the Permitted Range on some other date or in such other period as agreed by TSO A and TSO B);*
 - 2) *for calculating the amount of allowance to be made to or the surcharge to be made on TSO A System Users, the quantities read as delivered to the TSO A System on each day during the period when the Measurement Equipment is assumed to have read with bias shall be adjusted by an amount as agreed by TSO A corresponding to the amount by which the Measurement Equipment was found on validation to be in error.*
- (G) *Immediately following validation, the individual components of the Measurement Equipment shall be adjusted or replaced as necessary so that the Measurement Equipment reads without bias*

Samples from existing IAs – Measurement principles - Sample 3

and within the Permitted Range. Each individual component of the Measurement Equipment shall read within its recommended tolerance. Where the Measurement Equipment is found when so validated to read without bias and outside the Permitted Range then, for the purposes of calculating the amount of allowance to be made to or the surcharge to be made on TSO A System Users the quantities read as delivered to the TSO A System during the period when the Measurement Equipment is assumed to have read outside the Permitted Range shall be accepted without adjustment.

(H) Any validation pursuant to this paragraph shall be conducted by the operator of the relevant part of the Measurement Equipment, and the operator of the relevant part of the Measurement Equipment shall give reasonable advance notice of such validation to the other Party, and such other Party shall be entitled to be present. The operator of the relevant part of the Measurement Equipment shall provide a validation report to the other Party within fourteen (14) Days of any validation stating the results of such validation.

(I) The results of any validation by the operator of the relevant part of the Measurement Equipment shall be binding on the Parties (and on all TSO A Shippers and TSO B Shippers) unless TSO A within fourteen (14) Days after receiving the validation report, gives notice to the operator of the relevant part of the Measurement Equipment that it disputes the accuracy of such validation. TSO B or TSO A shall not be entitled to dispute the accuracy of such validation solely on the grounds that it did not attend such validation.

(J) At the request of either Party, the Parties shall meet and discuss and endeavour to settle any dispute or failure to agree arising from the application of the provisions of this paragraph (j) and if

Samples from existing IAs – Measurement principles - Sample 3

within thirty (30) Days after such request they shall have been unable to agree the matter may be referred to an expert for determination (at the request of either Party).

Inspection Rights

(K) Either Party shall have the right, upon giving reasonable notice to the operator of the relevant part of the Measurement Equipment to inspect such part of the Measurement Equipment and the charts and other measurements or test data of the operator of the relevant part of the Measurement Equipment but the reading calibration and adjustment of such and the changing of any charts shall be carried out only by the operator of the relevant part of the Measurement Equipment who shall preserve all original test data, charts and other similar records for a period of three (3) years and shall, at the expense of the other Party, make a copy thereof available to the other Party upon request.

(L) The operator of the relevant part of the Measurement Equipment shall maintain auditable logs that shall include but not be limited to:

- 1) System alarms contributing to flow Measurement Equipment fault alarm and to any equipment within the Measurement Equipment;*
- 2) Configuration of flow computers and programmable devices within Measurement Equipment; and*
- 3) Tests or validations of the Measurement Equipment.*

(k) Measurement Failure

(i) If during any part of any Day the Measurement Equipment Meters are not adequately operational, the quantity and quality of gas delivered to the

Samples from existing IAs – Measurement principles - Sample 3

TSO A System at the IP during such time will be deemed to be such quantity and quality as may be agreed between TSO B and TSO A, in both cases acting reasonably and using alternative measurements for the derivation of such quantity and quality of gas where possible.

(ii) For Measurement Equipment Meter failure, recourse to the relevant volume, meter pressure, meter temperature and calorific value should be made to manually determine flow through the meter.

(A) In the event of failure of the Measurement Equipment for measuring quality of gas:

1) Either:

a) spot samples shall be taken and analysed at any approved laboratory with sufficient frequency to monitor properly changes in operating conditions. The method and equipment used and installed for taking samples shall be subject to reasonable agreement by the Parties (such agreement not to be unreasonably withheld or delayed); or

b) where there is no laboratory at TSO B Facilities then TSO A shall use reasonable endeavours to determine gas quality at the System Entry Point from other equipment on the TSO A System, and TSO B shall take such steps as would be expected of a Reasonable and Prudent Operator to ensure that all gas delivered at the SEP continues to comply with the limits set out in the Network Entry Provisions; and

2) the operator of the relevant part of the Measurement Equipment shall rectify such failure as soon as reasonably practicable. Rectification shall include, inter alia,

Samples from existing IAs – Measurement principles - Sample 3

recalibration within twenty-four (24) hours of the operator becoming aware of the failure. Any further remedial works required as a consequence of such failure shall be notified to the other operator no later than the next Business Day.

(B) The intention is to exchange information between the Parties such that no significant energy measurement errors are allowed to accumulate and an agreed end of day number is always achieved. As such:

- 1) whenever a significant energy measurement error occurs, it will be documented in a mis-measurement report and the reconciliation of the metering errors will be in accordance with reconciliation procedures that will have been agreed with TSO A;*
- 2) where details of the error are known, to include but not be limited to the start and end dates and/or error quantity (to include fixed or variable), the error shall be calculated from the available data; and*
- 3) where the full details of the error are not known then the normal principle used for reconciliation is that a correction for half of the measurement error shall be applied to the volume/energy for the entire period between the correction to the measurement error and the previous validation check or point at which it can be demonstrated that there was no measurement error.*

(C) Reconciliation will be calculated using the end of day data previously recorded on UK-Link.

(D) Where the error cannot be agreed the matter may be referred to an expert for determination (at the request of either Party).

Samples from existing IAs – Measurement principles - Sample 3

(l) Modifications

The operator of the relevant part of the Measurement Equipment shall provide not less than three (3) months prior written notice to the other Party of any intended modifications to that part of the Measurement Equipment which may affect the measurement of the flow or quality of gas at the IP. The other Party shall accept the Measurement Equipment (as modified) for flow of gas once the Measurement Equipment (as amended) has been validated (as appropriate).

Matching process

In line with Article 8 of the Interoperability Network Code TSOs shall establish the rules detailing the matching process and governing the communication among adjacent TSOs.

The application by the adjacent TSOs of the matching rule shall lead to identical confirmed quantities for each pair of network users at both sides of the interconnection point when processed quantities are not aligned.

When processing nominations, the parties shall calculate gas flow on a consistent basis taking into account any temporary reduction of capacity due to any of the conditions referred to in the flow control chapter.

Samples from existing IAs – Matching process - Sample 1

The matching process between TSO_2 and TSO_1 as well the communication of the matching results towards the respective shippers shall be made in accordance with the EASEE-Gas CBP 2014-001/01 "Harmonisation of the Nomination and Matching Process for Double-Sided and Single-Sided Nomination"².

The protocol, which shall be used for exchanging data and dispatching information, shall be in accordance with the provisions of the Network Code Interoperability and the EASEE-gas common business practices (CBP). In the event of a failure of the systems associated with the exchange of data and dispatching information via Edig@s, facsimile or email shall be used. Changes of the transmission format or telecommunication protocols or differences from the regulations and procedures in the above stated CBPs are possible but have to be mutually agreed between the Parties.

The Parties agree to perform the "lesser rule"-principle, described in EASEE-Gas CBP 2014-001/01.

Both Parties are responsible for the matching Process, but TSO_2 performs the final matching calculation which will result in the Confirmed Quantities and is defined as the matching system operator.

² Ed. Note: Additional information can also be found on the ENTSG website. See Common Network Operation Tools (CNOT) for Nomination and Matching.

Samples from existing IAs – Matching process - Sample 2

1. Nomination and Re-nomination

TSO 1 and TSO 2 Network Users shall be entitled to submit nominations to the respective TSOs no later than [time] of the Gas-Day D-1 (nomination deadline). The re-nomination period starts immediately after the confirmation of the nomination and ends not earlier than three hours before the end of gas day D. Each re-nomination cycle lasts one hour. The Parties shall start a re-nomination cycle at the start of every hour (re-nomination deadline) within the re-nomination period.

- A) Not later than [time] after the end of the nomination or re-nomination deadline, TSO 2 shall communicate to TSO 1 the daily processed transportation program forecast for the Gas-day D, with reference to the Processed Quantities to be delivered/received (Reverse/Direct Flow the case may be) at the IP by each TSO 2 Network User on the basis of Network User Code Pair. This information shall be sent according to Appendix 1 (Nomination and re-nomination data exchange)*
- B) Not later than [time] after the end of the nomination or re-nomination deadline, TSO 1 shall communicate to TSO 2 the Processed³ Quantities to be delivered at the IP by each TSO 1 Network User on the basis of Network User Code Pair. This information shall be sent according to Appendix 1 (Nomination and re-nomination data exchange).*
- C) No later than two hours after the end of the nomination or re-nomination deadline TSO 1 and TSO 2, after the Matching Process performed according to the procedure under paragraph 2 below “Matching Process”, shall confirm the nomination or re-nomination by sending the Confirmed Quantities to the respective Network Users.*

The start time of the effective gas flow change on Gas Day D shall be two hours from the end of the re-nomination cycle.

The difference between Forward and Reverse Flow nominations and re-nomination will be the basis for determining the expected physical flow at the IP.

Physical Data regarding nominations and allocations shall be expressed in KWh and [additional unit of measure if agreed between the parties].

2. Matching Process

The Parties agree that an activity of matching shall be performed in order to check the correspondence between the daily [hourly] quantities nominated by each TSO 1 and TSO 2

³ Ed. Note: this exchange is taking place before the matching process.

Samples from existing IAs – Matching process - Sample 2

Network Users, on the basis of the Network User Code Pair. For the purpose of the Matching Process, the parties agree that TSO 2 shall be the Initiating TSO and TSO 1 shall be the Matching TSO. The whole matching process shall not take more than 90 minutes from the end of the nomination or re-nomination deadline.

TSO 1 shall perform a Network User by Network User matching in order to check if the quantities nominated to be delivered/received at the IP by TSO 2 Network Users correspond with the quantities nominated to be received/delivered at the IP by each TSO 1 Network User.

Not later than [time] of Gas-day D-1, after the above mentioned check:

- If there is no difference between the Processed Quantities of the corresponding TSO 1 and TSO 2 Network Users according to the Network User Code Pair, the matching shall be deemed satisfactory and TSO 1 shall communicate to TSO 2 the positive outcome of the Matching Process for the Gas-day D according to Appendix 1 (Nomination and re-nomination data exchange);*
- If a mismatch is noticed, the Parties agree that the “Lesser Of Rule” shall be applied as the default rule, i.e. the lower between the mismatched nominations at the IP for Gas-day D shall be confirmed. TSO 1 shall then communicate to TSO 2, according to Appendix 1 (Nomination and Re-nomination data exchange) the new transportation program forecast for the involved TSO 1 and TSO 2 Network Users.*

It is understood that if TSO 2 does not receive by [time] of Gas-day D-1 either the matching notice or the mismatching notice, the Confirmed Quantity will be zero according to the application of the Lesser Of Rule.

Furthermore, the Parties agree that, in order to prevent misallocation, the following procedure shall be adopted in cases, due to reasons out of control of the TSOs, an Exceptional Event occurs after that the Matching Process is completed.

Upon occurrence of an Exceptional Event the involved Party shall inform the other Party about the daily quantities available and the adjusted quantities of each involved TSO 1 and respectively TSO 2 Network Users, making its best effort to send the communication [time] in advance and in any case as soon as possible according to Appendix 1 (Nomination and Re-nomination data exchange).

Samples from existing IAs – Matching process - Sample 3

1 General

- 1.1 *The arrangements in this section are agreed in order to be compliant with the requirements of Article 3(c), 8, 10 and 21 of the Interoperability Code and Article 12(3) of the Balancing Code.*
- 1.2 *The arrangements in this section shall apply with respect to Nominations in respect of the Gas Day(s) commencing on or after 1 October 2015, except that the provisions of this section in relation to Single-Sided Nominations shall only apply in respect of the Gas Day(s) which commence on or after 1 November 2015.*

2 Interpretation

- 2.1 *In this section the following terms have the following meanings:*

CSO Nomination means a Nomination (including a Renomination) submitted by a shipper of TSO B to TSO B which is not rejected by TSO B under TSO B's Transportation Arrangements;

Corresponding is defined in paragraph 5.3;

Counterparty Shipper means:

(a) *in relation to a TSO A Nomination, TSO B Shipper, or*

(b) *in relation to a CSO Nomination, the TSO A Shipper*

specified in such Nomination as the Shipper making a corresponding Nomination to the other Operator;

Daily Quantity means a Nomination Quantity (expressed as a daily quantity) for the Gas Day;

Double-Sided Nomination means a Nomination submitted by a TSO A Shipper to TSO A or by a CSO Shipper to TSO B which is not a Single-Sided Nomination;

Samples from existing IAs – Matching process - Sample 3

Hourly Quantity means a Nomination Quantity (expressed as an Hourly quantity) for an Hour in the Gas Day;

Initial Nomination means a Nomination submitted before the Gas Day under which the nominated quantity is to flow from the start of the Gas Day;

Initiating TSO means the initiating transmission system operator as referred to in Article 8(2)(c) of the Interoperability Code;

Matching Timetable means the timetable set out in paragraph 7 for the actions required in each Nomination Cycle by each Operator under this Appendix;

Matching TSO means the matching transmission system operator as referred to in Article 8(2)(c) of the Interoperability Code;

TSO A Nomination means a Nomination (including a Renomination) submitted by a TSO A Shipper to TSO A which is not rejected by TSO A under the Network Code;

Nomination means a nomination by a Shipper to either Operator of a quantity of gas to be delivered to or offtaken from that Operator's System at the Connected Systems Point on a Gas Day or in each Hour of the Gas Day, and includes a Renomination;

Nomination Cycle means the cycle for processing and confirmation of Initial Nominations, and Renominations in each Hour, as described in paragraph 3;

Nomination Quantity means the quantity of gas nominated in a Nomination (or such quantity as processed or confirmed as described in this Appendix);

Renomination means a Nomination by a Shipper which revises an earlier Nomination for a Gas Day;

Renomination Effective Time means the time on the Gas Day from which a Renomination is to become effective;

Single-Sided Nomination means a Nomination submitted to TSO A (as Initiating TSO), by a Shipper which is both a TSO A Shipper and a CSO Shipper, which operates as both TSO A

Samples from existing IAs – Matching process - Sample 3

Nomination and CSO Nomination;

2.2 In relation to a Nomination:

- (a) the **Processed** Nomination Quantity is the Nomination Quantity adjusted by processing in accordance with the relevant Operator's Transportation Arrangements;***
- (b) the **Confirmed** Nomination Quantity is the quantity for which the Nomination is approved as determined by TSO B (as the Matching TSO) in accordance with paragraph 5.5;***
- (c) the Direction signifies whether the Nomination is for offtake from the TSO A System and delivery to TSO B System, or offtake from TSO B System and delivery to the TSO A System.***

3 Nomination Arrangements

- 3.1 This paragraph 3 summarises certain provisions of each Operator's Transportation Arrangements relating to Nominations, on the basis of which this Appendix operates; and each Operator confirms that it considers its Transportation Arrangements to be consistent with this paragraph 3 and otherwise compatible with the provisions of this Appendix.***
- 3.2 TSO A Nominations specify Nomination Quantities as Daily Quantities, and CSO Nominations specify Nomination Quantities as Hourly Quantities.***
- 3.3 Nominations contain the data necessary to enable each Operator to perform its responsibilities under paragraph 5.***
- 3.4 Initial Nominations may be submitted no later than 13:00 UTC (12:00 UTC during day light saving periods) on Gas Day D-1.***
- 3.5 Renominations may be submitted no earlier than 15:00 UTC (14:00 UTC during day light saving periods) on Gas Day D-1 and thereafter until 02:00 UTC (01:00 UTC during day***

Samples from existing IAs – Matching process - Sample 3

light saving periods) on Gas Day D.

3.6 *For a Renomination submitted within any hour (H):*

- (a) *the Renomination is treated as submitted at the start of hour H+1 (**renomination submission time**);*
- (b) *the Renomination Effective Time must be an Exact Hour no earlier than two (2) hours after the renomination submission time (and not earlier than the start of the Gas Day) and not later than 04:00 UTC (or 03:00 during day light saving periods) on the Gas Day.*

3.7 *For any Nomination, the Operator will notify the Confirmed Nomination Quantity to the Shipper no later than two Hours after:*

- (a) *in the case of an Initial Nomination, the deadline for submission referred to in paragraph 3.5;*
- (b) *in the case of a Renomination, the renomination submission time.*

3.8 *Where a Shipper does not submit an Initial Nomination by the relevant deadline for that Initial Nomination:*

- (a) *the relevant Shipper shall be deemed to have submitted a Nomination with a Nomination Quantity of zero; and*
- (b) *such deemed Nomination shall not be subject to the process described in paragraph 5.1 and the relevant Operator shall not determine nor communicate a Processed Nomination Quantity in respect of such deemed Nomination.*

4 Roles of Operators

4.1 *TSO A shall be the Initiating TSO and TSO B shall be the Matching TSO.*

4.2 *TSO B (as Matching TSO) appoints TSO A (as Initiating TSO) as its agent to receive Single-*

Samples from existing IAs – Matching process - Sample 3

Sided Nominations from Shippers which are both TSO A Shippers and CSO Shippers.

5 Responsibilities of TSOs

5.1 *For each Nomination Cycle, in accordance with the Matching Timetable:*

- (a) *TSO A as Initiating TSO will send to TSO B:*
 - (i) *details of the Single-Sided Nominations submitted for that Nomination Cycle in accordance with paragraph 5.2 (to enable TSO B to determine Processed Nomination Quantities); and*
 - (ii) *details in respect of the TSO A Nominations submitted for that Nomination Cycle in accordance with paragraph 5.3;*
- (b) *TSO B as Matching TSO will:*
 - (i) *determine which TSO A Nominations and CSO Nominations are Corresponding Nominations in accordance with paragraph 5.4;*
 - (ii) *convert the Processed Daily Quantities for the Corresponding TSO A Nominations to Processed Hourly Quantities in accordance with paragraph 5.5;*
 - (iii) *in relation to the Corresponding Nominations, determine the Confirmed Hourly Quantities from the Processed Hourly Quantities in accordance with paragraph 5.6;*
 - (iv) *send to TSO A the Confirmed Hourly Quantities for the Corresponding Nominations (together with the Processed Nomination Quantities in respect of TSO B Nominations), and inform TSO A of any TSO A Nominations which are not Corresponding Nominations;*
- (c) *TSO A (as Initiating TSO) will calculate Confirmed Nomination Quantities (as Daily Quantities) from the Confirmed Hourly Quantities in accordance with*

Samples from existing IAs – Matching process - Sample 3

paragraph 5.7; and

- (d) *TSO A and TSO B will inform their respective Shippers of the Confirmed Nomination Quantities.*

5.2 *The details of Single-Sided Nominations to be sent by TSO A to TSO B under paragraph 5.1(a)(i) are:*

- (a) *the identity of the Shipper submitting the Nomination;*
- (b) *the identity of the Counterparty Shipper specified;*
- (c) *the Nomination Type (single or double sided nomination);*
- (d) *the Gas Day to which the Nomination relates;*
- (e) *the Direction of the Nomination;*
- (f) *the Nomination Quantity (as a Daily Quantity); and*
- (g) *the proposed Renomination Effective Time.*

5.3 *The details of TSO A Nominations to be sent by TSO A to TSO B under paragraph 5.1(a)(i) are:*

- (a) *the identity of the TSO A Shipper submitting the Nomination;*
- (b) *the identity of the Counterparty Shipper specified in the Nomination;*
- (c) *the Gas Day to which the Nomination relates;*
- (d) *the Direction of the Nomination;*
- (e) *the Processed Daily Quantity;*
- (f) *whether the Nomination is Single-Sided or Double-Sided; and*

Samples from existing IAs – Matching process - Sample 3

(g) *the proposed Renomination Effective Time.*

5.4 A TSO A Nomination and a CSO Nomination are **Corresponding** Nominations where:

(a) *the TSO A Nomination is a Single-Sided Nomination; or*

(b) *in the case of Double Sided Nominations:*

(i) *they relate to the same Gas Day;*

(ii) *they are in the same Direction;*

(iii) *the Shipper identified as Counterparty Shipper in each Nomination is the Shipper which submitted the other Nomination; and*

(iv) *they are Initial Nominations, or are Renominations with the same renomination submission time and Renomination Effective Time.*

5.5 The Processed Hourly Quantity (PHQ_N) in respect of a TSO A Nomination is determined from the Processed Daily Quantity (PDQ_N) as follows:

(a) *in the case of an Initial Nomination:*

$$PHQ_N = PDQ_N / 24$$

(b) *in the case of a Renomination:*

$$PHQ_N = \{(PDQ_N - \sum_P CHQ_P) / H\}$$

where

\sum_P *is the sum over Hours in the Gas Day up to the Renomination Effective Time;*

CHQ_P *is the Confirmed Hourly Quantity for each Hour in the Gas Day up to the Renomination Effective Time under the last TSO A Nomination prevailing at such*

Samples from existing IAs – Matching process - Sample 3

Hour

H is the number of Hours of the Gas Day remaining from the Renomination Effective Time.

5.6 The Confirmed Hourly Quantity for Corresponding Nominations for each Hour is determined as follows:

- (a) where the Processed Hourly Quantities under both Nominations is the same, the Confirmed Hourly Quantity is equal to the Processed Hourly Quantity;*
- (b) where the Processed Hourly Quantities under both Nominations is not the same, the Confirmed Hourly Quantity is equal to the Processed Hourly Quantity under TSO B Nomination, subject to paragraphs (c) and (d);*
- (c) where (at the start of the relevant Nomination Cycle) TSO A has notified to TSO B an Exceptional Event under paragraph 6, and has not notified the cessation of the Exceptional Event, in relation to Nominations in the affected Direction, the Confirmed Hourly Quantity is equal to the Processed Hourly Quantity under the TSO A Nomination;*
- (d) where (at the start of the relevant Nomination Cycle) TSO A has notified to TSO B a Gas Deficit Emergency and has not notified the cessation of the Gas Deficit Emergency, in relation to Nominations in the affected Direction, the Confirmed Hourly Quantity is equal to the Processed Hourly Quantity under the TSO A Nomination.*

5.7 The Confirmed Daily Quantity (CDQ) for a TSO A Nomination is determined from the Confirmed Hourly Quantities as follows:

$$CDQ = \sum CHQ$$

where

Samples from existing IAs – Matching process - Sample 3

Σ is the sum over Hours in the Day;

CHQ is, for each Hour in the Day, the Confirmed Hourly Quantity under the TSO A Nomination or (in the case of a Renomination, for Hours up to the Renomination Effective Time) the Confirmed Hourly Quantity under the last TSO A Nomination prevailing at such Hour.

6 Exceptional Events and Gas Deficit Emergencies

6.1 Either Operator (the **Affected Operator**) may (before or during the Gas Day) notify the other Operator:

- (a) that there is an Exceptional Event or, in the case of TSO A, a Gas Deficit Emergency affecting the Affected Operator's System, and the Direction (**affected Direction**) in which it is affected by the Exceptional Event; or
- (b) that an Exceptional Event or Gas Deficit Emergency previously notified is no longer affecting the Affected Operator's System.

6.2 Where an Operator notifies an Exceptional Event or, in the case of TSO A, a Gas Deficit Emergency (under paragraph 6.1(a)) to the other Operator, in relation to Nominations in the affected Direction:

- (a) the Affected Operator may determine (in accordance with its Transportation Arrangements) revised Processed Nomination Quantities for its Nominations prevailing at the time;
- (b) if TSO A is the Affected Operator, TSO A (as Initiating TSO) will notify the revised Processed Nomination Quantities to TSO B;
- (c) TSO B (as Matching TSO) will redetermine and notify to TSO A revised Confirmed Hourly Quantities for Nominations, on the basis of the revised Processed

Samples from existing IAs – Matching process - Sample 3

Nomination Quantities in accordance with paragraph 5.1(b);

- (d) *the Operators will notify the revised Confirmed Hourly Quantities to their respective Shippers in accordance with paragraph 5.1(d).*

6.3 *The steps in paragraph 6.2 will be taken in accordance with the Matching Timetable on the basis that the Nomination Cycle starts following the Hour during which the Affected Operator notifies the Exceptional Event or Gas Deficit Emergency or its cessation.*

7 Matching Timetable

7.1 *The Matching Timetable is as follows:*

<i>Matching Activity</i>	<i>Paragraph reference in this Appendix</i>	<i>Deadline for Provision (Relative to Commencement of Nomination Cycle)</i>
<i>TSO A (as Initiating TSO) forwards Single Sided Nominations to TSO B (as Matching TSO)</i>	<i>5.1(a)(i)</i>	<i>Within 15 minutes</i>
<i>TSO A (as Initiating TSO) forwards its Processed Nomination Quantities to TSO B (as Matching TSO)</i>	<i>5.1(a)(ii)</i>	<i>Within 45 minutes</i>
<i>TSO B (as Matching TSO) forwards its Processed Nomination Quantities and the Confirmed Hourly Quantities to TSO A (as Initiating TSO)</i>	<i>5.1(b)(iv)</i>	<i>Within 90 minutes</i>
<i>TSO A and TSO B notify Confirmed Nomination Quantities to Shippers</i>	<i>5.1(d)</i>	<i>Within 120 minutes</i>

7.2 *If in any Nomination Cycle either Operator is unable to meet any deadline in the Matching Timetable for sending data to the other Operator, it will before the deadline inform the other Operator, and will send the relevant data as soon as it is able to, and the other Operator will use reasonable endeavours to perform its activities when the*

Samples from existing IAs – Matching process - Sample 3

data is sent.

8 *Communications*

8.1 This paragraph 8 sets out terms agreed between the Parties in connection with the exchange of data pursuant to this Appendix. The terms in this Appendix apply in addition to the terms of Clauses X and X of the Agreement.

8.2 The arrangements in this paragraph 8 are agreed in order to address the requirements of Article 21 of the Interoperability Code.

8.3 The Parties shall use document-based data exchange to send and receive data.

8.4 The Parties shall send data under this Appendix in the data format, and in accordance with the protocol, and by the network, each specified below:

(a) the data format to be used is: Edig@s-XML.

(b) the protocols to be used:

(i) by TSO B is AS2 and/or AS4 (document based exchange); and

(ii) by TSO A is https://soap (web services integrated data exchange).

(c) the network to be used is internet.

8.5 As TSO A's systems use integrated data exchange, TSO A will (as part of its arrangements under Clause 11.4 of the Agreement) develop, maintain and use an interface to convert data between TSO B's data exchange protocol specified in this paragraph 8 and the data exchange protocol which can be used with TSO A's systems.

Allocation of gas quantities

In line with Article 9 of the Interoperability Network Code TSOs shall do the following.

The parties shall ensure the consistency between the allocated quantities at both sides of the interconnection point.

Unless otherwise agreed, the steering difference shall be allocated to the operational balancing account and the allocations to be provided by each TSO to their respective network users shall be equal to the confirmed quantities.

The operational balancing account shall be maintained as close to zero as possible.

The limits of the operational balancing account shall take into account the specific characteristics of each interconnection point and the interconnected transmission network, in particular:

- (a) physical characteristics of the interconnection point;
- (b) linepack capability of each transmission network;
- (c) the total technical capacities at the interconnection point;
- (d) gas flow dynamics at the interconnected transmission networks;

Where the defined limits of the operational balancing account are reached, the parties agree to extend those limits in order to provide allocations to network users that are equal to their confirmed quantities or otherwise allocate quantities to network users proportionally based on the measured quantity.

Samples from existing IAs – Allocation of gas quantities – Sample 1

The allocation will be based on the Confirmed Quantities for each pair of shippers.

TSO_2 shall submit to TSO_1 not later than the 5th business day of the following month a report on the quantities allocated to the respective shipper pairs for the previous month according to the aforementioned rules. The report sent by TSO_2 shall also contain the Measured Quantity and the value of the Operational Balancing Account for each day of the previous month on an hourly basis, and as the case may be, the value of the OBA Corrections. If differences between the allocations of TSO_2 and TSO_1 will be noticed, the relevant Party will contact the other Party in order to agree on final allocation figures. The Parties agree that the quantities allocated to the shippers for a day will be final by the end of one (1) month after the month of transport. Nevertheless if mutual agreed, corrections of allocations and metering deviations are still possible after this date, but not later than 12 month after the month of transport.

The Parties agree to perform the allocation of quantities at the Interconnection Point on the basis of an OBA.

The steering difference shall be allocated to the OBA.

If the absolute value of the OBA exceeds kWh, one Party may notify the other Party thereof, requesting the other Party to take the necessary actions in order to bring the OBA back within acceptable limits by the end of the day or such other period as may be agreed between the Parties. If needed, the Parties will contact each other in the most appropriate way in order to coordinate dispatching actions.

Samples from existing IAs – Allocation of gas quantities – Sample 2

1. Daily Allocation

Not later than [time] of each Gas-Day D TSO 1 shall communicate to TSO 2 according to Appendix 2 (Allocation data exchange):

- The Allocated Quantity for Gas-Day D-1 with detail for each Network User Code Pair, in order to determine the allocation to the TSO 2 Network Users.*
- The sum of the Allocated Quantity, the effective Gas quantity flown at the IP during the Gas-Day D-1 and the difference between the two values. Such difference will be managed according to the provisions defined in the OBA.*

2. Monthly Allocation

On the [day], TSO 1 shall communicate to TSO 2 the daily values of quantities, expressed in KWh and [additional unit], and GCV, expressed in KWh/Nm³ and [additional unit], measured at the IP. If a change in the metered gas quantity at the IP for a given Gas Day should occur due to a metering error, the changed quantity shall be communicated by TSO 1 to TSO 2 within [time]. The Parties agree that any subsequent possible metering error will be handled in good faith.

By [time] TSO 1 shall communicate to TSO 2 the Direct Flow allocation data of each Network User Code Pair at the border Metering Station, with daily detail, using the latest information available at that point of time; this communication shall be sent according to Appendix 2 (Allocation data exchange).

Samples from existing IAs – Allocation of gas quantities – Sample 3

1 Definitions

1.1 For the purposes of this section:

Aggregate Confirmed Quantity (Forward Flow) means the sum of the Confirmed Nomination Quantities of natural gas for offtake from TSO B System and delivery to the TSO A System at the IP on a Day;

Aggregate Confirmed Quantity (Reverse Flow) means the sum of the Confirmed Nomination Quantities of natural gas for offtake from the TSO A System and delivery to TSO B System at the CSP on a Day;

Aggregate Net Confirmed Quantity means the difference between the Aggregate Confirmed Quantity (Forward Flow) and the Aggregate Confirmed Quantity (Reverse Flow);

Agreed Target Quantity means the quantity of gas which TSO B and TSO A agree is to flow at the IP on a Day;

Confirmed Nomination Quantity means a Confirmed Daily Quantity as defined in Appendix 4 (Nominations);

Cumulative Steering Difference means, for 30 September 2015, zero, and for any subsequent Gas Day (D), the sum of the Cumulative Steering Difference for Gas Day D-1 (CSD_{D-1}) plus the Cumulative Steering Difference Correction for Gas Day D ($CSDC_D$) plus the Steering Difference (SD_D) for that Day, subject to paragraph 6.4;

Cumulative Steering Difference Correction means a quantity of gas that the Parties agree should be deducted from or added to the Aggregate Net Confirmed Quantity for a Day in accordance with paragraph 5 in order to determine the Agreed Target Quantity.

Daily Metered Quantity means the measured quantity of natural gas off taken from TSO B System and delivered to the TSO A System at the IP on a Day;

Part-Day Steering Difference is defined in paragraph 6.5;

Proportional Allocation means allocation to Shippers of quantities in proportion to their Confirmed Nomination Quantities;

Steering Tolerance means a tolerance on the Cumulative Steering Difference equal to

Samples from existing IAs – Allocation of gas quantities – Sample 3

2930 MWh (equivalent to 0.30 MNCM);

Steering Difference or **SD** means for a Day the difference between the Daily Metered Quantity and the Agreed Target Quantity at the end of the Day, and is:

- (a) positive if the Daily Metered Quantity is greater than the Agreed Target Quantity, and
- (a) negative if the Daily Metered Quantity is less than the Agreed Target Quantity.

1.2 Terms which are defined in the Nominations section have the meanings given to them in that section.

1.3 The Aggregate Net Confirmed Quantity (and quantities from which it is derived) and Agreed Target Quantity for a Day are calculated following each Nomination Cycle.

1.4 For the purposes of determining Agreed Target Quantity for a Gas Day (D), or whether the condition in paragraph 6.2(a) is met on Gas Day D, the SD and CSD for Gas Day D-1 shall be determined based on the Daily Measured Quantity for Gas Day D-1 as determined (in accordance with Appendix 1 Part 2) as at 10:00 UTC (09:00 UTC during daylight saving time periods) on Gas Day D; and paragraph 8 shall apply if any subsequent adjustment is made in respect of the Daily Measured Quantity.

1.5 Unless otherwise agreed, where TSO B is to provide information or data to TSO A under this section, TSO B will do so by publishing such information or data on the TSO A Overview.

2 Flow Control

2.1 See flow control chapter

3 OBA Management

3.1 For each Gas Day D, TSO B shall make available to TSO A the SD and the CSD in respect of Gas Day D-1 within one hour of the start of Gas Day D; should access to the TSO A Overview be unavailable then TSO B shall communicate the SD and the CSD in respect of

Samples from existing IAs – Allocation of gas quantities – Sample 3

Gas Day D-1 by email to TSO A within 90 minutes of the start of Gas Day D.

3.2 *If TSO A considers that TSO B has incorrectly calculated the SD or the CSD for a Day, TSO A shall contact TSO B and they shall discuss and agree on the correct values of the SD and CSD.*

4 Delivery Accuracy

TSO B shall use reasonable endeavours to ensure that the Steering Difference is kept as close as possible to zero.

5 Cumulative Steering Difference Corrections

5.1 *The Parties shall cooperate to reduce the CSD in the event that the absolute value of the CSD exceeds the Steering Tolerance.*

5.2 *For each Gas Day D, if the absolute value of the CSD for Gas Day D-1 (CSD_{D-1}) exceeds the Steering Tolerance, there shall be a Cumulative Steering Difference Correction which (unless otherwise agreed) shall be an amount equal to the value of the CSD_{D-1} and shall be positive where CSD_{D-1} is negative and negative where CSD_{D-1} is positive.*

5.3 *If for Gas Day D the absolute value of CSD_{D-1} does not exceed the Steering Tolerance, there shall be no Cumulative Steering Difference Correction unless the Parties otherwise agree.*

5.4 *The Agreed Target Quantity for each Day shall be the Aggregate Net Confirmed Quantity plus the Cumulative Steering Difference Correction for the Day.*

5.5 *The Agreed Target Quantity following each Nomination or Renomination Cycle for each Day shall be reflected in the DFN issued by TSO B at the time.*

5.6 *The Operators acknowledge and agree that the Cumulative Steering Difference represents a quantity of gas borrowed by one Operator from the other and which the other Operator is entitled to have returned under the arrangements in this section. If this Agreement is terminated then (unless the Operators agree otherwise) the Operators will ensure gas flows before or at the time of termination such that any Cumulative Steering*

Samples from existing IAs – Allocation of gas quantities – Sample 3

Difference at the time is returned to the Operator to which it is owed. If the Operator owing any Cumulative Steering Difference (i) becomes insolvent or (ii) on termination of this Agreement does not return such Cumulative Steering Difference, the Operator to which it is owed will be entitled to make a financial claim against the first Operator in respect of the value of the gas comprising the Cumulative Steering Difference.

6 Allocation Principles

6.1 *The Parties' respective Transportation Agreements provide for the quantities delivered and offtaken at the IP to be allocated among each Party's respective Shippers in respect of each Day, based on the Confirmed Nomination Quantities, as follows:*

- (a) except where the Parties agree to implement Proportional Allocation for the Day in accordance with paragraph 6.2, the quantity allocated to each Shipper in each Direction is equal to the sum (by Counterparty Shipper) of the Confirmed Nomination Quantities for that Shipper in that Direction;*
- (b) if the Parties agree to implement Proportional Allocation for the Day in accordance with paragraph 6.2:*
 - (i) the quantity to be allocated by TSO B to each CSO Shipper in each Direction is determined by TSO B in accordance with the allocation rules in TSO B's Transportation Arrangements (and on TSO A's request TSO B will inform TSO A of such allocation rules);*
 - (ii) provided that TSO B provides to TSO A the information for the Day in compliance with the requirements in paragraph 6.3, the quantity to be allocated by TSO A to each TSO A Shipper in each Direction is determined as the sum of TSO B Shipper Allocations in respect of the Nominations under which TSO B Shippers were Counterparty Shippers for that TSO A Shipper in that Direction;*
 - (iii) if TSO B does not provide to TSO A such information for the Day, the quantity to be allocated by TSO A to each Shipper in each Direction is determined in accordance with the alternative allocation rules in TSO A's*

Samples from existing IAs – Allocation of gas quantities – Sample 3

Transportation Arrangements.

6.2 *TSO A and TSO B may agree at any time within Gas Day D to implement Proportional Allocation for the Day if:*

- (a) the Cumulative Steering Difference, as forecast at such time by TSO B and discussed with TSO A, at the end of the Gas Day D will or would exceed the Steering Tolerance;*
- (b) the Parties, having used their reasonable endeavours, are unable (at such time) to agree to allow the Cumulative Steering Difference to exceed the Steering Tolerance after the Day for a period of time;*
- (c) at or before such time on Gas Day D an Exceptional Event has occurred in relation to either System which affected the ability of TSO A or TSO B (the affected Party) to deliver gas to or accept gas for delivery from the IP and which, in the reasonable opinion of the affected Party, occurred too late in the Day to be resolved, using the constraint management tools available to that Party, before the end of the Day; and*
- (d) the Parties have so notified their respective Shippers active at the IP that Proportional Allocation will apply.*

6.3 *If for a Day the Parties agree to implement Proportional Allocation in accordance with paragraph 6.2, TSO B shall:*

- (a) allocate (as provided in paragraph 6.1) to each of its Shippers for the Day a quantity in respect of each Nomination submitted by such Shipper for the Day, such that the net sum of:*
 - (i) such quantities for all Shippers and all Nominations in both Directions,*
 - (ii) the Cumulative Steering Difference Correction, and*
 - (iii) the Part-Day Steering Difference, if any*

Samples from existing IAs – Allocation of gas quantities – Sample 3

is equal to the Daily Metered Quantity;

(b) provide to TSO A no later than Gas Day D+5 the following information:

(i) for each Nomination submitted by each CSO Shipper,

*the quantity allocated (under paragraph (a)) to such CSO Shipper in respect of such Nomination (**CSO Shipper Allocation**); and*

the Part-Day Steering Difference for the Day.

6.4 *In the event of Proportional Allocation for a Gas Day D the Cumulative Steering Difference for Day D shall be determined as the sum of:*

(a) the Cumulative Steering Difference for Gas Day D-1;

(b) the Cumulative Steering Difference Correction (if any) for Gas Day D; and

(c) the Part-Day Steering Difference for Gas Day D.

6.5 *For the purposes of this section:*

*(a) the **Part-Day Steering Difference** for a Day on which Proportional Allocation applied, shall be the quantity determined by TSO B as the sum of the Hourly steering differences for those Hours of the Gas Day for which, under TSO B's Transportation Arrangements, TSO B made shipper allocations equal to nominated quantities; and*

*(b) for such an Hour, the **hourly steering difference** is the amount determined by TSO B as the difference (after taking into account targeted correction of steering difference) between:*

(i) the Confirmed Hourly Quantities for that Hour, and

(ii) the measured quantity of natural gas off taken from TSO B System and delivered to the TSO A System at the IP in that Hour.

Samples from existing IAs – Allocation of gas quantities – Sample 3

7 Proportional Allocation Request Notice ("PARN")

- 7.1 *The PARN shall be used by a Party in order to make a request to the other Party that the allocations shall be calculated on a proportional basis as described in Article 6.1(b) (rather than a deemed basis as described in Article 6.1(a) for the Gas Day indicated on the PARN.*
- 7.2 *The PARN shall be valid and timely delivered if the Party requesting proportional allocation has sent the notice to the other Party at the latest or within 2 Hours before the Hour on Gas Day D that Proportional Allocation will apply and if the criteria in paragraphs 6.2(a) 6.2(b) 6.2(c) and 6.2(d) and have been met.*

8 Adjustments of Daily Metered Quantity

- 8.1 *The Daily Metered Quantity in respect of a Gas Day or Gas Days may be revised pursuant to the arrangements in Appendix X Part X.*
- 8.2 *In the event that Daily Metered Quantity is increased in respect of one or more Gas Days, the aggregate amount of such increase shall be added to the Cumulative Steering Difference for the Gas Day on which the revision is agreed or determined.*
- 8.3 *In the event that Daily Metered Quantity is reduced in respect of one or more Gas Days, the aggregate amount of such reduction shall be deducted from the Cumulative Steering Difference for the Gas Day on which the revision is agreed or determined.*
- 8.4 *The Operators may agree to take such revision into account (in accordance with paragraph 8.2 or 8.3) in calculating the CSD for a Gas Day later than the Gas Day specified in paragraph 8.2/8.3, or to apportion such revision over more than one such Gas Day.*
- 8.5 *Paragraphs 8.2 and 8.3 will not apply with respect to an adjustment to a Daily Metered Quantity made later than the Exit Close-Out Date.*

9 Error correction

- 9.1 *Subject to paragraph 9.3, if a Shipper of either Operator notifies that Operator, or either*

Samples from existing IAs – Allocation of gas quantities – Sample 3

Operator otherwise becomes aware, that it has or may have made an error in implementing the provisions of its Transportation Arrangements or the Nominations section or this section in respect of (1) the determination of the Processed Nomination Quantity or Confirmed Nomination Quantity in respect of a Nomination submitted by a Shipper, or (2) the determination of the quantities to be allocated (pursuant to such a Nomination) to a Shipper:

- (a) that Operator (A) shall so notify the other Operator (B) providing details of the error and the Shipper and Nomination affected by the error;*
- (b) Operator B shall notify the Counterparty Shipper of the error;*
- (c) Operator A shall investigate the error (where appropriate, in consultation with Operator B and/or either Shipper);*
- (d) if it is confirmed that there was an error, the Operators shall determine, and notify to the Shipper and Counterparty Shipper, what redeterminations are needed to correct the error;*
- (e) if both the Shipper and the Counterparty Shipper accept (by notice to their respective Operator) the proposed correction notified under paragraph (d), the Operators shall give effect to such correction by redetermining (for the purposes of their respective Transportation Arrangements) the Confirmed Nomination Quantities or (as the case may be) quantities allocated for the Shipper and Counterparty Shipper;*
- (f) where the error was notified within the Day on which it occurred, the Operators will endeavour to do the foregoing within the Day.*

9.2 If the correction of an error gives rise to a change in the calculation of the Steering Difference for the Day, the amount of the change shall be added to the Cumulative Steering Difference for the Day on which the error was corrected.

9.3 No correction of an error in relation to a Day shall be made under this paragraph 9 later than the Exit Close-out Date (as defined in the Network Code).

Communication procedures in case of exceptional events

In line with Article 10 of the Interoperability Network Code TSOs shall do the following.

TSOs affected by an exceptional event shall be required, as a minimum, to inform its network users with respect to point b) and c) of this paragraph if there is a potential impact on their confirmed quantities and the adjacent transmission system operator(s) with respect to point a) and c) of this paragraph of the occurrence of such exceptional event and to provide all necessary information about:

- (a) the possible impact on the quantities and quality of gas that can be transported through the interconnection point;
- (b) the possible impact on the confirmed quantities for network users active at the concerned interconnection point(s);
- (c) the expected and actual end of the exceptional event.

This procedure shall be applied without prejudice to the provisions set forth under Regulation (EC) No 1227/2011 of the European Parliament and of the Council and to its implementing acts.

Sample from existing IAs - Communication procedures in case of exceptional events - Sample 1

The Party claiming Force Majeure shall give written notice and reasonably full particulars to the other Party promptly after the occurrence of such Force Majeure and shall also notify the other Party of the period of time which said Party estimates it shall require to remedy the Force Majeure situation and shall keep the other Party regularly informed as to the progress of such remedy. Any notification shall be given in the English language, unless the Parties agree otherwise.

Sample from existing IAs - Communication procedures in case of exceptional events - Sample 2

1. Emergency during the gas day

If during a Gas-Day an Exceptional Event, causing capacity reductions occurs:

- *The dispatching centre of TSO 2 shall inform the dispatching centre of TSO 1, respectively the dispatching centre of TSO 1 shall inform the dispatching centre of TSO 2 within [time] from the time it becomes aware of an Exceptional Event, by communication to the references listed in the Contact List; the dispatching centres of TSO 2 and TSO 1 shall react promptly in order to minimize the impact of such Exceptional Event by using best effort and applying all reasonable measures*
- *TSO 2 and TSO 1 shall promptly inform and coordinate with the respective interconnected systems operators which may be affected by such an event*
- *TSO 2 and TSO 1 shall keep each other and the other involved parties continuously updated about the progress made in handling the Exceptional Event and the time at which the event ceases to apply.*

2. Gas Shortage Emergency

In case of a Gas Shortage Emergency, TSO 2 and TSO 1 shall cooperate in order to minimize any constraints (e.g. planned/unplanned maintenance works) and to ensure the highest reliability of the respective systems.

3. Gas Excess Event

If during a Gas-Day a gas excess event occurs:

- *The dispatching centre of TSO 2 shall inform the dispatching centre of TSO 1, respectively the dispatching centre of TSO 1 shall inform the dispatching centre of TSO 2 within [time] from the time it becomes aware of the gas excess event or of an assumption that there might be an impact on the planned quantities, by communication to the references listed in the Contact List*
- *TSO 2 and TSO 1 shall react promptly in order to minimize the impact of such event by using best effort and applying all reasonable measures*
- *TSO 2 and TSO 1 shall promptly inform and coordinate with the respective interconnected systems which may be affected by such an event*
- *TSO 2 and TSO 1 shall keep each other and the other involved parties continuously updated about the progress made in handling the event and the time at which the event ceases to apply*

On the commercial side, in order to prevent misallocation due to an Exceptional Event, the

Sample from existing IAs - Communication procedures in case of exceptional events - Sample 2

dispatching centres of TSO 1 and TSO 2 shall proceed as follows:

TSO who has a Gas Excess Event shall inform the other TSO about the daily quantities available and the adjusted quantities of each of their involved Network Users making their best effort to send the communication [time] in advance and in any case as soon as possible and before the expected event will occur by using Appendix 4 (Exceptional event communication). TSO who has a Gas Excess Event shall inform their Network Users and request them to inform their related parties upstream and downstream as soon as possible.

The Party which notifies the occurrence of the event shall provide the total amount of the reduction giving the percentage of reduction on a daily basis, the starting, expected and actual time of the reduction and the percentage of reduction on an hourly basis making their best effort to send the communication [time] in advance and in any case as soon as possible before the expected event will occur. The Party also undertakes to provide the amount of reduction with a Network User by Network User according to Appendix 4 (Exceptional event communication).

Contact data of the Parties related to said activities are listed in the Contact List.

Sample from existing IAs - Communication procedures in case of exceptional events - Sample 3

1 Other Notifications/Communications

1.1 General Communication

- (a) *Subject to the Party's duty of confidentiality to any third party TSO B Representative and the TSO A Representative will at all times keep each other informed of all matters which have a significant effect on Natural Gas flow, pressure or quality at the Transfer Point.*
- (b) *Upon an unforeseen change in the Natural Gas flow, pressure or quality, TSO B Representative or the TSO A Representative will inform each other of the nature and estimated extent of the change.*

1.2 Transportation Flow Advice (TFA)

- (a) *If in TSO A's reasonable opinion, the TSO A System will be unable to accommodate any Expected Flow Rate or expected End of Day Volumetric Quantity as notified on the DFN, or any Actual Flow Rate, TSO A may advise TSO B by means of a TFA facsimile, which will be in substantially the form set out in Attachment C. In so doing, TSO A will advise TSO B as to the flow rates and End of Day Volumetric Quantity that it anticipates the TSO A System may be able to accommodate. TSO A will provide TSO B with a reason for its TFA. The TFA will specify whether or not the relevant circumstances constitute an Exceptional Event affecting the TSO A System. In the case where they do constitute an Exceptional Event, TSO A will issue a further advice to TSO B when the Exceptional Event has ceased.*
- (b) *If TSO A believes that gas tendered for delivery at the System Entry Point is reasonably expected not to comply with the Gas Entry Conditions and appears to be imminently in breach of any statutory gas safety requirement (including without limitation, Schedule 3 of the Regulations), TSO A may advise TSO B of the specification parameter that is reasonably expected to be in breach and request that TSO B take action to prevent a such a breach.*
- (c) *If gas tendered for delivery at the System Entry Point does not comply with the*

Gas Entry Conditions, TSO A may issue a TFA that advises of the specification parameter that is being breached and requesting a reduction in, or a cessation of, the flow of gas being tendered for delivery. .

- (d) *If the gas tendered for delivery at the System Entry Point is brought back within the Gas Entry Conditions, then TSO A will then advise that the TFA is removed and that TSO B may return to its expected flow rate. If, once the TFA has been lifted, TSO B requires to increase its expected gas flow rate in order to meet its notified Expected End of Day Volumetric Quantity, then TSO B shall resubmit its Expected Flow Rates in accordance with paragraph **Error! Reference source not found.***
- (e) *If the gas tendered for delivery at the System Entry Point is not brought back within the Gas Entry Conditions within a reasonable timeframe then TSO A may issue a further TFA requesting a further reduction in, or a cessation of, flow, or may isolate TSO B Facilities from the TSO A System by closing the necessary valves at the TSO A Facility.*
- (f) *TSO B recognises and acknowledges that TSO A issues a TFA to protect the TSO A System either from contamination by gas outside the agreed specification or from over-pressurisation. Where TSO A has issued a TFA to TSO B, TSO B shall reduce or cease flow (as the case may be) such that the flow from TSO B Facilities is less than or equal to the flow rate specified in the TFA. If TSO B fails to comply with the TFA in a timely manner, it may become necessary for TSO A to isolate the flow from TSO B Facilities (by closing the necessary valves at the TSO A Facility) to prevent over-pressurisation of the TSO A System or to prevent gas outside the agreed specification entering the TSO A System.*
- (g) *Where TSO A issues a TFA pursuant to this paragraph, the TSO B shall resubmit its Expected Flow Rates in accordance with paragraph based on the flow of gas specified in the TFA.*

Annex I: Definitions

The following definitions apply for each of the given samples. For sample 3, definitions are provided within the relevant chapter.

Samples from existing IAs - Definitions

Sample 1

Interconnection Point: The point situated at TSO_X' premises at the place of the Connection, where the Gas Transmission Grid of TSO_2 is connected with the Gas transmission grid controlled and/or operated by TSO_1 , as stipulated in Appendix A.

m³(n): An amount of Gas, which under Normal Conditions occupies a volume of one (1) m³.

Metering Capacity: The amount of Gas, in units of m³(n) per hour, that can technically be measured by the metering equipment at the Metering Station.

Metering Handbook: Document describing the metering system and operation of the metering system (Appendix E).

Metering Point: The point where Gas samples are taken

Metering Station: The metering equipment as described in Article 4.2, and as shown in Appendix A and stipulated in Appendix E.

Maximum Metering Capacity: The maximum Metering Capacity as determined in Appendix E.

Minimum Metering Capacity: The minimum Metering Capacity as determined in Appendix E.

Month (Monthly): means the period from 5:00 UTC on the first day of a calendar month to 5:00 UTC on the first day of the following calendar month for winter time and from 4:00 UTC on the first day of a calendar month to 4:00 UTC on the first day of the following calendar month when daylight saving is applied.

Normal Conditions: The conditions determined by a temperature of 0 °C and an absolute pressure of 1.01325 bar.

Operational Balancing Account (OBA) means an account between adjacent transmission system operators, to be used to manage steering differences at an interconnection point in order to simplify Gas accounting for network users involved at the interconnection point.

Reasonable and Prudent Operator: A Party fulfilling its obligations under the Agreement with that degree of diligence, skill, prudence and foresight as reasonably and ordinarily exercised by experienced operators engaged in the same line of business under the same or similar circumstances and conditions and in accordance with good operating practice.

Relative Density: The density of Gas divided by the density of dry air (meaning air composed

Samples from existing IAs - Definitions

according to ISO 6976 annex B).

Shipper: The party who has concluded an agreement for the transportation of Gas with TSO_1 and/or TSO_2.

Shipper Nomination: The nomination or renomination as described in the EASEE-gas CBP 2003-002-03 Matching and Nomination

Start Date: The date from which this Agreement comes into force.

Steering difference: means the difference between the quantity of Gas that the transmission system operators had scheduled to flow and the measured quantity for an interconnection point.

Test and Calibration Table: The table of test and calibration limits described in Appendix E.

UTC Universal Time, Coordinated, means the used time reference defined and recommended by ITU-T

Wobbe Index: The Gross Calorific Value divided by the square root of the Relative Density under Normal Conditions.

Sample 2

Allocated Quantity: shall mean the Confirmed Quantities resulting from the Matching Processes.

[BGR or Balancing Group Responsible: the BGR which will be able to make nominations on TSO 1/2 System on behalf of Network User(s) where applicable.]

Border Metering Station: shall mean the border metering station, which will be used for the measuring, and testing rules to determine the quantity and the quality of Natural Gas relevant for the IP.

Confirmed Quantity: shall mean the quantity of gas confirmed by a TSO to be scheduled or rescheduled to flow on Gas Day D.

Contact List: shall mean the list of contact persons shared and updated by the Parties. In case of substitution of a representative of a Party, said Party shall communicate to the other Parties the name of the new person(s) in writing and the Contact List shall be amended accordingly.

Counterparty Relationship: shall mean a set of arrangements defining the commercial flow of gas between TSO 1 and TSO 2 Network Users.

Cumulated Monthly Unbalance Quantity: shall have meaning defined in the Operational Balancing Agreement.

Exceptional Event: shall mean any unplanned event that is not reasonably controllable or preventable and that may cause, for a limited period, capacity reductions, affecting thereby the

Samples from existing IAs - Definitions

quantity or quality of gas at a given interconnection point, with possible consequences on interactions between transmission system operators as well as between transmission system operator and network users.

Forward Flow: shall mean the commercial and/or physical gas flowing through the IP from [Zone 1] to [Zone 2].

Gas-day or Day: shall mean a period of time of twenty-four hours from 06.00 on any calendar day to 06.00 on the following calendar day (with reference to the [CET]). The reference date of any day is the date of the calendar day in which the day begins. In case a Day consists of more or less than twenty-four hours as a result of the change from daylight saving time to standard time or vice versa the concerned Day shall be considered to have 25 and 23 hours respectively. "Daily" shall be construed accordingly.

Gas Excess Event: shall mean the condition when, due to an Exceptional Event, during the gas-day D, the TSO has to deal with an oversupply situation that compels to reduce the programmed quantities at the IP interconnected with TSOs pipelines.

Gas Shortage Emergency: shall mean the condition when, due to an Exceptional Event, during the gas-day D, the TSO has to deal with gas shortage emergency situations, which prejudice the safe operations of transportation on gas transmission networks.

Gas Year: shall mean the reference period starting at 06.00 of the 1st of October of any year and ending at 06.00 of the 1st of October of the following year.

Gross Calorific Value or GCV shall mean: the amount of heat, which would be released by the complete combustion of one cubic meter of natural gas in air, in such a way, that the pressure at which the reaction takes place remains constant, and all products of the combustion are returned to the same specified temperature (25°C) as that of the reactants, all of these products being in the gaseous state except for water formed by combustion, which is condensed to the liquid state at the same specified temperature (25°C). The Gross Calorific Value is expressed in KWh/Nm³ and [additional unit if agreed between the Parties] (for conversion from/to KWh to/from [additional unit] shall be used the provisions set forth in article 4.2)

Initiating TSO: shall mean the transmission system operator initiating the matching process by sending necessary data to the Matching TSO.

Interconnection Point or IP: shall mean the connection between the TSO 1 System and the gas transportation system of TSO 2. The measuring and/or determination of the quantities for this IP shall be carried out at the Border Metering Station.

Lesser Of Rule: shall mean that, in case of different Processed Quantities at either side of an interconnection point, the Confirmed Quantity will be equal to the lower of the two Processed

Samples from existing IAs - Definitions

Quantities.

Matching Process: shall mean the process of comparing and aligning Processed Quantities of gas for network users at both sides of a specific interconnection point, which results in Confirmed Quantities.

Matching TSO: shall mean the Transmission System Operator performing the matching process and sending the result to the Initiating TSO.

Measured Quantity: shall mean the quantity of gas that, according to the measurement equipment at the Border Metering Station, has physically flowed across an interconnection point per time period;

Month: shall mean a period of time beginning at 06.00 on the first day of a calendar month and ending at the same time on the first day of the next calendar month (with reference to the [CET]). "Monthly" will be construed accordingly.

Natural Gas or Gas: shall mean any hydrocarbons or mixture of hydrocarbons and non-combustible gases, which, when extracted from the sub-soil of the earth in its natural state, separately or together with liquid hydrocarbons, is predominantly in the gaseous state.

Network User: shall mean a Network User of TSO 2 and/or Network User of TSO 1.

Network User Code Pair: shall mean a unique pair, of alphanumeric Network User codes to identify the Counterparty Relationship at both sides of the IP

Operational Balancing Agreement or OBA: shall mean the agreement signed between the Parties defining commercial and technical procedures and data to be exchange between the Parties in order to manage the steering differences at the IP.

Operating Manual: shall mean the Attachment to this IPA, defining the procedures related to the energy measurement, quality determination of Natural Gas and the necessary operational data to be exchanged between the dispatching centres in order to guarantee the managing of physical flow through the Interconnection Point.

Pressure: shall be expressed in bar absolute and hereinafter referred in bar abs (bara).

Processed Quantity: shall mean the quantity of gas that the TSO is scheduling for flow, which takes into account the Network User's nomination (respectively re-nomination), contractual conditions and the capacity as defined under the relevant transport contract.

Reasonable and Prudent Service Provider: shall refer to a service provider acting with a degree of diligence, prudence and foresight reasonably and ordinarily exercised by experienced operators engaged in the same business under the same or similar circumstances and conditions.

Samples from existing IAs - Definitions

Reverse Flow: shall mean the commercial and/or physical Gas flowing through the IP from [Zone 2] to [Zone 1].

Service Provider: shall mean a company/legal entity providing technical operation maintenance service as well as dispatching activities on behalf of TSO's.

Transmission System Operator (TSO): shall mean a Transmission System Operator which carries out the function of transmission, is responsible for operation, ensuring the maintenance and, if necessary, developing the transmission system and is responsible for ensuring the long-term ability of the transmission system to meet reasonable demands for the transportation of Gas.

The Network User of TSO 1 or the System User of TSO 1 (or BGR where applicable): shall mean a company/juridical entity delivering/receiving Gas at the IP in Direct Flow or Reverse Flow and having a transportation contract with TSO 1 or being able to nominate on TSO 1 System. For the purpose of this agreement in respect of matching activities, the meaning of Network User(s) of TSO 1, System User of TSO 1 (or BGR where applicable) shall have the same sense.

The Network User of TSO 2 or the System User of TSO 2 (or BGR where applicable): shall mean a company/juridical entity delivering/receiving Gas at the IP in Direct Flow or Reverse Flow and having a transportation contract with TSO 2 or being able to nominate on TSO 2 System. For the purpose of this agreement in respect of matching activities, the meaning of Network User(s) of TSO 2, System User of TSO 2 (or BGR where applicable) shall have the same sense.

Working day: shall mean all days with exception of Saturdays, Sundays, legal holidays as well as the 24 and 31 December.

ANNEX II: List of appendices

For a better understanding of the samples a list of the associated appendices is given:

Sample 1:

- Appendix A: Drawing Interconnection Point
- Appendix B: Quality and pressure specifications
- Appendix C: Pressure control and pressure safety
- Appendix D: Telemetry and data transfer
- Appendix E: Measurement at the Interconnection Point

Sample 2:

- Appendix 1: Nomination and re-nomination data exchange
- Appendix 2: Allocation data exchange
- Appendix 3: Maintenance Data Exchange
- Appendix 4: Exceptional event communication
- Operating Manual

Sample 3:

Not applicable because the detail is provided within this document