

INTERCONNECTION AGREEMENT
(UK-CONTINENT INTERCONNECTOR)
Amended and Restated (25th September 2015)

between

NATIONAL GRID GAS PLC

and

INTERCONNECTOR (UK) LIMITED

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DEFINITIONS AND INTERPRETATION

1.1 In this Agreement including its Recitals, the following terms shall have the following meanings:

“Affiliate”: means in relation to any body corporate: (i) a parent undertaking of such body corporate; or (ii) a subsidiary undertaking of such body corporate or of any such parent undertaking;

“Agreement”: means this Amended and Restated Interconnection Agreement, including the Annexes to it;

“Amendment Effective Date”: means the date and time on and from which this Amended and Restated Interconnection Agreement shall have effect which shall be 0500 hours on 1 October 2015, unless otherwise expressly specified in this Agreement;

“Authority”: means the Gas and Electricity Markets Authority;

“Balancing Code”: means Commission Regulation (EU) No 312/2014 of 26 March 2014 establishing a Network Code on Gas Balancing of Transmission Networks;

“CAM Code”: means Commission Regulation (EU) No 984/2013 of 14 October 2013 establishing a Network Code on Capacity Allocation Mechanisms in Gas Transmission Systems and supplementing Regulation (EC) No 715/2009 of the European Parliament and of the Council;

“Competent Authority”: means any local, national or supra-national agency, authority, department, inspectorate, minister, official, court, tribunal or public or statutory person (whether autonomous or not) of the United Kingdom or the European Union which has jurisdiction over National Grid Gas or IUK or the subject matter of this Agreement (including without limitation the Authority);

“Connection Facilities”: means the National Grid Gas Facilities and the IUK Facilities;

“CSEP”: means the Interconnection Point as Connected System Exit Point;

“Cumulative Steering Difference”: has the meaning given in Annex F (Operational Balancing Account);

“Directive”: means any present or future directive, request, requirement, instruction, code of practice, direction or rule of any Competent Authority having the force of law or which a

party is otherwise required to comply with under the arrangements by which a party is regulated pursuant to the Gas Act and any modification, extension or replacement thereof;

“Exceptional Event” means:

- (a) in respect of National Grid Gas, a Transportation Constraint as defined in the Uniform Network Code; and
- (b) in respect of IUK, a Transportation System Constraint as defined in (or within the meaning of) the IUK Transportation Arrangements;

“Gas Act”: means the Gas Act 1986, as amended from time to time;

“Gas Day”: means the period beginning at 0500 hours UTC (0400 hours during daylight saving time periods) on one day and ending at 0500 hours UTC (0400 hours during daylight savings time) on the following day;

“Gas Day D”: means the Gas Day for which any Nomination or Renomination is made;

“Gas Day D-1”: means the Gas Day immediately preceding Gas Day D (and Gas Day D-2, Gas Day D-3 and so on shall be construed accordingly);

“Gas Day D +1”: means the Gas Day immediately following Gas Day D (and Gas Day D+2, Gas Day D+3 and so on shall be construed accordingly);

“Interconnection Point”: means the points (each being an Individual System Exit Point or an Individual System Entry Point or both) at which the National Grid Gas System and the IUK System are connected at Bacton as described in Annex C (Measurement Provisions), Appendix 1;

“Interoperability Code”: means Commission Regulation (EU) 2015/703 of 30 April 2015 establishing a network code on interoperability and data exchange rules;

“IUK Access Rules”: means the terms upon which IUK has, or in the future will, agree with an IUK Shipper to transport gas in the IUK System and/or to provide related services, which terms are commonly referred to as the IUK Standard Transportation Agreement and/or the IUK Access Agreement and IUK Access Code, as appropriate;

“IUK Facilities”: means the facilities installed, owned and operated by IUK at the Interconnection Point as described in Annex C (Measurement Provisions), Appendix 1;

“IUK Shipper”: means any person (whether or not being a National Grid Gas Shipper) with whom IUK may for the time being have arranged for the transportation of gas in the IUK System;

“IUK System”: means the interconnector pipeline system (including the IUK Facilities) operated by IUK for the conveyance of gas to or from the National Grid Gas System at Bacton from or to a pipeline system at Zeebrugge in Belgium;

“Legal Requirement”: means any act of Parliament, regulation, licence or Directive of a Competent Authority;

“Local Operating Procedures”: has the meaning in Section I of the Transportation Principal Document to the Uniform Network Code and means the procedures set out in Annex G (Local Operating Procedures), as such procedures may be revised from time to time in accordance with clause **Error! Reference source not found.**;

“National Grid Gas Facilities”: means the facilities installed, owned and operated by National Grid Gas at the Interconnection Point as described in Annex C (Measurement Provisions), Appendix I;

“National Grid Gas Shipper”: in the context of the SEP, means any gas shipper (as defined in the Gas Act), and in the context of the CSEP, any gas shipper which is pursuant to the Uniform Network Code for the time being a CSEP User in respect of the CSEP;

“National Grid Gas System”: means the main pipeline system operated by National Grid Gas in Great Britain (being the System as defined in the Transportation Principal Document to the Uniform Network Code), including the National Grid Gas Facilities;

“Reasonable and Prudent Operator”: means a person acting, in good faith, to perform its contractual obligations and, in so doing and in the general conduct of its undertaking, exercising that degree of skill, diligence, prudence and foresight which would reasonably and ordinarily be expected from a skilled and experienced operator engaged in the same type of undertaking under the same or similar circumstances;

“Relevant Interconnection Provision”: has the meaning ascribed to it in Section A of the European Interconnection Document to the Uniform Network Code;

“SEP”: the Interconnection Point as System Entry Point;

“Shipper”: means a National Grid Gas Shipper or an IUK Shipper;

“System(s)”: means the National Grid Gas System and/or the IUK System as appropriate;

“Transportation Arrangements”: means arrangements made:

- (a) by National Grid Gas (constituting transportation arrangements as defined in the National Grid Gas Transporter Licence) with a National Grid Gas Shipper; or
- (b) by IUK with an IUK Shipper,

for the transportation of gas in such Operator’s System to or from the Interconnection Point; and a reference to Transportation Arrangements shall include:

- (i) the Transportation Principal Document and European Interconnection Document to the Uniform Network Code, in the case of National Grid Gas; and
- (ii) the IUK Access Rules, in the case of IUK;

“Uniform Network Code”: means the uniform network code prepared, and from time to time modified, pursuant to the National Grid Gas Transporter’s Licence (a copy of which code is available on The Joint Office of Gas Transporters website); and

“UTC” means coordinated universal time, according to ISO 8601: 1988(E).

1.2 Interpretation

1.2.1 Provisions in this Agreement set out the agreed arrangements between the Operators in relation to the Interconnection Point.

1.2.2 References to an Operator shall include its successors or permitted assignees.

1.2.3 Headings in this Agreement are for convenience only and shall not affect its interpretation or construction.

1.2.4 In this Agreement, unless the context requires otherwise:

a reference to a particular clause or annex is a reference to a clause of or annex to this Agreement;

a reference to a particular paragraph is a reference to a paragraph of an annex to this Agreement;

any reference to the singular shall include a reference to the plural (and vice versa);

any reference to a gender includes the other gender; and

the word "including" is to be construed without limitation.

- 1.2.5 Any reference in this Agreement to any statute, statutory instrument, statutory provision, bye-law, regulation, directive, rule, subordinate or delegated legislation or order includes any amendment, re-enactment, replacement or supplement thereto.
- 1.2.6 Daylight saving time begins at UTC 01:00 hours (when the clocks go forward one hour) on the last Sunday in March, and UTC 01:00 hours on the last Sunday in October (when the clocks are put back one hour).
- 1.2.7 Words and expressions defined in the Interoperability Code, the CAM Code, the Balancing Code, the Uniform Network Code or IUK Access Rules and not defined in this Agreement shall have the meanings ascribed to them under the Interoperability Code, the CAM Code, the Balancing Code, the Uniform Network Code or the IUK Access Rules (as appropriate). In the event that any such word or expression is defined in more than one of the aforementioned documents, the Operators shall meet to agree how to resolve any resulting inconsistency or lack of clarity in its meaning for the purposes of this Agreement.

ANNEX A – Network Entry Provisions

Contents

Annex A1: General

Annex A2: Gas Entry Conditions

ANNEX A-1**GENERAL****1. Scope**

This Annex A sets out provisions applying in respect of the Interconnection Point as a SEP and the delivery of gas (offtaken from the IUK System) to the National Grid Gas System.

2. Interpretation

2.1 In this Annex A the following terms shall have the following meanings:

“Entry Gas”: gas delivered or tendered for delivery to the National Grid Gas System at the SEP;

“Gas Entry Conditions”: the Gas Entry Conditions contained in Annex A-2;

“Network Entry Provisions”: the Network Entry Provisions set out in paragraph 3.

3. Network Entry Provisions

3.1 For the purposes of the Uniform Network Code, the Network Entry Provisions applicable in respect of the SEP shall be as set out in this paragraph 3.

3.2 The Connected Delivery Facility is the IUK System as described in Appendix 1 to Annex C (Measurement Provisions).

3.3 The Individual System Entry Points comprised in the SEP are as described in Appendix 1 to Annex C (Measurement Provisions).

3.4 The Gas Entry Conditions are as specified in Annex A-2, subject as provided in paragraphs 4 and 5.

3.5 The Measurement Provisions are as specified in Annex C (Measurement Provisions) (insofar as applicable to measurement of flows of gas into the National Grid Gas System at the SEP).

3.6 The points of delivery at the SEP comprise the points marked ‘Y’ in the diagram in Appendix 1 to Annex C (Measurement Provisions).

3.7 Any other provision of this Agreement, insofar as (i) relating to the delivery of gas to the National Grid Gas System at the SEP, and (ii) falling within the permitted scope of Network Entry provisions pursuant to Uniform Network Code Section I 2.3.3 of the Transportation Principal Document, shall be a Network Entry Provision.

4. **Change in Legal Requirements**

Where after the date of this Agreement there is a change in any Legal Requirement relating to the composition or other characteristics of gas delivered to or conveyed by the National Grid Gas System, either Operator may require that both Operators shall discuss the amendment of the Gas Entry Conditions in accordance with Clause 7 (Amendment Process) of this Agreement, so as to enable such Operator and this Agreement to comply with such changed Legal Requirement.

5. **Change of Flow Direction**

If the composition of gas (**'entry non-compliant gas'**) being offtaken from the National Grid Gas System at the CSEP is such that such gas would not comply with any of the Gas Entry Conditions, and subsequently the direction of flow of gas in the IUK System is to be reversed so that such gas will be delivered to the National Grid Gas System at the SEP:

- (a) IUK shall give notice to National Grid Gas thereof not less than 1 hour before delivery of gas to the National Grid Gas System at the SEP is to commence;
- (b) the Operators shall, having regard to the reasonable requirements of each Operator, agree a programme for the redelivery to the National Grid Gas System of the quantity (the **'allowed quantity'**) of such entry non-compliant gas which was so offtaken. The allowed quantity shall be adequate to allow the redelivery of the quantity of such entry non-compliant gas as was delivered from the National Grid Gas System to the IUK System;
- (c) for the period of redelivery, in accordance with such programme, to the National Grid Gas System at the SEP of the gas which was offtaken from the National Grid Gas System at the CSEP, in a quantity not exceeding the allowed quantity, the Gas Entry Conditions shall be relaxed so as to be equal to the values of the relevant characteristics of the entry non-compliant gas which was originally offtaken from the National Grid Gas System.

ANNEX A-2
GAS ENTRY CONDITIONS

1. Composition

The composition of Entry Gas shall be within the limits set out in Table A below:

TABLE A

Characteristic	Unit	Minimum	Maximum
Gross Calorific Value ¹	MJ/Nm ³	38.9	44.6
Wobbe Index ¹	MJ/Nm ³	49.8 <u>49.75</u>	54.25 <u>54.19</u>
Temperature	°C	1.0	38.0
Hydrocarbon Dewpoint	°C from 1 to 69 barg	n/a	-2.0
Water Dewpoint	°C from 1 to 69 barg	n/a	-10.0
Oxygen Content	ppm vol	n/a	1000.0
Carbon Dioxide	mol%	n/a	2.5
Hydrogen Sulphide (including COS)	ppm vol	n/a	3.3
Total Sulphur	mg/Nm ³	n/a	30
Incomplete Combustion Factor	n/a	n/a	0.48
Soot index	n/a	n/a	0.6
Inert gases (including Carbon Dioxide and Nitrogen)	mol%	n/a	n/a
Nitrogen	mol%	n/a	n/a

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Hydrogen	ppm vol	n/a	1000.0
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Note:

1. Reference temperatures – 0°C for volume and 25°C for combustion.

The above Table A uses expressions and abbreviations which have meanings assigned to them in the Gas Safety (Management) Regulations 1996, schedule 3, and will be subject to future modification in accordance with Clause 7 (Amendment Process) of the Agreement to ensure compliance with any relevant statutory gas requirement.

Either Operator may request the limits in Table A above in relation to Nitrogen and inert gases to be revised in accordance with Clause 7 (Amendment Process) of the Agreement.

2. **Contaminants**

Entry Gas shall not contain any solid or liquid material which would interfere with the integrity or operation of the National Grid Gas System or any pipeline connected to such system or any appliance which a consumer might reasonably be expected to have connected to the National Grid Gas System.

3. **Odour**

Entry Gas shall have no odour which might cause National Grid Gas to contravene the Legal Requirement or gas industry practice not to distribute any gas which does not possess a distinctive and characteristic odour.

4. **Pressure**

The pressure of Entry Gas shall not exceed 69 barg.

ANNEX B – Network Exit Provisions

Contents

Annex B-1: General and interpretation

Annex B-2: Quality

Annex B-3: Pressure

Annex B-4: Flow profiles, rate changes, etc

ANNEX B-1: GENERAL AND INTERPRETATION

1. Scope

This Annex B sets out provisions applying in respect of the CSEP and the offtake of gas from the National Grid Gas System for delivery to the IUK System.

2. Interpretation

2.1 In this Annex B-1 the following terms shall have the following meanings:

“Applicable Offtake Requirements”: the ‘Applicable Offtake Requirements’ (in accordance with the Uniform Network Code) in relation to Exit Gas;

“Exit Flow Day”: a Gas Day during which gas flows from the National Grid Gas System to the IUK System at the Interconnection Point;

“Exit Gas”: gas offtaken from or made available by National Grid Gas for offtake from the National Grid Gas System at the CSEP;

“Feeder”: any of the pipelines forming part of that part of the National Grid Gas System by means of which gas delivered to the National Grid Gas System at the System Entry Points at Bacton is transported away from those System Entry Points or (on an Exit Flow Day) gas is transported to Bacton for offtake from the National Grid Gas System at the CSEP; and Feeders 2, 3, 4 and 5 are the Feeders identified as such in Annex C (Measurement Provisions), Appendix 1;

“King’s Lynn Compressors”: the gas compressors forming part of the National Grid Gas System and installed on Feeders 2 and 4 at Kings Lynn which have been modified so as to be capable of compressing gas for transportation to Bacton;

“King’s Lynn Flow to CSEP”: at any time on an Exit Flow Day, the rate (in mcmh) determined as $A - B$

where:

A is the rate of offtake at the CSEP (ascertained at the point marked ‘A’ on the diagram in Annex C (Measurement Provisions), Appendix 1);

B is the aggregate rate at which gas delivered to the National Grid Gas System at the System Entry Points (other than the Interconnection Point) at Bacton flows from Feeder 2 to the CSEP (ascertained at the point marked ‘B’ on the diagram in Annex C (Measurement Provisions), Appendix 1);

“Output Nominations”: has the meaning given in the Uniform Network Code;

“Reasonable Measures”: has the meaning given to that expression in paragraph 5.1 of this Annex B-1; and

“Total King’s Lynn Flow”: means the sum of:

- (i) the King’s Lynn Flow to CSEP, and
- (ii) the rate (in mcmh) at which gas (having flowed in Feeders 2 and 4 through the King’s Lynn Compressors) is flowing to Feeders 3 and 5 (ascertained at the point marked ‘C’ on the diagram in Annex C (Measurement Provisions), Appendix 1).

2.2 Unless expressly otherwise provided, references in this Annex B to rates of offtake, delivery or flow of gas are to the instantaneous rate (expressed in MW or mcmh) of such offtake, delivery or flow from, to or in the National Grid Gas System, and a reference to rate of offtake is to such rate of offtake, in aggregate by all National Grid Gas Shippers, from the National Grid Gas System at the CSEP.

2.3 Unless expressly otherwise provided, any reference to a Section of the Uniform Network Code in this Annex B, is a reference to a Section of the Transportation Principal Document of the Uniform Network Code.

3. **Intentionally deleted**

4. **Certain Network Exit Provisions**

4.1 For the purposes of Section J4.3.1 (a) of the Uniform Network Code, the points of offtake at the CSEP comprise the points marked ‘X’ shown in sheet 1 of the diagram in Annex C (Measurement Provisions), Appendix 1.

4.2 For the purposes of Sections J4.3.3(a) and (c) of the Uniform Network Code:

- (a) the provisions of Annex C (Measurement Provisions) as to the measurement of flow (and determination of volume) and the determination of ~~calorific value~~Gross Calorific Value of gas offtaken shall apply;
- (b) Annex C (Measurement Provisions) specifies or refers to the measurement equipment which is (and is required to be) installed at the CSEP.

- 4.3 For the purposes of Section J4.3.1(f) of the Uniform Network Code:
- (a) and in particular having regard to Section L4.3.2(a) of the Uniform Network Code, the allowable number of Gas Days of Programmed Maintenance shall be 5 in any one Planned Maintenance Period and 15 in any three consecutive Planned Maintenance Periods, provided that in respect of any Planned Maintenance Period in which pipeline inspection pursuant to paragraph (c) is undertaken, the allowed number of Gas Days shall be 15 in that Planned Maintenance Period and 25 in any three consecutive Planned Maintenance Periods of which that period is one;
 - (b) notwithstanding clause 12.1, where National Grid Gas is carrying out Programmed Maintenance, National Grid Gas will endeavour to ensure that the availability of gas for offtake from the National Grid Gas System at the CSEP is not reduced by more than is reasonably necessary for or results from the carrying out of such maintenance, and in particular is not wholly discontinued unless the total suspension of availability of gas for offtake from the National Grid Gas System is necessary to enable National Grid Gas to comply with a Legal Requirement, or otherwise is not practically avoidable;
 - (c) for the purposes of Section L4.4.1 of the Uniform Network Code, where National Grid Gas intends to undertake pipeline inspection which would require particular rates of offtake at the CSEP, it is a requirement that National Grid Gas Shippers cooperate so far as is practicable with any reasonable requirement of National Grid Gas as to the rate of offtake of gas from the National Grid Gas System at the CSEP.
- 4.4 For the purposes of Section Q1.8. of the Uniform Network Code, the Local Operating Procedures shall apply.
5. **Reasonable Measures**
- 5.1 References in the context of any requirement in this Annex B to National Grid Gas taking “**Reasonable Measures**” are references to National Grid Gas taking all such operational and technical measures which National Grid Gas, acting as a Reasonable and Prudent Operator, might reasonably be expected to take in order to secure compliance with such requirements.

5.2 Where any provision of this Annex B requires National Grid Gas to take Reasonable Measures:

- (a) National Grid Gas shall not thereby be required to take any measures, which would or which might reasonably be expected to:
 - (i) prejudice the physical or operational security of the National Grid Gas System;
 - (ii) require reinforcement of the National Grid Gas System or modification or installation of any additional plant or equipment to the National Grid Gas System, which (in any such case) National Grid Gas would not have been required to undertake in order to comply with its obligations pursuant to the National Grid Gas Transporter Licence except:
 - (1) in relation to National Grid Gas's obligations under paragraph 2.2 of Annex B-3, where National Grid Gas decides to undertake reinforcement to meet its obligations; or
 - (2) where the Operators have agreed that IUK shall bear the cost of such reinforcement, modification or installation;
 - (iii) prevent National Grid Gas from performing or result in breach of any of its obligations under the Uniform Network Code or under any other arrangement for the conveyance of gas which was in existence or had been agreed to prior to 1st March 1996, or from complying with any Legal Requirement;
 - (iv) require National Grid Gas to incur any cost (other than a cost for which National Grid Gas is to be compensated by IUK under the provisions of this Agreement) of a kind or amount which it would not be reasonable to expect the Authority to allow in full (in accordance with the National Grid Gas licence as a gas transported under the Gas Act) in establishing the restrictions in respect of the charges made by National Grid Gas for transportation services;
- (b) in taking Reasonable Measures:
 - (i) National Grid Gas shall utilise any compression at King's Lynn and such other plant and equipment comprised in the National Grid Gas System which would be necessary to allow King's Lynn to operate and which is deemed by

National Grid Gas to be available at the relevant time, but such compressors (and other plant and equipment comprised in the National Grid Gas System) will not be expected to operate beyond its actual capability at any time;

- (ii) National Grid Gas shall be entitled to rely on Exit Flow Profiles in relation to the CSEP and such information as is provided to it by National Grid Gas Shippers, Delivery Facility Operators and others as to the flows and quality of gas flows at other System Entry Points.

5.3 In the event of any dispute arising between the Operators as to whether or not National Grid Gas shall have taken Reasonable Measures, the matter shall be referred to an Expert in accordance with the provisions of clause 13 (Resolution of Disputes).

ANNEX B-2: QUALITY**1. General**

- 1.1 In consideration of IUK agreeing to make payments to National Grid Gas in accordance with paragraph 6, National Grid Gas agrees that the Applicable Offtake Requirements for the purposes of the Uniform Network Code shall be in accordance with paragraphs 2, 3 and 5 of this Annex B-2 which shall constitute a Special Offtake Arrangement for the purposes of the Uniform Network Code.
- 1.2 In accordance with clause 2.2, and notwithstanding that IUK has agreed to make payments to National Grid Gas pursuant to paragraph 6, nothing in this Annex B-2 shall take effect as a warranty or undertaking of National Grid Gas to IUK in respect of the specification of gas made available for offtake from the National Grid Gas System at the CSEP nor make National Grid Gas liable to IUK for any failure of the gas made available for offtake to comply with the Applicable Offtake Requirements.
- 1.3 For the avoidance of doubt, nothing in paragraph 1.2 of this Annex B-2 shall have the effect of limiting the liability of National Grid Gas to (i) National Grid Gas Shippers under the Uniform Network Code; or (ii) IUK under any other agreement between IUK and National Grid Gas or (iii) National Grid Gas Shippers under any other agreement between National Grid Gas Shippers and National Grid Gas.
- 1.4 National Grid Gas shall not be required, in taking Reasonable Measures for the purposes of this Annex B-2, to take any Operational Balancing Step which (but for the requirements of this Annex B-2) National Grid Gas would not otherwise take, if:
- (i) in National Grid Gas's reasonable opinion it would not be appropriate for it to take such measures unless a modification of the Uniform Network Code or the operational guidelines established by National Grid Gas pursuant to Special Condition 8A of the National Grid Gas Transporter Licence were made to contemplate the taking of such measures, or otherwise the sanction of the Authority to the taking of such measures were obtained, and
 - (ii) such modification has not been made or sanction been given.
- 1.5 IUK shall monitor the quality of Exit Gas pursuant to Annex C (Measurement Provisions), and shall notify National Grid Gas as soon as possible if IUK becomes aware (pursuant to such monitoring) that Exit Gas or any characteristic of Exit Gas is for the time being not in compliance with the requirements in paragraph 2 below, giving details of the prevailing value of the relevant characteristic.

1.6 IUK may, not more than once in any six month period, provide to National Grid Gas details of its future forecasts of Gross Calorific Value and Wobbe Index of Exit Gas and the assumptions on which such forecasts are based. National Grid Gas shall review such assumptions and, to the extent it is not restricted or prevented from so doing by confidentiality or other obligations, it shall advise IUK of any material errors in any of such assumptions of which National Grid Gas is aware at that time. For the avoidance of doubt National Grid Gas shall be under no obligation to verify any forecasts made by IUK. National Grid Gas shall have no liability in respect of any advice given or omitted to be given by it in respect of this paragraph 1.6.

2. **Applicable Offtake Requirements**

2.1 Subject to paragraphs 3, 5 and 6 of this Annex B-2, the Applicable Offtake Requirements are that, at the point of offtake from the National Grid Gas System:

- (a) the characteristics of Exit Gas shall be within the limits in Table A below;
- (b) Exit Gas shall not contain any liquid material which would interfere with the integrity or operation of the IUK System or any appliance which is an appliance of a description and type which a consumer might reasonably be expected to have connected to the National Grid Gas System; and
- (c) Exit Gas shall have no added odorant.

TABLE A

Characteristic	Unit	Minimum	Maximum
Gross Calorific Value ¹	MJ/Nm ³	38.9	44.6
Wobbe Index ¹	MJ/Nm ³	49.8 49.75	54.25 54.19
Temperature	°C	1.0	28.0
Hydrocarbon Dewpoint	°C from 1 to 69 barg	n/a	-2.0
Water Dewpoint	°C from 1 to 69 barg	n/a	-10.0
Oxygen Content	ppm vol	n/a	1000.0
Carbon Dioxide	mol%	n/a	2.5
Hydrogen Sulphide (including COS)	ppm vol	n/a	3.3
Total Sulphur	mg/Nm ³	n/a	30
Incomplete Combustion Factor	n/a	n/a	0.48
Soot index	n/a	n/a	0.6
Inert gases (including Carbon Dioxide and Nitrogen)	mol%	n/a	n/a
Nitrogen	mol%	n/a	n/a
Hydrogen	ppm vol	n/a	1000.0

[Note:](#)

[1. Reference temperatures – 0°C for volume and 25°C for combustion.](#)

- 2.2 The characteristics of gas made available for offtake from the National Grid Gas System at the CSEP will be determined in accordance with Annex C (Measurement Provisions).
- 2.3 The above Table A uses expressions and abbreviations which have meanings assigned to them in the Gas Safety (Management) Regulations 1996, schedule 3, and will be subject to future modification in accordance with clause 7 (Amendment Process) to ensure compliance with any relevant statutory gas requirement.
- 2.4 Either Operator may request the limits in Table A above in relation to Nitrogen and inert gases to be revised in accordance with clause 7 (Amendment Process).
- 2.5 In order to minimise the level of solid material (if any) contained in the Exit Gas, National Grid Gas and IUK shall each comply with any velocity control protocol which may be agreed between the Operators from time to time. To the extent that Exit Gas does contain any solid material, National Grid Gas and IUK agree to co-operate with each other to ensure the safe disposal of such material.
3. **Reasonable Measures**
- 3.1 Subject to paragraph 3.2, National Grid Gas shall take all Reasonable Measures but shall not be required to take measures beyond Reasonable Measures to secure the compliance of Exit Gas with the Qualified Requirements; and accordingly the Applicable Offtake Requirements shall be deemed to be relaxed (and Exit Gas shall not be considered as not complying therewith) to the extent that National Grid Gas is unable to secure, by taking such Reasonable Measures, that Exit Gas complies with the Qualified Requirements.
- 3.2 For the purposes of this paragraph 3, the “**Qualified Requirements**” are:
- (i) the requirements in Table A in paragraph 2 as to temperature and Carbon Dioxide; and
 - (ii) the requirements in paragraph 2.1(c) as to odour.
4. **Gross Calorific Value/Wobbe Index**
- 4.1 National Grid Gas will take Reasonable Measures (subject to and in accordance with paragraph 3) to secure that, notwithstanding that the minimum limit in respect of Gross Calorific Value of Exit Gas is 38.9 ~~MJ/N Cubic Metre~~MJ/Nm³, the Gross Calorific Value of Exit Gas is not less than 39.4 ~~MJ/N Cubic Metre~~MJ/Nm³.

5. **Carbon Dioxide**

5.1 The Applicable Offtake Requirement in relation to Carbon Dioxide shall not apply to the extent that at any time, pursuant to any Legal Requirement, National Grid Gas is required to permit or is not entitled to refuse the delivery of gas to the National Grid Gas System at System Entry Points having a Carbon Dioxide content exceeding that which is permitted under the Network Entry Provisions applicable (pursuant to Section I1.6 or otherwise) at 1st January 1997 at such System Entry Point.

5.2 For the avoidance of doubt, it will not be feasible for National Grid Gas to secure that Exit Gas complies with the requirements in Table A as to Carbon Dioxide content where insufficient gas of the requisite quality to enable National Grid Gas to arrange blending is being or (at the appropriate time) has been delivered to the National Grid Gas System.

6. **Payment by IUK**

6.1 Payments made by IUK to National Grid Gas pursuant to Annex B-3 relate in part to the costs of operating the Kings Lynn Compressors for the purposes of enabling National Grid Gas to comply with the requirements of this Annex B-2.

7. **Intentionally deleted**

8. **Hydrocarbon Dewpoint**

8.1 National Grid Gas shall be deemed not to have taken all Reasonable Measures to secure that Exit Gas complies with the requirements in Table A as to Hydrocarbon Dewpoint content where, notwithstanding that sufficient gas of the requisite quality to enable National Grid Gas to arrange blending is being or (at the appropriate time) has been delivered to the National Grid Gas System, such blending is not achieved.

8.2 In using Reasonable Measures to secure that Exit Gas complies with the requirements in Table A as to Hydrocarbon Dewpoint content National Grid Gas shall (subject to there being sufficient gas of the requisite quality) carry out blending having due regard to measurement uncertainties.

ANNEX B-3: EXIT PRESSURE**1. General**

- 1.1 In consideration of IUK agreeing to make payments to National Grid Gas in accordance with paragraphs 6 and 7, National Grid Gas agrees that the Applicable Offtake Pressure for the purposes of the Uniform Network Code shall be in accordance with paragraphs 2, 3 and 4.
- 1.2 In accordance with clause 2.2, and notwithstanding that IUK has agreed to make payments to National Grid Gas pursuant to paragraphs 6 and 7, nothing in this Annex B-3 shall take effect as a warranty or undertaking of National Grid Gas to IUK in respect of the pressure of gas made available for offtake from the National Grid Gas System at the CSEP nor make National Grid Gas liable to IUK for any failure of the gas made available for offtake to comply with the Applicable Offtake Pressure.
- 1.3 For the avoidance of doubt, nothing in paragraph 1.2 of this Annex B-3 shall have the effect of limiting the liability of National Grid Gas to (i) National Grid Gas Shippers under the Uniform Network Code; (ii) IUK under any other agreement between IUK and National Grid Gas or any Affiliate of National Grid Gas; or (iii) National Grid Gas Shippers under any other agreement between National Grid Gas Shippers and National Grid Gas or any Affiliate of National Grid Gas.
- 1.4 This Annex B-3 is without prejudice to the provisions of Section J2.1.5 of the Uniform Network Code.
- 1.5 In this Annex B-3 a reference to the pressure at which it is feasible for National Grid Gas to make Exit Gas available is a reference to the pressure at which it is feasible for National Grid Gas to do so by taking Reasonable Measures.
- 1.6 IUK may from time to time advise National Grid Gas of a basis for operating the National Grid Gas System which (in IUK's opinion) will minimise the amounts which IUK is liable to pay to National Grid Gas pursuant to paragraphs 6 and 7; and National Grid Gas agrees, but without any binding obligation to do so (and so that paragraphs 6 and 7 shall apply irrespective of whether National Grid Gas has done so), to take reasonable account of any such advice.
- 1.7 Notwithstanding the other provisions of this Agreement, the Operators shall cooperate with each other with a view to securing that, notwithstanding any fluctuation in the pressure or rate of flow of Exit Gas, the quantity shown in the prevailing Exit Flow Profile is offtaken from the National Grid Gas System at the CSEP, provided that this shall not require IUK or National Grid Gas to incur any significant cost or to be in breach of any material provision of the Transportation Arrangements; and for the avoidance of doubt where such quantity is so

oftaken National Grid Gas shall not be taken to have failed to make gas available at the Applicable Offtake Pressure.

2. **Applicable Offtake Pressure**

2.1 Subject to paragraphs 3 and 4, the Applicable Offtake Pressure shall be the Normal Offtake Pressure.

2.2 The “**Normal Offtake Pressure**” is a pressure of 45 barg or such higher pressure, not exceeding 55 barg, as IUK may require by notice to National Grid Gas specifying such higher pressure and given not later than 16:00 hours on Gas Day D-1.

3. **Enhanced pressure**

3.1 IUK may request that for any Gas Day that the Applicable Offtake Pressure should be a higher pressure than the Normal Offtake Pressure up to 68 barg, by notice to National Grid Gas specifying the requested pressure and given not earlier than 09:00 hours nor later than 16:00 hours on Gas Day D-1 in respect of which the request is made for Gas Day D.

3.2 National Grid Gas will reply to IUK, within 3 hours after receiving a request under paragraph 3.1, stating:

- (a) whether it is feasible for National Grid Gas to make Exit Gas available, until the end of the relevant Gas Day, at the requested pressure;
- (b) where it is not feasible for National Grid Gas to do so, whether it is feasible for National Grid Gas to make Exit Gas available, until the end of the relevant Gas Day, at any other pressure, higher than the Normal Offtake Pressure;
- (c) where it is feasible for National Grid Gas to make Exit Gas available at a higher pressure (“**enhanced pressure**”) in accordance with paragraph (a) or (b), the time on the relevant Gas Day with effect from which Exit Gas can be made available at such enhanced pressure;
- (d) whether IUK will be liable for amounts pursuant to paragraph 7.1(ii) in respect of such enhanced pressure.

3.3 Where pursuant to paragraph 3.2(a) or (b) National Grid Gas states that it is feasible for it to make Exit Gas available at an enhanced pressure, IUK may confirm its request by notice (which shall not purport to vary the contents of National Grid Gas’s statement) to National Grid Gas given not later than 2 hours after National Grid Gas’s reply under paragraph 3.2, in which case:

- (i) subject to paragraph 4, with effect from the start time and until the end of the relevant Gas Day the Applicable Offtake Pressure shall be the enhanced pressure;
- (ii) IUK shall be liable to make payment to National Grid Gas in accordance with paragraph 7.

4. **Exceptions**

4.1 The Applicable Offtake Pressure shall not be the Normal Offtake Pressure, or any enhanced pressure established under paragraph 3, and shall be such lesser pressure at which (in the relevant circumstances) it is feasible for National Grid Gas to make gas available for offtake at the CSEP, in any of the following circumstances:

- (a) where at any time on a Gas Day the Total King's Lynn Flow exceeds 42,000 MW Variable;
- (b) where for any reason, whether or not constituting a Force Majeure Event for National Grid Gas, one of the King's Lynn Compressors is not fully operational at the relevant time unless National Grid Gas has not acted as a Reasonable and Prudent Operator to secure the operation and maintenance of such Compressor;
- (c) where at any time on any Gas Day, there is an unplanned reduction in the prevailing rate at which gas is being delivered to the National Grid Gas System at System Entry Points in aggregate, as a result of which National Grid Gas experiences operational difficulties in achieving the Normal Offtake Pressure;
- (d) where the rate of offtake (in mcmh) of Exit Gas exceeds the rate properly provided for in the prevailing Exit Flow Profile.

4.2 Where any of the foregoing circumstances apply, National Grid Gas will:

- (i) inform IUK, as soon as reasonably practicable after the occurrence or commencement of such circumstances, of the reduced Applicable Offtake Pressure;
- (ii) provide to IUK, no later than the Exit Close-out Date, reasonable details (including measurement data) of such circumstances.

5. **Late Requested Pressure Increases**

If after 16:00 hours on the Gas Day immediately preceding the Gas Day in respect of which a request is made, IUK requests National Grid Gas that the pressure of Exit Gas should be higher than the Applicable Offtake Pressure, (whether or not IUK has requested a pressure of

up to 55 barg under paragraph 2.2 or a higher pressure under paragraph 3,) National Grid Gas will use reasonable endeavours to accommodate such request for increases in pressure to the extent that it can do so by utilising the King's Lynn Compressors and so that in accordance with the Uniform Network Code National Grid Gas shall have no liability to National Grid Gas Shippers in respect thereof.

[Paragraphs 6 and 7 are not part of the public domain information]

ANNEX B-4
FLOW PROFILES, RATE CHANGES, ETC

1. General

- 1.1 The quantities in which and rates at which gas is oftaken from the National Grid Gas System at the CSEP, and changes in such quantities and rates, shall be limited in accordance with this Annex B-4.
- 1.2 This Annex B-4 applies only in respect of Exit Flow Days.
- 1.3 IUK will not be liable to National Grid Gas in respect of any failure of IUK to operate the IUK Facilities and IUK System in accordance with paragraph 6, but (without prejudice to any entitlement of National Grid Gas under Section J of the Uniform Network Code) in the event of any such failure:
- (a) National Grid Gas shall be entitled (but not obliged) to take any operational step available to it to ensure that the requirements of this Annex B-4 are complied with in respect of the rate of offtake;
 - (b) if the security of the National Grid Gas System is materially prejudiced or threatened as a result of such failure, National Grid Gas may take any available step to discontinue the flow of gas at the CSEP.
- 1.4 To the intent that revisions in the Exit Flow Profile are made only by reason of a change in the quantities of gas which Shippers intend to be oftaken from the National Grid Gas System at the CSEP on a Gas Day, it is agreed that IUK will not require IUK Shippers, and National Grid Gas will not require National Grid Gas Shippers, to nominate (pursuant to the Transportation Arrangements) rates or profiles of flow of Exit Gas.
- 1.5 (a) IUK acknowledges that National Grid Gas:
- (i) will not compare any Exit Flow Profile with any Output Nominations or Renominations in respect of the CSEP, and will disregard such Nominations in applying the provisions of this Annex B-4;
 - (ii) may (but will not be obliged to) provide to National Grid Gas Shippers or their agent a copy of each Exit Flow Profile or revision thereof; and
 - (iii) will notify to National Grid Gas Shippers or their agent (if appointed) any Curtailment Notice given to IUK.

- (b) National Grid Gas acknowledges that IUK:
 - (i) may (but will not be obliged to) provide to IUK Shippers or their agent a copy of each Exit Flow Profile or revision thereof; and
 - (ii) will notify to IUK Shippers or their agent (if appointed) any Curtailment Notice received from National Grid Gas.

1.6 For the purposes of this Annex B-4:

- (a) Intentionally deleted.
- (b) “**Change Lead Time**” has the meaning given in paragraph 2.5;
- (c) “**Curtailment Notice**” has the meaning given in paragraph 5.6;
- (d) “**Exit Flow Profile**” means a statement in the form (in electronic format) in Appendix A, showing the quantity of gas (taking account of paragraph 6.2) to be offtaken, and (for each hour) the rate of offtake of gas, from the National Grid Gas System at the CSEP during a Gas Day; and “**Day Ahead Exit Flow Profile**” (which is also an Exit Flow Profile) is defined in paragraph 2.1(a);
- (e) “**Exit Flow Rate**” means the instantaneous rate of offtake of gas at the CSEP (other than during a Ramp Period), shown or to be shown in an Exit Flow Profile, expressed in MW;
- (f) “**Final Preceding Day Rate**” means the Prevailing Exit Flow Rate applying at the end of Gas Day D-1, as shown in the Exit Flow Profile in force at the end of Gas Day D-1;
- (g) “**Flow Rate Change Time**” means the time (being the start of the Ramp Period) with effect from which a revision in the Exit Flow Rate becomes effective;
- (h) “**FMS**” has the meaning given to it in Annex C (Measurement Provisions);
- (i) “**Initial Exit Flow Rate**” means the Exit Flow Rate applying at the start of a Gas Day;
- (j) “**Prevailing Exit Flow Rate**” at any time means the Exit Flow Rate prevailing at or immediately before such time;
- (k) “**Primary Meters**” has the meaning given to it in Annex C (Measurement Provisions);
- (l) “**Relevant Exit Flow Rate**” is, subject to paragraph 2.6, the Exit Flow Rate for the Flow Rate Change Time as specified in the Exit Flow Profile prevailing immediately

prior to the submission of a revised Exit Flow Profile pursuant to paragraph 2.3; and in relation to any change (whether an increase or a decrease) in the Exit Flow Rate:

- (i) **“Ramp Rate”** means the instantaneous rate of change (in MW/minute) of the rate of offtake; and
- (ii) **“Ramp Period”** is the period of time over which (on the basis of the Ramp Rate permitted in paragraph 6.2) such change occurs.

2. **Exit Flow Profile**

- 2.1 (a) IUK shall provide to National Grid Gas not later than 17:00 hours on Gas Day D-1 an Exit Flow Profile (the **“Day Ahead Exit Flow Profile”**) in relation to Gas Day D.
- (b) IUK may provide to National Grid Gas replacement Day Ahead Exit Flow Profiles provided the same are delivered to National Grid Gas not later than 03:00 hours on Gas Day D-1 and provided also that not more than two such replacement Day Ahead Exit Flow Profiles may be submitted in any hour.
- 2.2 If IUK fails to submit a Day Ahead Exit Flow Profile in accordance with paragraph 2.1(a), it shall be deemed to have submitted a flat Exit Flow Profile of zero.
- 2.3 At any time after 04:00 hours on Gas Day D-1 and during Gas Day D, IUK may provide to National Grid Gas, not less than 30 minutes before the earliest Change Lead Time starts, a revised Exit Flow Profile showing one or more revised Exit Flow Rates, each of such revised Exit Flow Rates being with effect from a time (on the hour) not earlier than the expiry of the Change Lead Time for that revised Exit Flow Rate.
- 2.4 Intentionally blank.
- 2.5 Subject to paragraph 2.6, the **“Change Lead Time”** for any revised Exit Flow Rate is, in respect of that Exit Flow Rate, a period of at least:
 - (i) 1 hour for an increase or decrease in the Relevant Exit Flow Rate of not more than 475 MW;
 - (ii) 2 hours for an increase or decrease in the Relevant Exit Flow Rate of more than 475 MW but not more than 1425 MW;
 - (iii) 3 hours for an increase or decrease in the Relevant Exit Flow Rate of more than 1425 MW but not more than 1900 MW;

- (iv) 4 hours for an increase or decrease in the Relevant Exit Flow Rate of more than 1900 MW but not more than 2850 MW;
- (v) 5 hours for an increase or decrease in the Relevant Exit Flow Rate of more than 2850 MW but not more than 3325 MW;
- (vi) 6 hours for an increase or decrease in the Relevant Exit Flow Rate of more than 3325 MW but not more than 7125 MW;
- (vii) 8 hours for an increase or decrease in the Relevant Exit Flow Rate of more than 7125 MW,

in each case before the Flow Rate Change Time; but (without prejudice to the foregoing) IUK shall ensure that as much notice as is reasonably practicable is given to National Grid Gas of any change in the Exit Flow Rate.

2.6 For the purposes of paragraph 2.5, in determining the amount of the increase or decrease in the Relevant Exit Flow Rate, there shall be included all previously notified revisions which are to take effect at or prior to the relevant Flow Rate Change Time.

2.7 If:

- (i) IUK requests National Grid Gas to accept a revision of the Exit Flow Profile upon less notice than is required pursuant to paragraphs 2.3 to 2.6; and
- (ii) National Grid Gas determines that it is feasible (in accordance with the Uniform Network Code), consistently with the expectation in Section J4.5.7 (construed mutatis mutandis), for National Grid Gas to make gas available for offtake in accordance with such revised profile,

then IUK may revise the Exit Flow Profile in accordance with such request.

2.8 If, upon a request pursuant to paragraph 2.7(i), National Grid Gas determines (pursuant to paragraph 2.7(ii)) that it is not feasible to make gas available for offtake in accordance with such request:

- (a) National Grid Gas will, as soon as reasonably practicable but not later than the start of the Change Lead Time, reject the request by giving notice to IUK and National Grid Gas Shippers or their agent (if appointed); and
- (b) such notice will (but without obliging National Grid Gas to accept any further request, and without prejudice to any requirements of paragraph 4) notify IUK and

National Grid Gas Shippers or their agent (if appointed) whether in National Grid Gas's determination it would be feasible to make gas available at the Exit Flow Rate requested but upon notice other than that requested.

- 2.9 An Exit Flow Profile shall show, in relation to a change in the rate of offtake (at the start of the Gas Day or within the Gas Day) the Ramp Period and the change in rate on the basis of the permitted Ramp Rate in accordance with paragraph 6.2.
- 2.10 An Exit Flow Profile shall not specify an Exit Flow Rate which exceeds 28,000 MW Variable, unless National Grid Gas, acting through its Gas National Control Centre operations staff, expressly agree a higher Exit Flow Rate, provided that National Grid Gas will only agree this higher Exit Flow Rate where National Grid Gas considers that it is, and will remain, compliant with its statutory obligation in relation to the safe and efficient operation of the National Grid Gas System.
- 2.11 Subject to paragraphs 2.7, 5.1 and 5.14, a statement which purports to be an Exit Flow Profile but which is not in the form in Appendix A or is not provided in accordance with the requirements of this Annex, or which at any time provides for a rate of offtake (at any time of the Gas Day) which is not in compliance with any requirement (including without limitation paragraph 2.10) of this Annex as to the Exit Flow Rate, will not be valid or take effect as an Exit Flow Profile; and where it receives such a statement National Grid Gas will notify IUK of such invalidity and, where appropriate, will advise of the reasons for such invalidity (which notification for the avoidance of doubt shall not be a Curtailment Notice).
- 2.12 Where an Exit Flow Profile has been submitted earlier than required under this Annex, a further Exit Flow Profile may be submitted to take effect at the same Flow Rate Change Time (whether to correct any invalidity in accordance with paragraph 2.11 in the earlier profile or to reflect a change in circumstances), subject to and in accordance with the other provisions of this Annex, which will replace the earlier such Exit Flow Profile; provided that not more than two such replacement Exit Flow Profiles may be submitted in any hour (commencing on the hour).
3. **Exit Flow Rate**
- 3.1 The Exit Flow Rate as shown in a Day Ahead Exit Flow Profile may increase or decrease during the course of a Gas Day but only provided that, without prejudice to all other provisions of this Agreement, all of the following are satisfied:
- (i) the maximum amount of any such increase or decrease is 2850 MW or (if greater) twenty per cent. (20%) of the then Prevailing Exit Flow Rate;

- (ii) the Prevailing Exit Flow Rate immediately prior to any increase or decrease has remained at a uniform rate for at least the immediately preceding two hours; and
- (iii) for the avoidance of doubt, the requirements of paragraphs 2.9, 2.10 and 4 are at all times complied with.

3.2 For the avoidance of doubt, the Exit Flow Rate as shown in an Exit Flow Profile other than a Day Ahead Exit Flow Profile may increase or decrease during the course of a Gas Day but only provided that, without prejudice to all other provisions of this Agreement, the requirements of paragraphs 2.3 to 2.6 inclusive (subject to paragraphs 2.7 and 2.8), 2.9, 2.10 and 4 are at all times complied with.

4. **Exit Flow Rate Limits**

4.1 Subject to paragraph 5.1, the Initial Exit Flow Rate in any Exit Flow Profile shall not:

- (i) differ by more than 4750 MW from either the actual Final Preceding Day Rate or the forecast Final Preceding Day Rate (as indicated by the Exit Flow Profile for Gas Day D-1 which is prevailing at, or at any time after, the time when any relevant Day Ahead Exit Flow Profile or other Exit Flow Profile is submitted) except that in the event that both the actual and the forecast Final Preceding Day Rate is less than 2375 MW, the Initial Exit Flow Rate may be any amount between and including 0 and 7125 MW; or
- (ii) be less than zero.

4.2 Subject to paragraph 5.1, the Exit Flow Rate in any Exit Flow Profile during the course of a Gas Day shall not:

- (i) differ from the Initial Exit Flow Rate by more than 7125 MW; or
- (ii) be less than zero.

5. **Flow rate flexibility and curtailment**

5.1 If either:

- (i) IUK requests National Grid Gas to accept a Day Ahead Exit Flow Profile, or a revision of an Exit Flow Profile, which does not comply with the requirements of paragraph 4.1(i) or (as the case may be) 4.2(i); and
- (ii) National Grid Gas determines that it is feasible (in accordance with the Uniform Network Code), consistently with the expectation in Section J4.5.7 (construed

mutatis mutandis), for National Grid Gas to make gas available for offtake in accordance with such profile or revised profile;

or if

- (iii) IUK submits an Exit Flow Profile which initially satisfies the requirements of paragraph 4.1(i) but which later (as a consequence of Exit Flow Rate changes on Gas Day D-1) ceases to satisfy such requirements; and
- (iv) National Grid Gas determines that it is feasible (in accordance with the Uniform Network Code), consistently with the expectation in Section J4.5.7 (construed mutatis mutandis), for National Grid Gas to make gas available for offtake in accordance with such profile,

then in each case, subject to paragraph 5.3, IUK may provide or maintain such Exit Flow Profile or revise such Exit Flow Profile in accordance with the provisions thereof.

5.2 If, pursuant to paragraph 5.1(i) or (iii) National Grid Gas determines (pursuant to paragraph 5.1(ii) or (iv)) that it is not feasible to make gas available for offtake in accordance with such profile:

- (a) National Grid Gas will reject the profile by giving a Curtailment Notice to IUK and National Grid Gas Shippers or their agent (if appointed);
- (b) in the case of a Day Ahead Exit Flow Profile or any other Exit Flow Profile which is to commence at the start of the Gas Day:
 - (i) National Grid Gas shall use reasonable endeavours to notify IUK (but without obliging National Grid Gas to accept the same) of any alternative Exit Flow Profile(s) which, at the time of such notification, would be acceptable to National Grid Gas provided it was submitted to National Grid Gas in accordance with the other provisions of this Agreement (including, without limitation, those as to the time of submission of such Exit Flow Profile);
 - (ii) IUK may submit an alternative Exit Flow Profile in accordance with such notification; and
 - (iii) in the event that, pursuant to paragraphs 5.2(b)(i) and (ii), an alternative Exit Flow Profile is either not submitted by IUK or is submitted but is not acceptable to National Grid Gas, the Exit Flow Rates on the Exit Flow Profile

rejected by National Grid Gas pursuant to paragraph 5.2(a) shall, for the entire Gas Day, be increased or decreased by such amount in MW as National Grid Gas may determine to be necessary to ensure that such profile fully satisfies the requirements of paragraph 4; and such amended Exit Flow Profile shall be treated for the purposes of this Agreement as if it was submitted by IUK, shall be binding on IUK, and National Grid Gas shall have no liability whatsoever in respect of the same; and

- (c) in the case of a requested revision to any other Exit Flow Profile, the Exit Flow Profile prevailing before such request shall continue in force.

- 5.3 Where National Grid Gas has accepted or confirmed a Day Ahead Exit Flow Profile or a revised Exit Flow Profile for an increased Exit Flow Rate in each case pursuant to paragraph 5.1, National Grid Gas may at any subsequent time, by giving a Curtailment Notice, require IUK to revise the Exit Flow Profile by reducing the Exit Flow Rate for the whole or any part or parts of that profile, with effect not later than a time (on the hour) specified by National Grid Gas (the “**curtailment time**”, being at the end of the relevant Ramp Period), and by an amount not less than the amount determined in accordance with paragraph 5.4.
- 5.4 The amount of the reduction specified by National Grid Gas shall be such that the revised Exit Flow Rate would be not less than the greatest Exit Flow Rate which IUK might have specified in the Exit Flow Profile for the relevant time or times without infringing the requirements of paragraph 4.
- 5.5 If (upon National Grid Gas’s giving a Curtailment Notice) IUK fails to provide a revised Exit Flow Profile to National Grid Gas in accordance with paragraph 5.3, the prevailing Exit Flow Profile shall be deemed to have been revised in accordance with National Grid Gas’s notice under that paragraph; and if IUK fails to comply with paragraph 6.1 in relation thereto, National Grid Gas may take operational steps in accordance with paragraph 1.3.
- 5.6 For the purposes of this Annex B-4 a “**Curtailment Notice**” is a notice given by National Grid Gas to IUK and National Grid Gas Shippers or their agent (if appointed):
- (i) of rejection pursuant to paragraph 5.2(a) of an Exit Flow Profile which does not comply with the requirements of paragraph 4.1(i) or 4.2(i);
 - (ii) requiring revision pursuant to paragraph 5.2(a) of an Exit Flow Profile which does not comply with the requirements of paragraph 4.1(ii) or 4.2(ii);
 - (iii) requiring a reduction of the Exit Flow Rate pursuant to clause 11.3.

- 5.7 Not used.
- 5.8 A Curtailment Notice shall specify the subparagraph of paragraph 5.6 under which it is given.
- 5.9 (a) A Curtailment Notice under paragraph 5.6(i) shall be given:
- (i) in connection with any Day Ahead Exit Flow Profile submitted prior to 17:00 hours on Gas Day D-1, as early as reasonably practicable, but (subject to paragraph 5.9(a)(ii) below) not later than 21:00 hours on Gas Day D-1;
 - (ii) in connection with any other Day Ahead Exit Flow Profile (including, without limitation, a Day Ahead Exit Flow Profile submitted whether before or after 17:00 hours on Gas Day D-1, which initially satisfied the requirements of paragraph 4.1(i) but which later (as a consequence of Exit Flow Rate changes on Gas Day D-1) ceased to satisfy such requirements), as early as reasonably practicable, but not later than 03:00 hours on Gas Day D-1;
 - (iii) in connection with a revised Exit Flow Profile (not being a Day Ahead Exit Flow Profile), as early as reasonably practicable and not later than the start of the Change Lead Time.
- 5.10 A Curtailment Notice under paragraph 5.6(ii):
- (a) shall be given not less than 5 hours before the curtailment time; and
 - (b) shall specify the curtailment time, the reduced Exit Flow Rate required by such notice, and the estimated period (which shall not bind National Grid Gas) for which such reduced Exit Flow Rate is required;
- 5.11 Where National Grid Gas has given a Curtailment Notice under paragraphs 5.6(ii), as soon as reasonably practicable after National Grid Gas determines that the requirement for the reduced Exit Flow Rate no longer applies or will at a certain time cease to apply, National Grid Gas will so notify IUK and National Grid Gas Shippers or their agent (if appointed), specifying the time (where later than the time of such notification) with effect from which such requirement will cease to apply.
- 5.12 There shall be no minimum period of notice required for a Curtailment Notice under paragraph 5.6(iii); and IUK shall provide a Day Ahead Exit Flow Profile or (as the case may be) revise the prevailing Exit Flow Profile in compliance with any such Curtailment Notice, provided that the requirements of paragraphs 4.1(i) and 4.2(i) shall not apply in respect of an Exit Flow Profile submitted in compliance with such a Curtailment Notice.

- 5.13 Not used.
- 5.14 Without prejudice to the preceding provisions of this paragraph 5, provided that each of the requirements of paragraph 5.15 are satisfied, IUK may when requesting National Grid Gas to accept a Day Ahead Exit Flow Profile request that the Exit Flow Rate be at a rate other than in accordance with paragraph 3.1(i) or (ii) and where IUK makes such a request it shall notify National Grid Gas of the rate to apply in respect of each hour in the Gas Day.
- 5.15 The requirements referred to in paragraph 5.14 are that:
- (i) the Initial Exit Flow Rate is less than 5200 MW;
 - (ii) the quantity to be flowed in respect of any one hour on the relevant Gas Day does not exceed 217 MW; and
 - (iii) meter readings from the FMS Primary Meters may be obtained instantaneously by National Grid Gas at its operational control facilities located at Warwick, Warwickshire.
- 5.16 Where following a request by IUK pursuant to paragraph 5.14 National Grid Gas determines that it is feasible (in accordance with the Uniform Network Code) consistently with the expectation at Section J4.5.7 (construed mutatis mutandis), for National Grid Gas to make gas available for offtake in accordance with the profile specified by IUK then, subject to paragraph 5.18, IUK may provide a Day Ahead Exit Flow Profile for which the rate for each hour of the Gas Day is the rate specified by IUK.
- 5.17 If, upon a request pursuant to paragraph 5.14, National Grid Gas determines (pursuant to paragraph 5.16) that it is not feasible to make gas available for offtake in accordance with such request National Grid Gas will reject the request by giving notice to IUK and National Grid Gas Shippers or their agent (if appointed) (which notice for the avoidance of doubt shall not be a Curtailment Notice).
- 5.18 Where IUK has provided a Day Ahead Exit Flow Profile pursuant to paragraph 5.14 which National Grid Gas has accepted, National Grid Gas may at any subsequent time require IUK to revise the Exit Flow Rate for the whole or any part or parts of that profile such that with effect from the time (on the hour, such time being not earlier than two hours after the giving of such notice) specified by National Grid Gas the Exit Flow Rate is in compliance with paragraphs 3.1(i) and (ii) (which notification for the avoidance of doubt shall not be a Curtailment Notice).

- 5.19 Where following a request by National Grid Gas pursuant to paragraph 5.18, IUK fails to submit to National Grid Gas a revised Exit Flow Profile showing an Exit Flow Rate which complies with paragraphs 3.1(i) and (ii), it shall be deemed to have submitted an Exit Flow Profile showing (from the time specified by National Grid Gas) a flat Exit Flow Rate of zero or (if greater) the lowest Exit Flow Rate permissible under paragraph 3; and if IUK fails to comply with paragraph 6.1 in relation thereto, National Grid Gas may take operational steps in accordance with paragraph 1.3.
6. **Rates of exit flows**
- 6.1 Subject to and consistently with paragraph 6.2, IUK will operate the IUK Facilities and the IUK System so as to ensure that the rate of offtake is as nearly as is practicable equal to the Exit Flow Rate determined pursuant to the provisions of this Annex B-4.
- 6.2 Where a change in the rate of offtake is to be made (by reason of a revision in the Exit Flow Rate at the start of or during the Gas Day), IUK shall operate the IUK Facilities and the IUK System with a view to ensuring that the Ramp Rate does not at any time exceed an instantaneous rate of change of 150 MW/minute or such other rate of offtake as expressly agreed between IUK and National Grid Gas (acting through its Gas National Control Centre operations staff) from time to time, provided that National Grid Gas will only agree this higher rate of offtake where National Grid Gas considers that it is, and will remain, compliant with its statutory obligations in relation to the safe and efficient operation of the National Grid Gas System.
- 6.3 A change in Exit Flow Rate pursuant to paragraph 6.2 shall not commence earlier than the start of the Gas Day or (as the case may be) the relevant Flow Rate Change Time, and shall be assumed to occur at the greatest Ramp Rate permitted under paragraph 6.2.

APPENDIX A**Form of Exit Flow Profile**

From: Interconnector (UK) Ltd.
 Fax No.

Exit Flow Profile Bacton Interconnector Offtake

To: National Grid Gas Fax No. 0870 191 0647
 Grid Operations Controller
 System Control
 Warwick

Re: Bacton interconnector gas flow information for Gas Day - _____

Time Hour commencing	Aggregate Offtake Flowrate
0500	
0600	
0700	
0800	
0900	
1000	
1100	
1200	
1300	
1400	
1500	
1600	
1700	
1800	
1900	
2000	
2100	
2200	
2300	
2359	
0100	
(25 hr day)	
0200	

0300	
0400	
TOTAL E.O.D	

Assumed C.V. = MJ/m³

Prepared by: _____

Date: _____

Time: _____

Issue No. _____

ANNEX C – Measurement Provisions

Part 1

Interconnection Point metering

1. Definitions

In this Annex:

“**Connection Point Fiscal Metering System**” or “**FMS**” means the metering system immediately upstream of the System Entry Point at which all natural gas shall be measured or analysed in accordance with the terms of this Agreement, prior to entry into the National Grid Gas System;

“**Permitted Range**” means the percentage range (for any characteristic) specified in Table 1 in Annex C, Part 4 (which in relation to energy flow is expressed as a percentage of maximum volumetric flow);

“**Primary Meters**” means the meters and equipment for measuring volumes of gas installed at the Interconnection Point as shown in Appendix 1;

“**Gas Analysis Equipment**” means the measurement equipment for measuring quality of gas installed at the Interconnection Point as shown in Appendix 1.

2. General

2.1 The quantity and quality of gas oftaken from or delivered to the National Grid Gas System at the Interconnection Point shall be determined by the Primary Meters and the Gas Analysis Equipment.

2.2 IUK shall be responsible for installing, calibrating, operating, maintaining and repairing the Primary Meters and Gas Analysis Equipment.

2.3 The FMS measures flow rates and gas qualities for the transfer of gas from National Grid Gas to IUK (forward flow) and from IUK to National Grid Gas (reverse flow), and in particular:

(a) flow rates are measured through six parallel streams incorporating orifice plate meters. Five streams are sufficient to meet maximum flow rates; a minimum of one stream is therefore available at any time for contingency use;

(b) each stream is equipped with pressure and temperature instrumentation and flow conditioner plates constructed in accordance with ISO 5167;

- (c) orifice plates can be removed during scheduled shutdown periods for cleaning and calibration;
- (d) gas composition is monitored by two gas chromatographs and dedicated moisture, hydrogen and oxygen analysers. The two gas chromatographs sample the gas at regular alternate intervals. In the event of unavailability of one instrument, the other will continue sampling at half the overall frequency; and
- (e) an independent organisation carries out regular inspections of the metering equipment to confirm conformity with the appropriate standards

3. **Accuracy**

3.1 The total uncertainty in the measurements of the energy flow and gas quality characteristics by the Primary Meters and the Gas Analysis Equipment at the Interconnection Point shall in all steady-state flow conditions be within the Permitted Range.

3.2 The methods specified in ISO 5167-1:2003 and ISO 5168:2005 shall be used for the determination of uncertainties in the measurement of volume flow rates in the calculation of the total uncertainty in the measurement of energy flow rates referred to in paragraph 3.1. Both Operators acknowledge that the Primary Meters and the Gas Analysis Equipment do not comply with ISO 5167-2:2003 paragraph 6.3.3.3* Notwithstanding this, the Primary Meters and Gas Analysis Equipment achieve the energy measurement uncertainty required by National Grid Gas.

* Due to a physical restriction the approach piping to the Primary Meters and Gas Analysis Equipment is 12-mm shorter than prescribed in paragraph 6.3.3.3 of ISO 5167-2:2003.

3.3 The methods specified in accordance with the approved validation procedures, to be agreed between National Grid Gas and IUK shall be used for the determination of uncertainties in the measurement of the gas quality characteristics referred to in paragraph 3.1.

4. **Verification**

4.1 National Grid Gas may request that the Primary Meters be verified at any time in which case any such verification shall be carried out as soon as reasonably practicable. Subject to paragraph 4.2 the costs and expense of such verification, and any adjustment or replacement of the components of the Primary Meters made as a result of any verification made pursuant to this paragraph 4.1 shall if the Primary Meters are found to read within the Permitted Range be paid by National Grid Gas and in any other case by IUK.

- 4.2 National Grid Gas may request that the Primary Meters be verified if the previous verification took place more than one (1) month previously and any verification pursuant to this paragraph 4.2 shall be carried out as soon as reasonably practicable. IUK shall bear the costs and expenses of such verification and any adjustment or replacement of the components of the Primary Meters made as a result thereof.
- 4.3 Subject to paragraph 4.6 IUK may at its own expense undertake verification of the Primary Meters and may adjust or replace the components of the Primary Meters also at its own expense at any time.
- 4.4 Immediately following verification pursuant to paragraph 4.1, 4.2 or 4.3 the individual components of the Primary Meters shall be adjusted or replaced as necessary so that the Primary Meters read centrally within the Permitted Range. Each individual component of the Primary Meters shall read within its recommended tolerance.
- 4.5 Where the Primary Meters are found when so verified to read outside the Permitted Range then:
- (a) the Primary Meters shall be assumed to have read outside the Permitted Range during the latter half of the period since last verified and found to be within the Permitted Range or, if later, since last adjusted to read within the Permitted Range (except in the case where it is proved that the Primary Meters have begun to read outside the Permitted Range on some other date or during such other period as agreed by National Grid Gas and IUK);
 - (b) for the purposes of paragraph (c), the quantities read as delivered to or offtaken from the National Grid Gas System on each Gas Day during the period when the Primary Meters are assumed to have read outside the Permitted Range shall be adjusted by an amount as agreed by National Grid Gas corresponding to the amount by which the Primary Meters were found on verification to read outside the Permitted Range; and
 - (c) the amount by which the quantity determined to have been delivered to or offtaken from the National Grid Gas System on any Gas Day differs from the quantity originally determined to have been delivered to or offtaken from that System on that Gas Day shall be accounted for in accordance with Annex F paragraph 8.
- 4.6 Any verification pursuant to this paragraph 4 shall be conducted by IUK and IUK shall give reasonable advance notice of such verification to National Grid Gas who shall be entitled to

be present. IUK shall provide a verification report to National Grid Gas within fourteen (14) days of any verification stating the results of such verification.

4.7 The results of any verification conducted by IUK shall be binding on IUK and National Grid Gas (and on all National Grid Gas Shippers and IUK Shippers), unless National Grid Gas shall within fourteen (14) days after receiving the verification report specified in paragraph 4.6 give notice to IUK that it disputes the accuracy of such verification. National Grid Gas shall not be entitled to dispute the accuracy of such verification solely on the grounds that it did not attend such verification.

4.8 At the request of either IUK or National Grid Gas, IUK and National Grid Gas shall meet and discuss and endeavour to settle any dispute or failure to agree arising from the application of the provisions of this paragraph 4 and if within thirty (30) days after such request they shall have been unable to agree the matter may be referred to an Expert for determination in accordance with clause 13 (Dispute Resolution) (at the request of either IUK or National Grid Gas).

5. **Calibration of Gas Analysis Equipment**

The on-stream Gas Analysis Equipment shall be calibrated in accordance with the approved validation procedures at appropriate intervals with Standard Gas prepared by gravimetric means or traceable by recognised procedure to an appropriate gravimetrically prepared standard mixture and containing, as a minimum, nitrogen, carbon dioxide, methane, ethane, propane and butane. However, hydrocarbons heavier than butane should not be calculated from the butane content alone and so the Gas Analysis Equipment must allow the responses of hydrocarbons heavier than butane, with the Standard Gas also containing appropriate amounts of the heavier hydrocarbons.

6. **Inspection Rights**

National Grid Gas shall have the right, upon giving reasonable notice to IUK, to inspect IUK's measurement equipment and the charts and other measurements or test data, but the reading calibration and adjustment of the Primary Meters and/or Gas Analysis Equipment and the changing of any charts shall be carried out by IUK who shall preserve all original test data, charts and other similar records for a period of three (3) years and shall make a copy thereof available to National Grid Gas upon request.

7. **Gross Calorific Value**

The Gross Calorific Value of the gas offtaken from or delivered to the National Grid Gas System at the Interconnection Point shall be determined by the Gas Analysis Equipment.

8. **Modifications**

Where an Operator proposes to modify the Primary Meters and/or Gas Analysis Equipment, the provisions of clause 9 (Modification and inspection of Connection Facilities) shall apply.

9. **Valves**

- 9.1 The Operators agree that valve numbers 3077, 3079 and 3081 are owned and operated by National Grid Gas.
- 9.2 National Grid Gas shall as soon as reasonably practicable advise IUK of, and keep IUK updated in relation to, any maintenance works which National Grid Gas proposes to carry out in relation to valve numbers 3077, 3079 and 3081. National Grid Gas shall ensure that IUK shall have access to the National Grid Gas Facilities to witness any maintenance works to be carried out in relation to the valves and to observe the operation of such valves.
- 9.3 If National Grid Gas proposes to make a modification to valve numbers 3077, 3079 and/or 3081, the provisions of clause 9 (Modification and inspection of Connection Facilities) shall apply.
- 9.4 IUK shall have the right to access, at all reasonable times during normal business hours and upon reasonable notice, to all maintenance records and certificates kept by National Grid Gas in relation to valve numbers 3077, 3079 and 3081.

Part 2**King's Lynn metering****1. Definitions and general**

- 1.1 In this Annex "**King's Lynn Meters**" means the meters and equipment for measuring volumes of gas installed by National Grid Gas at the King's Lynn Compressors.
- 1.2 The quantity of gas offtaken from the National Grid Gas System and consumed within the gas generators at King's Lynn shall (where required for the purposes of Annex B-3) be determined by the King's Lynn Meters.
- 1.3 National Grid Gas shall be responsible for installing, calibrating, operating, maintaining and repairing the King's Lynn Meters.

2. Accuracy

- 2.1 The total uncertainty in the measurements of the energy flow by the King's Lynn Meters at King's Lynn shall in all steady-state flow conditions be within the Permitted Range.
- 2.2 The methods specified in ISO 5167-1:1991 and ISO 5168:1978 shall be used for the determination of uncertainties in the measurement of volume flow rates in the calculation of the total uncertainty in the measurement of energy flow rates referred to in paragraph 2.1.

3. Verification

- 3.1 IUK may request that the King's Lynn Meters be verified at any time in which case any such verification shall be carried out as soon as reasonably practicable. Subject to paragraph 3.2 the costs and expense of such verification, and any adjustment or replacement of the components of the King's Lynn Meters made as a result of any verification made pursuant to this paragraph 3.1 shall if the King's Lynn Meters are found to read within the Permitted Range be paid by IUK and in any other case by National Grid Gas.
- 3.2 IUK may request that the King's Lynn Meters be verified if the previous verification took place more than three (3) months previously and any verification pursuant to this paragraph 3.2 shall be carried out as soon as reasonably practicable. National Grid Gas shall bear the costs and expenses of such verification and any adjustment or replacement of the components of the King's Lynn Meters made as a result thereof.
- 3.3 Subject to paragraph 3.5 National Grid Gas may at its own expense undertake verification of the King's Lynn Meters and may adjust or replace the components of the King's Lynn Meters also at its own expense at any time.

- 3.4 Immediately following verification pursuant to paragraph 3.1, 3.2 or 3.3 the individual components of the King's Lynn Meters shall be adjusted or replaced as necessary so that the King's Lynn Meters read centrally within the Permitted Range. Each individual component of the King's Lynn Meters shall read within its recommended tolerance.
- 3.5 Where the King's Lynn Meters are found when so verified to read outside the Permitted Range then:
- (a) the King's Lynn Meters shall be assumed to have read outside the Permitted Range during the latter half of the period since last verified and found to be within the Permitted Range or, if later, since last adjusted to read within the Permitted Range (except in the case where it is proved that the King's Lynn Meters have begun to read outside the Permitted Range on some other date or during such other period as agreed by National Grid Gas);
 - (b) an appropriate adjustment shall be made, as required, in respect of the amounts paid or payable by IUK to National Grid Gas pursuant to paragraph 6 of Annex B-3 the period when the King's Lynn Meters are assumed to have read outside the Permitted Range, on the basis of an amount corresponding to the amount by which the King's Lynn Meters were found on verification to read outside the Permitted Range.
- 3.6 Any verification pursuant to this paragraph 3 shall be conducted by National Grid Gas and National Grid Gas shall give reasonable advance notice of such verification to IUK who shall be entitled to be present. National Grid Gas shall provide a verification report to IUK within fourteen (14) days of any verification stating the results of such verification.
- 3.7 The results of any verification conducted by National Grid Gas shall be binding on National Grid Gas and IUK, unless IUK shall within fourteen (14) days after receiving the verification report specified in paragraph 3.6 give notice to National Grid Gas that it disputes the accuracy of such verification. IUK shall not be entitled to dispute the accuracy of such verification solely on the grounds that such party did not attend such verification.
- 3.8 At the request of either National Grid Gas or IUK, National Grid Gas and IUK shall meet and discuss and endeavour to settle any dispute or failure to agree arising from the application of the provisions of this paragraph 3 and if within thirty (30) days after such request they shall have been unable to agree the matter may be referred to an Expert for determination in accordance with clause 13 (Dispute Resolution) (at the request of either National Grid Gas or IUK).

4. **Inspection rights**

IUK shall have the right, upon giving reasonable notice to National Grid Gas, to inspect the National Grid Gas measurement equipment and the charts and other measurements or test data of National Grid Gas, but the reading calibration and adjustment of the King's Lynn Meters and the changing of any charts shall be carried out by National Grid Gas who shall preserve all original test data, charts and other similar records for a period of three (3) years and shall make a copy thereof available to IUK upon request.

5. **Calorific Value**

The calorific value of the gas offtaken at King's Lynn shall be determined in accordance with the Uniform Network Code.

6. **Modifications**

Where an Operator proposes to modify the King's Lynn Meters, the provisions of clause 9 (Modification and inspection of Connection Facilities) shall apply.

Part 3**Measurement Failure**

1. If during any part of any Gas Day the Primary Meters, King's Lynn Meters or the Gas Analysis Equipment are not adequately operational, the quantity and quality of gas delivered to, or as the case may be offtaken from, the National Grid Gas System at the Interconnection Point during such time will be deemed to be such quantity and quality as may be agreed between IUK and National Grid Gas, in both cases acting reasonably and using alternative measurements for the derivation of such quantity and quality of gas where possible.
2. For Primary Meter and King's Lynn Meter failure, recourse to the relevant orifice differential pressures, meter pressure, meter temperature and [GCV or](#) calorific value should be made to manually determine flow through the meter.
3. For Gas Analysis Equipment failure, spot samples should be taken and analysed at an 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 approval by National Grid Gas and IUK.

Part 4

Metering Accuracy

- The accuracy of the Primary Meters, King's Lynn Meters and Gas Analysis Equipment is described in Table 1. Concerning Interconnection Point and Fuel Gas energy flow rate, it is expressed in relation to the maximum rate of gas flow that the meters may accommodate.

TABLE 1 - MEASUREMENT ACCURACIES

Characteristic	Unit	Measurement Range	Accuracy
Primary Meters Volume Flow Rate	Nm ³ /hour	86,765 to 4,000,000	+/-0.96%
Primary Meters Energy Flow Rate	MJ/hour	3,375,139 to 180,000,000	+/-1.0%
King's Lynn Gas Volume Flow Rate	Sm ³ /hour	0 to 2,333,333	+/-5.0%
King's Lynn Gas Energy Flow Rate	MJ/hour	0 to 104,066,666	+/-5.0%
Offtake Pressure Primary Meters	barg	0 to 80	+/-0.16
Gross Calorific Value	MJ/Nm ³ MJ/Sm ³	36.9 to 47.5 35.0 to 45.0	+/-0.05 +/-0.05
Wobbe Index	MJ/Nm ³ MJ/Sm ³	47.5 to 56.2 45.0 to 53.3	+/-0.06 +/-0.06
Offtake Temperature	°C	-10 to 45	+/-0.25
Hydrocarbon Dewpoint	°C		
Water Dewpoint	°C	-50 to 15	+/-2.0
Oxygen	ppm vol	<5000	0 to 25 ppm range at 10 ppm, +/-2.0. 25 to 5000 ppm range at 2000 ppm, +/-50.0
Carbon Dioxide	mol%	0.05 to 8.0	At 2mol% and below, +/-0.02 absolute. At above 2mol%, +/-0.05 absolute
Hydrogen Sulphide (including COS)	ppm vol	<10	+/-0.5

Total Sulphur	ppm vol	<60	+/-0.8
Incomplete Combustion Factor		-2.2 to 1.75	+/-0.03
Soot Index		0.49 to 0.65	+/-0.002
Inert Gases (including Carbon Dioxide and Nitrogen) ¹			
Nitrogen	mol%	0.2 to 12.0	At 5mol% and below, +/-0.01 absolute. At above 5mol%, +/-0.02 absolute.
Hydrogen	ppm vol	<5000	At 100 ppm and below, +/-2.0. At above 100 ppm, +/-5% relative.

2. Dedicated fiscal standard flow calculators are used to determine flow rates at normal conditions (0°C, 1.01325 BarA) in accordance with the formulae given in BS EN ISO 5167.
3. Gas quality (~~calorific value~~[Gross Calorific Value](#), Wobbe Index, etc.) calculations based on the chromatograph data are carried out in accordance with BS ISO 6976.
4. Calculations and procedures for the evaluation of uncertainties are carried out in accordance with ISO 5168.

¹ mol% range and accuracy is a combination of the Nitrogen and Carbon Dioxide data in the Table.

Part 5**Notification of quantities at CSEP and SEP**

1. IUK shall notify to National Grid Gas each Gas Day:
 - (a) the net aggregate quantity of gas measured (in accordance with Part 1) as flowing at the Interconnection Point;
 - (b) where there were physical flows of gas (at different times of the Gas Day) both at the CSEP out of, and at the SEP into, the National Grid Gas System, the aggregated measured quantities of each such gas flow

and, at the request of National Grid Gas, IUK will on Gas Day D+1, notify to National Grid Gas the quantities of gas deemed to have flowed out of the National Grid Gas System for the relevant periods of Gas Day D as defined by National Grid Gas.

Appendix 1

IUK / National Grid Gas Connection Facilities

The diagram does not form part of the public domain information

Appendix 2
Kings Lynn Compressors

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Appendix 3

TECHNICAL INTERPRETATION

1. Defined terms

The following technical terms are used with the following meanings in this Agreement:

“**bar**”: the bar as defined in ISO 1000-1981(e);

“**barg**”: bar gauge;

“**calorific value**”: the meaning given in the Uniform Network Code that number of Megajoules produced by the complete combustion at a constant absolute pressure of 1.01325 bar of the reference volume of gas at the reference temperature with excess air at the same temperature and pressure as the gas when the products of combustion are cooled to the reference temperature and when the water formed by combustion is condensed to the liquid state and the products of combustion contain the same total mass of water vapour as the gas and air before combustion; and for the avoidance of doubt calorific value shall be REAL as defined in ISO 6976-1:1983(E);

~~“**Cubic Metre**” or “**Standard Cubic Metre**” or “**S-Cubic Metre**”: when applied to gas, that amount of gas which at a temperature of 15°C and an absolute pressure of 1.01325 bar and being free of water vapour occupies one 1 cubic metre;~~

“**degree Celsius**” and “**C**”: the particular interval between the temperature in Kelvin and the temperature 273.15 Kelvin as defined in ISO 1000-1981(E);

“**gauge**”: when used in relation to pressure, the pressure in excess of 1 standard atmosphere where 1 standard atmosphere is 1.01325 bar;

“**Gross Calorific Value**” or “**GCV**”: that number of Megajoules produced by the complete combustion at a constant absolute pressure of one decimal zero one three two five (1.01325) bar of one (1) Normal cubic Metre of natural gas at twenty five (25) degrees Celsius with excess air at the same temperature and pressure as the natural gas when the products of combustion are cooled to twenty five (25) degrees Celsius and when the water formed by combustion is condensed to the liquid state and the products of combustion contain the same total mass of water vapour as the natural gas and air before combustion; and for the avoidance of doubt GCV shall be REAL as defined in ISO 6976-1:1995-1983(E); (as used in Annex B-2 and Annex A-2), calorific value by reference to ‘Normal’ reference volume and reference temperature;

“**hour**”: the hour as defined in ISO 1000-1981(E);

“**Joule**”; the joule as defined in ISO 1000-1981(E);

“**kWh**”: 3,600,000 Joules;

“**MCM**” or “**mcm**”: 1,000,000 Cubic Metres;

“**mcmh**”: mcm per hour;

“**Megajoule**” or “**MJ**”: 1,000,000 Joules;

“**metre**”: the meter as defined in ISO 1000-1981(E);

“**MMJ**”: millions of Megajoules;

“**MWhr**”: 3,600 Megajoules per Gas Day;

“**MJ/Nm³**” : Megajoules per Normal Cubic Metre;

“**MJ/CM³**” : ~~megajoules~~ Megajoules per Standard Cubic Metre;

“**MW**”: 1,000,000 Watts;

“**MWh**”: 1,000 kWh;

“**Normal Cubic Metre**” or “**Nm³**”: the volume of gas which occupies a cubic metre measured at a pressure of 1.01325 bar at a temperature of 0°C;

“**pascal**”: the pascal as defined in ISO 1000-1981(E);

“**ppm**”: parts per million by volume;

“**Relative Density**”: shall mean the mass of a volume of dry gas divided by the mass (expressed in the same units) of an equal volume of dry standard air as defined in ISO 6976-1983(E) both such gases being at the reference temperature and an absolute pressure of 1.01325 bar; and Relative Density (REAL) shall for the avoidance of doubt be REAL as defined in ISO 6976-1:1983(E);

“**second**”: the second as defined in ISO 1000-1981(E);

“**Standard Cubic Metre**” or “**Sm³**”: when applied to gas, that amount of gas which at a temperature of 15°C and an absolute pressure of 1.01325 bar and being free of water vapour occupies one 1 cubic metre;

“**Watt**”: 1 Joule per second;

“**Wobbe Index**”: when applied to gas, the Gross Calorific Value~~calorific value~~ divided by the square root of the Relative Density.

2. **Not used.Reference volume and temperature**

~~2.1 For the purposes of the definitions of certain terms in paragraph 1, the reference volume and reference temperature are:~~

~~(i) where the relevant term is in ‘Standard’ terms, a volume of one Standard Cubic Metre and a temperature of 15°C;~~

~~(ii) where the relevant term is in ‘Normal’ terms, a volume of one Normal Cubic Metre and a temperature of 0°C.~~

~~2.2 In Annex B-2 (providing for quality of Exit Gas) and Annex A-2 (providing for the quality of Entry Gas), units of volume (and Gross Calorific Value and Wobbe Index and any other derived quantities) are expressed in ‘Normal’ terms; but in all other parts of this Agreement units of volume (and calorific value and any other derived quantities) are expressed in ‘Standard’ terms.~~

3. **MW Variable**

Where any provision of this Agreement refers to any amount in “**MW Variable**”, such amount has been derived from an amount in Cubic Metres at an assumed Gross C~~e~~alorific V~~a~~lue of 38.9 MJ/Cubic Metre~~Nm³~~; and where on any Gas Day the average Gross Calorific~~Value~~calorific value of gas offtaken from or delivered to the National Grid Gas System at the Interconnection Point differs materially from such assumed value the MW amount referred to in such provision shall be adjusted accordingly.

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ANNEX D – Capacity and Optimisation

1. Definitions

1.1 In this Annex the following terms shall have the following meanings:

Allocated IP Capacity means firm capacity at the Interconnection Point that is or has been allocated to a Shipper pursuant to an Operator’s Transportation Arrangements;

Auction means an auction of Available IP Capacity which is conducted by the Platform Operator as contemplated in this Annex and the CAM Code;

Auction Calendar has the meaning given to that term in the CAM Code;

Auction Premium means the amount by which the Clearing Price in a Bundled Capacity Auction exceeds the Starting Price;

Available IP Capacity means firm capacity at the Interconnection Point that the Operators determine, having regard to the requirements of the CAM Code, is available to be offered to Shippers (whether as Bundled Available Capacity or Unbundled Available Capacity);

Bundled Allocated Capacity means Allocated IP Capacity which consists of corresponding entry and exit capacity at both sides of the Interconnection Point and Unbundled Allocated Capacity shall be construed accordingly;

Bundled Available Capacity means Available IP Capacity which consists of corresponding entry and exit capacity at both sides of the Interconnection Point and Unbundled Available Capacity shall be construed accordingly;

Bundled Capacity Auction means an Auction of Bundled Available Capacity;

Clearing Price means the price at which Available IP Capacity is sold in accordance with an Auction;

Common Services has the meaning given to that term in the Standard Form TSO Services Contract;

GTCs means the standard terms and conditions that apply for all platform usage contracts between Shippers and PRISMA;

Linked Auction has the meaning given to ‘linked Auctions’ in Section B (Capacity) of the European Interconnection Document to the Uniform Network Code;

Platform Operator means PRISMA or another operator of a capacity booking platform who is appointed by the Operators in the manner provided, and for the purposes envisaged, in this Annex;

Platform Rules and Systems means, for so long as PRISMA is the Platform Operator, the Standard Form TSO Services Contract and the GTCs, and for so long as an operator other than PRISMA is the Platform Operator, the rules, arrangements and systems that are applied by that other operator in performing the functions contemplated in this Annex;

PRISMA means PRISMA European Capacity Platform GmbH;

Services means the Common Services and any other services which PRISMA has agreed to provide to the Operators in its capacity as Platform Operator;

Standard Form TSO Services Contract means the standard form contract which PRISMA has or will enter into with each of its customers who are transmission system operators regarding the provision of services to those customers related to the PRISMA capacity booking platform for the allocation of transport capacities in gas transmission grids (as that contract may be modified from time to time); and

Starting Price means, for each Bundled Available Capacity product which is to be the subject of a Bundled Capacity Auction, the sum of reserve prices specified in respect of each element of such Bundled Available Capacity product by the Operators.

2. General

2.1 Having regard to the requirements of the CAM Code, this Annex D sets out certain arrangements between the Operators in connection with:

- (a) Bundled Available Capacity and Bundled Allocated Capacity;
- (b) interruptible capacity; and
- (c) the calculation and maximisation of capacity at the Interconnection Point.

2.2 The amount of technical capacity at the Interconnection Point which is to be withheld from allocation in an Auction for an annual period is:

- (a) for the first 5 gas years from the Auction date, the lesser of: (i) 10% of the technical capacity; and (ii) the Available IP Capacity; and
- (b) for the remaining 10 gas years, the lesser of: (i) 20% of the technical capacity; and (ii) the Available IP Capacity.

3. **Bundled Capacity Auctions**

3.1 The CAM Code requires amongst other things that:

- (a) Bundled Available Capacity is allocated in a single auction (and, in the case described in paragraph 3.4, in a Linked Auction); and
- (b) auctions of Bundled Available Capacity are conducted in accordance with the Auction Calendar and otherwise in accordance with the CAM Code.

3.2 The Operators agree that it is their intention that the above-mentioned requirements of the CAM Code will be met through the arrangements described in this Annex.

3.3 The Operators further agree that in respect of each Auction:

- (a) Available IP Capacity will be expressed in kWh/h;
- (b) the price(s) of Available IP Capacity will be expressed in p/(kWh/h) per capacity period;
- (c) that relates to Bundled Available Capacity:
 - (i) the Starting Price shall apply in respect of each Bundled Available Capacity product;
 - (ii) the Auction Premium shall be shared as agreed between the Operators from time to time and if no agreement is reached then one half (1/2) each; and
- (d) that is conducted under the ascending clock auction algorithm:
 - (i) the large price step is to be the sum of large price steps specified by each Operator; and
 - (ii) the small price step is to be set such that five small price steps equal one large price step.

3.4 Where Available IP Capacity in the National Grid Gas System:

- (a) may be held by Shippers in connection with the offtake or delivery of gas from or to the National Grid Gas System at both the Interconnection Point and at another point of interconnection between the National Grid Gas System and another gas transmission system (the "Linked transmission system"); and

- (b) (in relation to any Auction) the amount of that Available IP Capacity is less than the sum of the Available IP Capacity in the IUK System and the available capacity in the Linked transmission system,

then there shall be a Linked Auction.

3.5 If an Auction (the first Auction) under the ascending clock algorithm has not closed:

- (a) where the next relevant Auction is under the ascending clock algorithm, by 17:00 hours on the 5th business day;
- (b) where the next relevant Auction is under the uniform price algorithm, by 17:00 hours on the preceding business day,

before the information publication date for the next relevant Auction, then the Operators shall seek to agree next steps with respect to the Available IP Capacity that is the subject of the first Auction and in the absence of such agreement the first Auction shall be discontinued without closing where the next relevant Auction is the next Auction for Bundled Available Capacity.

3.6 The arrangements described in this Annex will commence on or after 1 November 2015, according to the Auction Calendar set out in the CAM Code.

3.7 The Operators acknowledge that Sections B6.3.2, B6.3.3, B6.3.5, B6.3.6 and B7.2.2(f) of the European Interconnection Document to the Uniform Network Code do not apply in relation to the Interconnection Point.

4. **Platform Operator**

4.1 The Operators agree that:

- (a) subject to the operation of paragraph 4.1(b) below, PRISMA is and shall remain the Platform Operator for the purposes of this Agreement;
- (b) an Operator may only change the Platform Operator with the other Operator's prior written agreement to do so, such agreement not to be unreasonably withheld or delayed;
- (c) nothing in this Agreement or otherwise shall require the Operators to enter into or incur any joint obligations or liabilities to PRISMA (or any other Platform Operator);
and

- (d) each Operator is severally responsible for any fees or other amounts payable to PRISMA (or any other Platform Operator) in connection with the arrangements described in paragraph 4.2 below.

4.2 Each Operator:

- (a) confirms that it has entered into a Standard Form TSO Services Contract with PRISMA pursuant to which, amongst other things, PRISMA agrees to provide the Common Services in accordance with and subject to the terms of the Standard Form TSO Services Contract; and
- (b) shall, subject to the operation of paragraph 4.1(b), maintain in full force and effect the Standard Form TSO Services Contract for the duration of this Agreement.

4.3 Each Operator considers and intends that the Services shall include PRISMA:

- (a) determining, based on the submissions made to it by the Operators as described at paragraph 4.4 below, how much of the Available IP Capacity is capable of being made available as Bundled Available Capacity (and therefore included in a Bundled Capacity Auction) and how much is to be made available as Unbundled Available Capacity;
- (b) publishing information relating to forthcoming Auctions;
- (c) holding Auctions, including receiving, validating, evaluating and, where appropriate, accepting Shipper bids made in respect of Available IP Capacity;
- (d) notifying the results of each Auction to each Operator and to each of the Shippers who participated in that Auction;
- (e) publishing Auction results; and
- (f) allocating Available IP Capacity to Shippers who have submitted successful bids.

4.4 The Operators acknowledge and agree that as at 1 November 2015:

- (a) IUK is not using PRISMA for transfers and surrenders of Allocated IP Capacity; and
- (b) National Grid Gas is using PRISMA for transfers and surrenders of Allocated IP Capacity,

and if these arrangements are proposed to change for either Operator (the “**Affected Operator**”), the Affected Operator shall provide written notice in advance to the other Operator of the proposed change.

4.5 If any incompatibility is found to exist between the Platform Rules and Systems and the provisions of this Agreement, the Operators shall discuss the matter with a view to agreeing whether to amend this Agreement in accordance with clause 7 (Amendment Process) and/or to seek a modification of the Platform Rules and Systems.

4.6 Each Operator shall:

- (a) in accordance with the Auction Calendar, send to the Platform Operator the information necessary to enable the Platform Operator to conduct Bundled Capacity Auctions, and to perform its other functions contemplated by this Annex; and
- (b) where the Platform Rules and Systems allow or require that Operator to make choices, make such choices as are required to give effect to this Annex D.

5. **Voluntary bundling of Allocated IP Capacity**

5.1 The Operators acknowledge and agree that where a Shipper:

- (a) is both an IUK Shipper and a National Grid Gas Shipper; and
- (b) holds Unbundled Allocated Capacity in both Systems which is capable of being Bundled Allocated Capacity,

that Shipper may submit a request (a “**Bundling Request**”) to both Operators in accordance with their respective Transportation Arrangements requesting that the Unbundled Allocated Capacity should become Bundled Allocated Capacity.

5.2 Upon receipt of a Bundling Request, the Operators shall comply with their respective obligations under the CAM Code in relation to that request.

5.3 The Operators further acknowledge and agree that:

- (a) the European Interconnection Document to the Uniform Network Code, Section B6.4, prescribes rules (the “**NTS Voluntary Bundling Rules**”) which are to apply to a Bundling Request made by a National Grid Gas Shipper to National Grid Gas;
- (b) the NTS Voluntary Bundling Rules do not apply to nor bind IUK;

- (c) if a Bundling Request is made by a National Grid Gas Shipper in accordance with the NTS Voluntary Bundling Rules, it shall be National Grid Gas's responsibility to seek (in writing and in a timely manner) any confirmation it may need from IUK to enable National Grid Gas to process that Bundling Request in accordance with the NTS Voluntary Bundling Rules; and
- (d) subject to IUK having obtained any necessary confirmation from the relevant IUK Shipper that it may do so, IUK shall, within 10 business days of receiving from National Grid Gas a written request for confirmation made in accordance with paragraph 5.3(c) above, provide a written response to that request.

6. **Coordination of Interruptible Capacity**

- 6.1 The Operators agree that the minimum interruption lead times for interruptible capacity is 75 minutes before the hour from which such interruption is to be effective.
- 6.2 Each Operator shall inform the other Operator as soon as practicable after giving a notice of interruption.

7. **Capacity optimisation process / analysis in relation to Available IP Capacity**

- 7.1 Having regard to their obligations under Article 6 (Capacity calculation and maximisation) and Article 11(8) of the CAM Code, the Operators have agreed that they shall meet at least once a year sufficiently in advance of the date upon which they are required to give notice of the amount of Available IP Capacity (and any additional capacity) that is to be offered in the upcoming annual yearly capacity auction for the purposes of jointly analysing the technical capacities in each System.
- 7.2 The analysis shall include a detailed comparison between the Operators of:
 - (a) technical capacity in each System; and
 - (b) Available IP Capacity in each System.
- 7.3 Any differences shall be noted and quantified, and to the extent reasonably practicable, the reasons for differences should be identified and recorded. The analysis shall take account of assumptions made in the EU-wide 10 year development plan, existing national investment plans, relevant obligations under the applicable national laws, and any relevant contractual obligations.
- 7.4 The Operators shall also assess relevant parameters, including but not limited to: pressure commitments, relevant supply and demand scenarios, and calorific values. Options for

adjusting these parameters will be discussed and examined. The Operators shall also have regard to information that Shippers may provide with regard to expected future flows. In addition, the relevant Operator's regulatory regime and obligations will be considered as part of this process.

7.5 Following completion of the analysis, the Operators will identify any potential steps and actions that can be taken to increase Available IP Capacity, and hence increase the offer of Bundled Available Capacity. For any action to increase Available IP Capacity proposed, then the effects of that action shall be considered, and shall include but not be limited to:

- (a) under what timetable can the proposed action be implemented;
- (b) are there any increased costs associated with the proposed action, and does the regulatory regime(s) allow for recovery of those costs (especially if there are any cross-subsidies between the Operators);
- (c) does the benefit justify the cost; and
- (d) are there any impacts, benign or detrimental, on other points on either System and stakeholders (including terminal operators, Shippers, other TSOs).

ANNEX E – Nominations And Matching

1. Definitions

1.1 In this Annex the following terms shall have the following meanings:

“**Affected Operator**” has the meaning given in paragraph 6.1;

“**Confirmed Nomination Quantity**” means the quantity of natural gas determined by IUK for a particular hour in a Gas Day in respect of a matched Nomination or Renomination in accordance with paragraph 5.3.4;

“**Counterparty**” means:

- (a) in respect of a NTS Nomination or NTS Renomination, the IUK Shipper receiving or delivering the quantity of natural gas to which that NTS Nomination or NTS Renomination relates; or
- (b) in respect of an IUK Nomination or an IUK Renomination, the National Grid Gas Shipper receiving or delivering the quantity of natural gas to which that IUK Nomination or IUK Renomination relates,

and where such Counterparty may be the same entity as the National Grid Gas Shipper or the IUK Shipper that has submitted a Nomination or Renomination;

“**Daily CNQ**” means the aggregate of all Confirmed Nomination Quantities of a National Grid Gas Shipper for a particular Gas Day in respect of an NTS Nomination or NTS Renomination;

“**Double-Sided**” in respect of a Nomination or Renomination, means a Nomination or Renomination that is not Single-Sided;

“**Effective Hourly Quantity**” has the meaning given in paragraph 5.2;

“**Hourly Quantity**” means in respect of an IUK Nomination or IUK Renomination, the quantity of natural gas for a particular hour of a particular Gas Day as specified in such IUK Nomination or IUK Renomination;

“**ID Code**” means the identification code assigned by National Grid Gas to a National Grid Gas Shipper or by IUK to an IUK Shipper;

“**Initiating TSO**” has the meaning given to initiating transmission system operator in the Interoperability Code;

“**IUK Nomination**” has the meaning given in paragraph 3.3;

“IUK Nomination Deadline” means 13:00 on Gas Day D-1;

“IUK Renomination” means a nomination which contains the information specified in paragraph 3.4 and is submitted to IUK after the IUK Nomination Deadline but before the IUK Renomination Deadline (and shall include a nomination that revises a previously submitted IUK Nomination);

“IUK Renomination Deadline” means 02:00 hours on Gas Day D;

“Matching Timetable” means the timetable set out in paragraph 7;

“Matching TSO” has the meaning given to matching transmission system operator in the Interoperability Code;

“Nomination” means a NTS Nomination and/or an IUK Nomination;

“Nomination Cycle” means the 2 hour period commencing at 13:00 hours on Gas Day D-1;

“Nomination Quantity” means the quantity of natural gas specified in a Nomination or Renomination;

“NTS Nomination” has the meaning given in paragraph 3.1;

“NTS Nomination Deadline” means 13:00 hours on Gas Day D-1;

“NTS Renomination” means a nomination which contains the information specified in paragraph 3.2 and is submitted to National Grid Gas after the NTS Nomination Deadline but no earlier than 15:00 hours on Gas Day D-1 and no later than the NTS Renomination Deadline;

“NTS Renomination Deadline” means 02:00 hours on Gas Day D;

“Processed IUK Nomination Quantity” means the quantity of natural gas under an IUK Nomination or IUK Renomination (as the case may be) that IUK has determined for a particular hour in a particular Gas Day in accordance with the IUK Transportation Arrangements;

“Processed NTS Nomination Quantity” means the quantity of natural gas under a NTS Nomination or NTS Renomination (as the case may be) that National Grid Gas has determined for a particular Gas Day in accordance with the Uniform Network Code;

“Renomination” is a NTS Renomination and/or an IUK Renomination;

“Renomination Cycle” means the 2 hour period commencing on the hour following the submission of the Renomination;

“Renomination Effective Time” means the time that a Renomination is to become effective, being the later of:

- (a) 05.00 on Gas Day D;
- (b) the hour at the end of the Renomination Cycle, provided National Grid Gas provides the information required under Matching Activity 2 in accordance with the Matching Timetable set out in paragraph 7; or
- (c) such later time requested by the relevant NGG Shipper or IUK Shipper (as applicable);

“Resumption Notice” means a notice given by the Affected Operator to the other Operator to the effect that an Exceptional Event has ceased or will, at a time specified in the notice, cease; and

“Single-Sided” in respect of a Nomination or a Renomination, means a single Nomination or Renomination that:

- (a) is made by a person who is both a National Grid Gas Shipper and an IUK Shipper;
- (b) is made by that person in its capacity as a National Grid Gas Shipper and to National Grid Gas in accordance with the Uniform Network Code; and
- (c) shall take effect as both a NTS Nomination or a NTS Renomination and a corresponding IUK Nomination or an IUK Renomination.

2. Transportation Arrangements (General)

2.1 Each Operator considers that the provisions on Nominations and Renominations in its Transportation Arrangements will, at the Amendment Effective Date or as soon as reasonably practicable thereafter, be consistent with this Annex E, and in particular that this Annex E accurately describes how National Grid Gas Shippers and IUK Shippers are required to submit Nominations and Renominations in accordance with the Transportation Arrangements.

2.2 The Operators agree that the provisions of Annex E are hereby given effect from 30 September 2015 for Gas Day 1 October 2015 onwards.

3. Nominations and Renominations

Nominations

3.1 A nomination shall be a “**NTS Nomination**” if it:

- (a) is submitted by a National Grid Gas Shipper to National Grid Gas in accordance with the Uniform Network Code by the NTS Nomination Deadline; and
- (b) contains the information specified in paragraph 3.2.

3.2 A NTS Nomination shall specify:

- (a) the ID Code of the National Grid Gas Shipper making the nomination;
- (b) the ID Code of the IUK Shipper who is the Counterparty;
- (c) the Gas Day (Gas Day D) to which the nomination relates;
- (d) whether the nomination is for entry to or exit from the National Grid Gas System;
- (e) the Nomination Quantity (which shall be a daily quantity); and
- (f) whether it is a Single-Sided or Double-Sided nomination.

3.3 A nomination shall be an “**IUK Nomination**” if it:

- (a) is submitted by an IUK Shipper to IUK in accordance with the IUK Transportation Arrangements by the IUK Nomination Deadline; and
- (b) contains the information specified in paragraph 3.4; or
- (c) is submitted to National Grid Gas as provided in paragraph 4.

3.4 An IUK Nomination shall specify:

- (a) the ID Code of the IUK Shipper making the nomination;
- (b) the ID Code for the National Grid Gas Shipper who is the Counterparty;
- (c) the Gas Day to which the nomination relates;
- (d) whether the nomination is for entry to or exit from the IUK System; and
- (e) the Nomination Quantity (which shall be an Hourly Quantity for each hour in the Gas Day).

- 3.5 A National Grid Gas Shipper may submit a NTS Nomination by no later than the NTS Nomination Deadline.
- 3.6 An IUK Shipper may submit an IUK Nomination by no later than the IUK Nomination Deadline.
- 3.7 Where a National Grid Gas Shipper does not submit a NTS Nomination by the NTS Nomination Deadline, the relevant National Grid Gas Shipper shall be deemed to have submitted a NTS Nomination with a Nomination Quantity of zero (a “**Deemed NTS Nomination**”). A Deemed NTS Nomination shall not be subject to the process described in paragraph 5.3 (Matching Process) and National Grid Gas shall not determine, nor communicate to IUK, a Processed NTS Nomination Quantity in respect of a Deemed NTS Nomination.
- 3.8 Where an IUK Shipper does not submit an IUK Nomination by the IUK Nomination Deadline, no Nomination Quantity will be recorded for that IUK Shipper in respect of the relevant Gas Day.

Renominations

- 3.9 A National Grid Gas Shipper may submit a NTS Renomination.
- 3.10 An IUK Shipper may submit an IUK Renomination.
- 3.11 A Renomination shall specify the Renomination Effective Time.

4. National Grid Gas as agent to receive Single-Sided Nominations

- 4.1 IUK authorises National Grid Gas to act as agent for IUK for the purposes only of receiving and communicating Single-Sided Nominations and Single-Sided Renominations as provided in this Annex.

5. Matching of Nominations and Renominations

5.1 Matching Roles

- 5.1.1 National Grid Gas is the Initiating TSO and IUK is the Matching TSO.
- 5.1.2 National Grid Gas as Initiating TSO shall in accordance with the Matching Timetable:
- (a) communicate to IUK details of all Single-Sided Nominations and Single-Sided Renominations;

- (b) determine the Processed NTS Nomination Quantities for each NTS Nomination and NTS Renomination; and
- (c) communicate to IUK details of the determined Processed NTS Nomination Quantities (for both Single-Sided and Double-Sided Nominations and Renominations) (including adjusted Processed NTS Nomination Quantities under paragraph 6.1) for such NTS Nominations and NTS Renominations.

5.1.3 IUK as the Matching TSO shall communicate to National Grid Gas the information specified in paragraph 5.3.5 in accordance with the Matching Timetable.

5.2 Effective Hourly Quantities for NTS Nominations (or NTS Renominations)

5.2.1 IUK shall calculate for each Processed NTS Nomination Quantity notified to it in accordance with this Annex:

- (a) in the case of NTS Nominations, or NTS Renominations with a Renomination Effective Time of 05:00 hours for Gas Day D to which it relates, a quantity that is equal to the Processed NTS Nomination Quantity divided by the number of hours in Gas Day D; or
- (b) in case of NTS Renominations, with an Renomination Effective Time later than 05:00 hours for Gas Day D to which the Renomination relates, a quantity that is equal to:

$$EHQ_N = \{ (PDQ_N - \sum_p CHQ_p) / H \}$$

where

PDQ_N is the Processed NTS Nomination Quantity (expressed as a daily quantity);

\sum_p is the sum over hours in the Gas Day before the Renomination Effective Time;

CHQ_p is the Confirmed Hourly Quantity for each hour in the Gas Day before the Renomination Effective Time under the last NTS Renomination prevailing at such hour; and

H is number of hours remaining in Gas Day D from the Renomination Effective Time,

each quantity calculated under sub-clause (a) or (b) being an “**Effective Hourly Quantity**”.

5.3 Matching Process

5.3.1 IUK, as Matching TSO, shall match Nominations and Renominations by:

- (a) determining whether NTS Nominations (or NTS Renominations) and IUK Nominations (or IUK Renominations) are corresponding in accordance with paragraph 5.3.2;
- (b) for corresponding NTS Nominations (or NTS Renominations) and IUK Nominations (or IUK Renominations), determining the quantities for which they are matched in accordance with paragraph 5.3.3 and then determining the Confirmed Nomination Quantity by processing the matched quantity in accordance with paragraph 5.3.4; and
- (c) communicating the Daily CNQ to National Grid Gas in accordance with paragraph 5.3.5.

5.3.2 A NTS Nomination (or NTS Renomination) and an IUK Nomination (or IUK Renomination) shall be determined as corresponding by IUK if:

- (a) they relate to the same Gas Day;
- (b) the ID Code of the Counterparty in a NTS Nomination (or NTS Renomination) matches the ID Code of the IUK Shipper that submits (or is deemed to have submitted pursuant to a Single-Sided Nomination or Single-Sided Renomination) the corresponding IUK Nomination (or IUK Renomination); and
- (c) the ID Code of the Counterparty in an IUK Nomination (or IUK Renomination) matches the ID Code of the National Grid Gas Shipper that submits the corresponding NTS Nomination (or NTS Renomination).

5.3.3 The quantity for which a corresponding NTS Nomination (or NTS Renomination) and IUK Nomination (or IUK Renomination) are matched, for each hour, is:

- (a) if the Effective Hourly Quantity under the NTS Nomination (or NTS Renomination) is equal to the Hourly Quantity under the corresponding IUK Nomination (or IUK Renomination), the Hourly Quantity;
- (b) if the Effective Hourly Quantity under the NTS Nomination (or NTS Renomination) is not equal to the Hourly Quantity under the corresponding IUK Nomination (or IUK Renomination), the Hourly Quantity, except:

- (i) where an Operator has notified the other Operator of the occurrence of an Exceptional Event (and until the cessation of an Exceptional Event at the time stated in a Resumption Notice), in which case the matched quantity shall be determined from the lesser of the Effective Hourly Quantity and the Hourly Quantity; or
- (ii) in the case of National Grid Gas, the occurrence of an emergency under its Transportation Arrangements (and until the cessation of an emergency at the time notified by National Grid Gas to IUK), in which case the matched quantity shall be determined from the lesser of the Effective Hourly Quantity and the Hourly Quantity.

5.3.4 IUK shall determine the Confirmed Nomination Quantity by processing (in accordance with the IUK Transportation Arrangements) the quantity for which the corresponding Nominations (or Renominations) are matched under paragraph 5.3.3.

5.3.5 IUK shall communicate to National Grid Gas, in accordance with the Matching Timetable:

- (a) the Processed IUK Nomination Quantity for each IUK Nomination and IUK Renomination; and
- (b) the Daily CNQ.

5.3.6 A Nomination (or Renomination) shall not be matched and Confirmed Nomination Quantities shall not be determined by IUK where IUK has not received the corresponding Counterparty information in relation to a Nomination (or Renomination).

6. Exceptional Events

6.1 Where an Operator (the “**Affected Operator**”) notifies the other Operator of the occurrence of an Exceptional Event on a Gas Day which requires the reduction of Confirmed Nomination Quantities or Daily CNQ (as applicable), the Affected Operator shall adjust:

- (a) Processed NTS Nomination Quantities in accordance with the Uniform Network Code where it is National Grid Gas; or
- (b) Processed IUK Nomination Quantities in accordance with IUK Transportation Arrangements where it is IUK.

6.2 IUK shall apply the lesser rule as set out in paragraph 5.3.3(b)(i) to determine revised matched quantities where an Exceptional Event is notified under paragraph 6.1 and from such revised matched quantities, determine revised Confirmed Nomination Quantities.

- 6.3 Upon cessation of an Exceptional Event, the Affected Operator shall issue a Resumption Notice to the other Operator.
- 6.4 National Grid Gas shall notify the National Grid Gas Shippers and IUK shall notify the IUK Shippers of the expected and actual end of the Exceptional Event.

7. Matching Timetable

Matching Activity		Deadline for Provision (Relative to Commencement of Nomination Cycle or Renomination Cycle)
1	National Grid Gas communicates Single-Sided Nominations and Single-Sided Renominations to IUK	Within 15 minutes
2	National Grid Gas communicates its Processed NTS Nomination Quantities to IUK	Within 45 minutes
3	IUK communicates its Processed IUK Nomination Quantities and the Daily CNQ to National Grid Gas	Within 90 minutes

ANNEX F – Operational Balancing Account

1. DEFINITIONS AND INTERPRETATION

1.1 In this Annex, the following definitions apply:

“Aggregate Confirmed Quantity (Forward Flow)” shall mean the sum of the Confirmed Nomination Quantities of gas for offtake from the National Grid Gas System and delivery to the IUK System at the Interconnection Point on a Gas Day;

“Aggregate Confirmed Quantity (Reverse Flow)” shall mean the sum of the Confirmed Nomination Quantities of gas for offtake from the IUK System and delivery to the National Grid Gas System at the Interconnection Point on a Gas Day;

“Aggregate Net Confirmed Quantity” shall mean, having regard to paragraph 1.3, the difference between the Aggregate Confirmed Quantity (Forward Flow) on Gas Day D and the Aggregate Confirmed Quantity (Reverse Flow) on Gas Day D;

“Agreed Target Quantity” shall mean the quantity of gas, calculated in accordance with paragraphs 1.3 and 5.1, which the Operators agree is to flow at the Interconnection Point on Gas Day D;

“Cumulative Steering Difference” or **“CSD”** shall mean for 30 September 2015, zero, and for each subsequent Gas Day D shall mean the sum of: (i) the Cumulative Steering Difference for Gas Day D-1; (ii) the Steering Difference for Gas Day D; and (iii) any Cumulative Steering Difference Correction implemented on Gas Day D;

“Cumulative Steering Difference Correction” shall mean a quantity of gas which the Operators agree in accordance with paragraph 4.2 should be deducted from or added to the Aggregate Net Confirmed Quantity for the purposes of reducing the CSD;

“Daily Metered Quantity” shall mean the measured quantity of gas:

- (a) offtaken from the National Grid Gas System and delivered to the IUK System (forward flow) on Gas Day D; and/or
- (b) offtaken from the IUK System and delivered to the National Grid Gas System (reverse flow) on Gas Day D,

at the Interconnection Point;

“Individual CSEP Reconciliation” shall have the meaning in Section E of the Transportation Principle Document to the Uniform Network Code;

“Proportional Allocation” shall mean the allocation by IUK to IUK Shippers and by National Grid Gas to National Grid Gas Shippers of the quantities of gas in accordance with the allocation principles set out in paragraph 6.1(ii);

“Steering Difference” or **“SD”** shall mean, the difference between the Daily Metered Quantity at the end of Gas Day D and the Agreed Target Quantity for Gas Day D, and is:

- (a) for forward flow:
 - (i) negative if the Daily Metered Quantity is greater than the Agreed Target Quantity; and
 - (ii) positive if the Daily Metered Quantity is less than the Agreed Target Quantity; and
- (b) for reverse flow:
 - (i) positive if the Daily Metered Quantity is greater than the Agreed Target Quantity; and
 - (ii) negative if the Daily Metered Quantity is less than the Agreed Target Quantity; and

“Steering Tolerance” shall mean a tolerance on the Cumulative Steering Difference equal to 3.25 million kWh.

1.2 Terms used in this Annex which are defined in Annex E (Nominations and Matching) have the meanings given to them in that Annex.

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

1.4 The SD and CSD for Gas Day D-1 shall be determined based on the Daily Metered Quantity for Gas Day D-1 (as communicated under paragraph 3.1) and paragraph 8 shall apply if any subsequent adjustment is made in respect of the Daily Metered Quantity.

2. FLOW CONTROL

2.1 The Operators agree that IUK is responsible for flow control at the Interconnection Point.

2.2 Subject to National Grid Gas complying with its obligations under this Agreement with respect to gas pressure (including those in Annex A (Network Entry Provisions) and Annex B (Network Exit Provisions)), IUK shall, on Gas Day D, use reasonable endeavours to steer a

quantity of gas equal to the prevailing Agreed Target Quantity to ensure the Steering Difference is kept as close as possible to zero.

3. OBA MANAGEMENT

3.1 IUK shall communicate to National Grid Gas the Daily Metered Quantity, SD and the CSD in respect of Gas Day D-1 by 06:00 hours on Gas Day D.

3.2 If National Grid Gas considers that IUK has incorrectly calculated the SD and/or the CSD, National Grid Gas shall contact IUK and they shall discuss and agree on the correct values of the SD and CSD.

4. CUMULATIVE STEERING DIFFERENCE CORRECTIONS

4.1 The Operators shall cooperate to reduce the CSD in the event that the absolute value of the CSD for Gas Day D-1 ("**CSD D-1**") exceeds the Steering Tolerance.

4.2 In cooperating in accordance with paragraph 4.1, the Operators shall have regard to all the circumstances relevant to the CSD, to what is reasonably practicable for both Operators and to the following options in order of priority:

- (a) the Operators may agree a Cumulative Steering Difference Correction for Gas Day D that is equal to the absolute value of CSD D-1;
- (b) the Operators may agree a Cumulative Steering Difference Correction for Gas Day D that is equal to or greater than the value by which the absolute value of CSD D-1 exceeds the Steering Tolerance, provided that such Cumulative Steering Difference Correction shall not exceed the absolute value of CSD D-1;
- (c) the Operators may agree to maintain the CSD outside the Steering Tolerance for Gas Day D and for any subsequent Gas Day; or
- (d) the Operators may agree to implement Proportional Allocation in accordance with paragraph 6.2 for Gas Day D and for any subsequent Gas Day for which the CSD exceeds (or is expected to exceed) the Steering Tolerance.

4.3 Where the CSD is positive, a quantity of gas is owed to IUK by National Grid Gas, and where the CSD is negative, a quantity of gas is owed to National Grid Gas by IUK.

4.4 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 Operators otherwise agree.

4.5 A Cumulative Steering Difference Correction shall be reflected in the Offtake Profile Notice or Delivery Flow Notice issued by IUK at the time.

5. AGREED TARGET QUANTITY

5.1 The Agreed Target Quantity shall be the sum of the Aggregate Net Confirmed Quantity and the Cumulative Steering Difference Correction for that Gas Day.

5.2 The Agreed Target Quantity calculated following each Nomination Cycle or Renomination Cycle shall be reflected in the Offtake Profile Notice or Delivery Flow Notice issued by IUK at the time.

6. ALLOCATION PRINCIPLES

6.1 The Transportation Arrangements provide for the quantities of gas delivered and offtaken at the Interconnection Point to be allocated among each Operator's Shippers in respect of Gas Day D, based on the Confirmed Nomination Quantities, as follows:

(i) except where paragraph 6.1(ii) applies, the quantity allocated for Gas Day D to each Shipper active at the Interconnection Point on Gas Day D in each direction is equal to the sum of the Confirmed Nomination Quantities for that Shipper in that direction; and

(ii) where the Operators have agreed to implement Proportional Allocation in accordance with paragraph 6.2 (and have complied with the notice requirements under paragraph 7):

(1) in the case of IUK:

(A) the quantity to be allocated for Gas Day D by IUK to each IUK Shipper active at the Interconnection Point in each direction shall be determined by IUK in accordance with the allocation rules in IUK's Access Rules (and on National Grid Gas's request, IUK will inform National Grid Gas of such allocation rules);

(B) IUK shall provide to National Grid Gas a statement ("**PA Statement**") no later than Gas Day D+1 for Gas Day D setting out, subject to paragraph 6.1(ii)(1)(C), the quantity allocated by IUK to each IUK Shipper active at the Interconnection Point in each direction; and

(C) IUK shall ensure that the sum of: (i) the quantity allocated by IUK to each IUK Shipper active at the Interconnection Point for Gas Day D;

and (ii) the Cumulative Steering Difference Correction for Gas Day D (if any) shall equal the Daily Metered Quantity; and

(2) in the case of National Grid Gas:

- (A) National Grid Gas shall use the PA Statement to allocate for Gas Day D quantities to National Grid Gas Shippers active at the Interconnection Point on Gas Day D; and
- (B) if IUK does not provide to National Grid Gas the PA Statement for Gas Day D as required under paragraph 6.1(ii)(1)(B) by Gas Day D+5, the quantity to be allocated for Gas Day D by National Grid Gas to each National Grid Gas Shipper active at the Interconnection Point on Gas Day D in each direction shall be determined in accordance with the alternative allocation rules in National Grid Gas's Transportation Arrangements.

6.2 The Operators may agree to implement Proportional Allocation for Gas Day D in accordance with paragraph 4.2 if on Gas Day D:

6.2.1 in the case of National Grid Gas, an emergency has occurred in accordance with its Transportation Arrangements; and/or

6.2.2 an Exceptional Event has occurred in relation to either the IUK System or National Grid Gas System,

which affected the ability of National Grid Gas or IUK (the "**Affected Operator**"), as appropriate, to deliver gas to or accept gas for delivery from the Interconnection Point on Gas Day D and which, in the reasonable opinion of the Affected Operator, occurred too late in Gas Day D to be resolved using the constraint management tools available to that Operator before the end of Gas Day D; and

6.2.3 the Operators have notified their respective Shippers active at the Interconnection Point on Gas Day D by 12:00 on Gas Day D+1 that Proportional Allocation will apply.

6.3 In the event of Proportional Allocation for Gas Day D, the Steering Difference for Gas Day D shall be deemed to be zero.

7. PROPORTIONAL ALLOCATION REQUEST NOTICE ("PARN")

- 7.1 A PARN shall be used by an Affected Operator in order to request that the other Operator should allocate on a proportional basis as described in paragraph 6.1(ii) for the Gas Day indicated on the PARN.
- 7.2 The PARN shall be valid and timely if the Affected Operator requesting Proportional Allocation has sent the notice to the other Operator at the latest by 10:00 hours on Gas Day D+1 and if the criteria set out in paragraph 6.2 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 Annex C (Measurement Provisions).
- 8.2 In the event that a revision is made to the Daily Metered Quantity for Gas Day D:
- (i) on any Gas Day up to and including Gas Day D+5, the amount by which the Daily Metered Quantity for Gas Day D is revised shall be taken into account in calculating the Cumulative Steering Difference for Gas Day D+1 (and for subsequent Gas Days as appropriate); or
 - (ii) on any Gas Day after Gas Day D+5, in respect of a physical flow out of the National Grid Gas System at the Interconnection Point, the amount by which the Daily Metered Quantity for Gas Day D is revised shall be subject to Individual CSEP Reconciliation in accordance with Section E of the Transportation Principle Document to the Uniform Network Code; or
 - (iii) on any Gas Day after Gas Day D+5, in respect of gas flow into the National Grid Gas System at the Interconnection Point: no adjustment shall be taken into account in calculating the Cumulative Steering Difference for Gas Day D+1 (and for subsequent Gas Days, as appropriate); and there shall be no Individual CSEP Reconciliation in accordance with Section E of the Transportation Principle Document to the Uniform Network Code.

9. ERROR CORRECTION

- 9.1 Subject to paragraph 9.3, if a Shipper notifies an Operator or an Operator otherwise becomes aware that there has (or may have) been an error in the implementation of the nomination and matching provisions of its Transportation Arrangements or Annex E (Nominations and Matching) or this Annex F (Operational Balancing Account) and that error

has (or may have) resulted in an error in the determination of: (1) the Processed IUK Nomination Quantity or the Processed NTS Nomination Quantity or (2) the Confirmed Nomination Quantity in respect of a Nomination or (as the case may be) 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 potential error and the Shipper and Nomination affected by it;
- (b) Operator B shall notify the Counterparty of the potential error;
- (c) Operator A shall investigate the potential error (where appropriate, in consultation with Operator B, the Shipper and/or the Counterparty);
- (d) if it is confirmed that there was an error, the Operators shall determine, and notify to the Shipper and Counterparty, of the redeterminations that would be needed to correct the error; and
- (e) if both the Shipper and the Counterparty 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.

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

9.3 No correction of an error in relation to Gas Day D shall be made under this paragraph 9 later than Gas Day D+5.

ANNEX G – LOCAL OPERATING PROCEDURES**Local Operating Procedures****Between;****Interconnector (UK) Limited; and****National Grid Gas plc.**

These Local Operating Procedures are dated 25th September 2015, and set out the routine local procedures agreed by and between:

National Grid Gas plc (hereinafter called “**National Grid Gas**”) on the one part;

and

Interconnector (UK) Limited (hereinafter called “**IUK**”) on the other part;

in connection with the operation of their respective systems facilities.

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1. INTRODUCTION

This document sets out the Local Operating Procedures between IUK and National Grid Gas. It provides for the exchange of information between IUK and National Grid Gas so that quantities of Natural Gas are delivered and offtaken at the Interconnection Point in accordance with the rights and obligations of the Operators as described in their relevant agreements with National Grid Gas Shippers and IUK Shippers respectively.

2. DEFINITIONS

In these Local Operating Procedures the following terms shall have the following meanings:

- 2.1 **“Computer Interface”** shall mean the connection between the National Grid Gas iGMS computer system or such other computer system as notified in writing by National Grid Gas to IUK and the IUK ISIS computer system or such other computer system as notified in writing by IUK to National Grid Gas. This interface is used for the electronic transfer of information.
- 2.2 **“Change Lead Time”** shall mean the time between the end of the hour bar in which the OPN was submitted and the time when the change to the Expected Hourly Energy Quantity is expected to be effective from.
- 2.3 **“CSEP”** shall mean the Interconnection Point as the Connected System Exit Point.
- 2.4 **“Curtailement”** shall be taken to mean notices pursuant to Annex B-4 Section 5.6 (i) and (iii).
- 2.5 **“Gas Day D”** shall mean the period of hours beginning at 05:00 hours on a calendar day and ending at 05:00 hours on the following calendar day, such day being specified on the OPN or DFN.
- 2.6 **“Gas Day D-1”** shall mean the day before Gas Day D.
- 2.7 **“Gas Day D+1”** shall mean the day after Gas Day D.
- 2.8 **“Daily Flow Notification”** (DFN) shall be the notification provided by IUK to National Grid Gas showing the daily notifications as described in Section 9.1 and substantially in the form of Schedule G.
- 2.9 **“Energy Quantity”** shall have the following meaning:
- (e) **“Delivered Energy Quantity”** shall mean the total quantity of Natural Gas, in kWh, delivered by IUK Shippers at the Interconnection Point in the Gas Day.

- (f) **“Offtaken Energy Quantity”** shall mean the total quantity of Natural Gas, in kWh, offtaken by IUK Shippers at the Interconnection Point in the Gas Day.
 - (g) **“Expected Daily Energy Quantity”** in respect to any Gas Day shall mean the target daily energy quantity for one Gas Day, expressed in kWh, that IUK expects in its reasonable opinion will be delivered or offtaken at the Interconnection Point.
 - (h) **“Expected Hourly Energy Quantity”** in respect of any hour shall mean the target hourly energy for one hour, expressed in kWh, that IUK expects in its reasonable opinion will be delivered or offtaken at the Interconnection Point.
 - (i) **“Measured Hourly Energy Quantity”** at any time shall mean the total energy quantity, kWh, in the form of Natural Gas being delivered or offtaken in any hour at any time.
- 2.10 **“Enhanced Pressure”** is a gas pressure for the Interconnection Point, requested by IUK, which is more than 55 barg but not greater than 70 barg.
- 2.11 **“Forward Flow”** shall mean the operating mode of the interconnector, when the net physical flow of Natural Gas is from the United Kingdom.
- 2.12 **“Giga Watt hour” (“GWh”)** shall mean one million kWh.
- 2.13 **“Gross Calorific Value” (“GCV”)** shall mean that quantity of heat expressed in Megajoules produced by the complete combustion of one (1) normal cubic metre of Natural Gas at ~~fifteen (15)~~twenty five (25) degrees Celsius and an absolute pressure of one decimal zero one three two five (1.01325) bar with excess air at the same temperature and pressure as the Natural gas when the products of combustion are cooled to ~~fifteen (15)~~twenty five (25) degrees Celsius and when the water formed by combustion is condensed to the liquid state and the products of combustion contain the same total mass of water vapour as the Natural Gas and air before combustion.
- 2.14 **“GS(M)R”** shall mean the Gas Safety and Management Regulations 1996.
- 2.15 **“Interconnection Point”** shall mean the points (each being an individual System Exit Point, Individual System Entry Point or both) at which the National Grid Gas System and the IUK System are connected at Bacton as described in Annex C Appendix 1 of the Interconnection Agreement.

- 2.16 **"IUK Representative"** shall be the person notified by IUK from time to time to National Gas Grid as its representative for the provision and receipt of information in accordance with these Local Operating Procedures.
- (a) **"IUK Representative (London)"** (IUK (London)) shall mean the IUK Representative located at the IUK Head Offices in London.
- (b) **"IUK Representative (Bacton)"** (IUK (Bacton)) shall mean the IUK Representative located at the IUK Bacton Terminal.
- 2.17 **"IUK Shipper"** shall mean any person (whether or not being a National Grid Gas Shipper) who has for the time being arranged for the transportation of Natural Gas in the IUK System.
- 2.18 **"IUK System"** shall mean the pipeline system owned (or leased) and operated by IUK or an affiliated company of IUK and utilised for the transportation of Natural Gas between Bacton and Zeebrugge including the IUK Bacton Terminal.
- 2.19 **"Interconnection Agreement"** shall mean the contract entered into between National Grid Gas plc on the one part and Interconnector (UK) Limited on the other part of which these Local Operating Procedures form part.
- 2.20 **"IUK Bacton Terminal" ("IBT")** shall mean the plant connected to the IUK pipeline and located in the Bacton area which is used for the delivery and redelivery of Natural Gas at the Interconnection Point.
- 2.21 **"Joule" (J)** shall be identical with the definition of the derived "SI unit of quantity of heat J" as defined in ISO 1000 SI units and recommendations for the use of their multiples and of certain other units.
- 2.22 **"kilo Watt hour" ("kWh")** shall mean 3,600,000 Joules.
- 2.23 **"Local Operating Procedures" ("LOPs")** shall mean these procedures including all appendices and attachments attached hereto as may from time to time be supplemented, amended or otherwise modified according to the provisions herein.
- 2.24 **"Megajoule" ("MJ")** shall mean one million (10⁶) joules.
- 2.25 **"MJ/NM³"** shall mean Megajoules per normal cubic metre. The conversion from MJ/NM³ to MJ/SM³ is defined in ISO 6976: 1995 and is $MJ/NM^3 = MJ/SM^3$ multiplied by 1.0553.
- 2.26 **"MJ/SM³"** shall mean Megajoules per standard cubic metre. The conversion from MJ/SM³ to MJ/NM³ is defined in ISO 6976: 1995 and is $MJ/SM^3 = MJ/NM^3$ divided by 1.0553.

- 2.27 **“National Grid Gas Shippers”** shall mean the companies licensed under Section 7A of the Gas Act from time to time delivering or receiving gas from the National Grid Gas System to the IUK System.
- 2.28 **“National Grid Gas Representative”** shall mean the person or post notified by National Grid Gas from time to time to IUK as its representative for the provision and receipt of information in accordance with these Local Operating Procedures.
- (a) **“National Grid Gas Representative (GNCC)”** (National Grid Gas (GNCC)) shall mean the National Grid Gas Representative located at the Gas National Control Centre, National Grid Gas Head Office, Warwick.
- (b) **“National Grid Gas Representative (Bacton)”** (National Grid Gas (Bacton)) shall mean the National Grid Gas Representative located at the National Grid Gas Terminal, Bacton.
- 2.29 **“Natural Gas”** shall mean hydrocarbons or mixture of hydrocarbons and other gases consisting primarily of methane which at a temperature of fifteen (15) degrees Celsius and at absolute pressure of one decimal zero one three two five (1.01325) bar are predominantly in the gaseous state.
- 2.30 **“Normal Pressure”** is a pressure for the Bacton Interconnection Point, requested by IUK, which is above 45 barg but not exceeding 55 barg.
- 2.31 **“Normal Cubic Metre – m³n”** (**“NM³”**) shall mean the quantity of natural gas which at zero (0) degrees Celsius and at an absolute pressure of one decimal zero one three two five (1.01325) bar and when free of water vapour occupies the volume of one (1) cubic metre. The Conversion from NM³ to SM³ is defined in ISO 6976: 1995 and $NM^3 = SM^3$ divided by 1.0553
- 2.32 **“Offtake Profile Notice”** (**“OPN”**) shall be the notification sent by IUK to National Grid Gas showing the daily notifications as described in section 8.1 and substantially in the form of Schedule C.
- 2.33 **“Offtake Flow Advice”** (**“OFA”**) shall be the advice given by National Grid Gas to IUK whenever the Expected Hourly Energy Quantity notified by IUK to National Grid Gas on the OPN will not in National Grid Gas’s reasonable opinion be able to be accommodated by the National Grid Gas System as further described in clause 9.
- 2.34 **“Off-Specification Gas”** shall mean Natural Gas that does not meet the operating conditions and quality requirements as described in Annex B2 of the Interconnection Agreement for

physical Forward Flow and Annex A2 of the Interconnection Agreement for physical Reverse Flow.

2.35 “**Reverse Flow**” shall mean the operating mode of the interconnector, when the net physical flow of Natural Gas is to the United Kingdom.

2.36 “**Transportation Flow Advice**” (“**TFA**”) shall be the advice given by National Grid Gas to IUK:

(a) In accordance with Section 11.1 whenever the Expected Hourly Energy Quantities notified by IUK on the **DFN** will not in National Grid Gas’s reasonable opinion be able to be accommodated by the National Grid Gas System, or

(b) In accordance with Section 11.2 whenever Off-Specification Gas is delivered to the National Grid Gas System.

2.37 “**Tolerances**” shall mean:

(a) For changes to the Expected Hourly Energy Quantity a tolerance of plus or minus one million kWh or one GWh;

(b) For changes to the Expected Daily Energy Quantity a tolerance of plus or minus five million kWh or five GWh.

2.38 Words and expressions defined in clause 1.1 of the Interconnection Agreement and not defined in these Local Operating Procedures shall have the meanings ascribed to them in clause 1.1 of the Interconnection Agreement.

3. GENERAL PROVISIONS

3.1 Any reference to time in these Local Operating Procedures shall be construed as whatever time shall be in force at the IUK Bacton Terminal. This is referred to as UK Time (UKT).

3.2 For the avoidance of doubt, obligations and arrangements set out in any other part of the Interconnection Agreement shall always take precedence over any obligations and arrangements set out in this Annex.

3.3 If any Operator so requests, the Operators shall meet to evaluate in good faith the need for amending these Local Operating Procedures. Any modification and/or addition shall only be made in accordance with clause **Error! Reference source not found.** of the Interconnection Agreement.

3.4 These Local Operating Procedures shall become effective on the Amendment Effective Date and shall, subject to paragraph 3.2 above, remain in force as long as natural gas is delivered to or offtaken at the IUK Bacton Terminal.

3.5 Both Operators will co-operate with any operational protocols currently in force and agreed between the two Operators without recourse to amendment to these Local Operating Procedures.

4. GENERAL COMMUNICATIONS

Subject to the Operators' duty of confidentiality to any third party, the IUK Representative and the National Grid Gas Representative will keep each other informed of all matters which have a significant effect on Natural Gas flow, pressure or quality at the Interconnection Point.

Upon an unforeseen change in the Natural Gas flow, pressure or quality, the IUK Representative or the National Grid Gas Representative will inform each other of the nature and estimated extent of the change.

5. ROUTINE NOTIFICATIONS

5.1 Notices

(a) Notices given by IUK to National Grid Gas in accordance with these Local Operating Procedures will be made to the National Grid Gas Representative using ISIS, or such other computer system as notified in writing by IUK to National Grid Gas. Notices may also be sent by facsimile if mutually agreed in advance, or in the event of a malfunction of the Computer Interface or computer file transfer.

(b) Notices given by National Grid Gas to IUK in accordance with these Local Operating Procedures will be made to the IUK Representative using iGMS file transfer, or such other computer system as notified in writing by National Grid Gas to IUK. Notices may also be sent by facsimile if mutually agreed in advance, or in the event of a malfunction of the Computer Interface or computer file transfer. For the avoidance of doubt the iGMS (or other notified computer system) file transfer notification will be regarded as the master unless mutually agreed in advance.

(c) The telephone numbers, facsimile numbers and addresses of the Operators for the exchange of information as set out in these Local Operating Procedures are set out in Schedule A. In the event of either telephone, facsimile number or other details

being changed, the Operator whose number or details is subject to such change shall notify the other Operator as soon as is reasonably practicable.

6. ROUTINE NOTIFICATIONS DURING EITHER FLOW DIRECTION

6.1 IUK Daily Delivery Report

- (a) IUK will notify National Grid Gas of the end of day delivered quantities as set out in Schedule B. IUK will provide the notice not later than 08:00 hours on each Gas Day D+1. The notice will specify the total quantity and the average GCV in MJ/NM³ of the Natural Gas offtaken at the Interconnection Point by the IUK Shippers (deemed during Reverse Flow) and the total quantity of Natural Gas delivered at the Interconnection Point by IUK Shippers (deemed during Forward Flow) during the Gas Day D.
- (b) IUK shall issue a revised IUK Daily Delivery Report if the GCV or any quantity delivered or offtaken has changed from the previous notification. A revision to an IUK Daily Delivery Report should be considered exceptional (e.g. for correction of transmission errors) and shall only be issued before Gas Day D+5.
- (c) IUK will notify National Grid Gas of the Steering Difference and Cumulative Steering Difference in accordance with paragraph 3 of Annex F (Operational Balancing Account).

7. NON ROUTINE NOTIFICATIONS DURING EITHER FLOW DIRECTION

7.1 Emergency Curtailment

- (a) In the event that National Grid Gas has declared a 'National Gas Supply Emergency', as defined in GS(M)R, National Grid Gas may require that National Grid Gas System firm exit flows are curtailed at stage 2.
- (b) At stage 2, National Grid Gas may invoke "firm load shedding" in which case National Grid Gas will issue a fax to all National Grid Gas Shippers instructing them to reduce all nominations on firm Exit meters at the Interconnection Point to zero with immediate effect. The faxes will be copied to IUK in the form set out in Schedule I. National Grid Gas Shippers will then be expected to reduce their firm exit nominations to zero as soon as possible respecting nomination lead times and to submit revised nominations to National Grid Gas who will then reduce the Forward Flow National Grid Gas Shipper's matching data to zero on ISIS (or such other computer system notified by IUK to National Grid Gas). IUK will submit a revised DFN

or OPN reflecting the flow changes based on the lesser of the IUK Shipper and National Grid Gas Shipper's matching data.

- (c) When able to restore flows, National Grid Gas will issue a restoration fax to all National Grid Gas Shippers. The faxes will be copied to IUK in the form set out in Schedule I. National Grid Gas Shippers can then submit to National Grid Gas revised exit flow nominations from the National Grid Gas System for the Interconnection Point.

8. ROUTINE NOTIFICATIONS DURING PHYSICAL FORWARD FLOW

8.1 IUK Offtake Profile Notice (OPN), referred to in the Interconnection Agreement Annex B2 as an Exit Flow Profile

- (a) IUK will notify National Grid Gas of the Expected Hourly Energy Quantities and the Expected Daily Energy Quantity of Natural Gas to be offtaken by IUK at the Interconnection Point for each hour of Gas Day D as set out in Schedule C. IUK will provide the notice at the earliest practicable opportunity but not later than 16:00 hours on Gas Day D-1. The notice will include an assumed GCV in MJ/NM3. IUK will also notify the National Grid Gas Representative by facsimile if the ramp rate is expected to be other than 150 MW/min.
- (b) IUK may submit revised OPNs until 03:00 on Gas Day D-1. No more than two revised OPNs may be submitted in any one hour.

At any time after 03:00 hours on Gas Day D-1 IUK may submit, not less than 30 minutes before the earliest Change Lead Time starts, revised OPNs in accordance with the following Change Lead Times:

- (i) Increase or decrease not exceeding 475 MW - one whole hour.
- (ii) Increase or decrease greater than 475 MW but not exceeding 1425 MW - two whole hours.
- (iii) Increase or decrease greater than 1425 MW but not exceeding 1900 MW - three whole hours.
- (iv) Increase or decrease greater than 1900 MW but not exceeding 2850 MW - four whole hours.
- (v) Increase or decrease greater than 2850 MW but not exceeding 3325 MW - five whole hours.

- (vi) Increase or decrease greater than 3325 MW but not exceeding 7125 MW - six whole hours.
- (vii) Increase or decrease greater than 7125MW – eight whole hours.
- (c) In the event that National Grid Gas receives an OPN which does not comply with Annex B-4 Section 2.11 of the Interconnection Agreement and hence is 'invalid', it will as soon as is reasonably practicable but within 15 minutes advise IUK of such invalidity, and where appropriate will advise of the reasons for such invalidity. On receipt of a National Grid Gas rejection notice, IUK will as soon as is reasonably practicable, resubmit an OPN.
- (d) In the event that National Grid Gas receives a notice under Section 8.1 and determines that it is not feasible to make gas available for offtake in accordance with such a profile, National Grid Gas will issue an OFA in accordance with Section 9.1.
- (e) In the event that IUK does not issue an OPN by 17:00 hours on Gas Day D-1 National Grid Gas will assume that the OPN is zero.
- (f) IUK will consider an OPN as accepted by National Grid Gas if National Grid Gas does not respond to an OPN or a Revised OPN in accordance with Section 8.1(c) within 15 minutes of receipt or in accordance with Section 9.1.

8.2 IUK Pressure Requirement Notice

- (a) IUK shall notify National Grid Gas at the earliest practicable opportunity but no later than 16:00 hours on Gas Day D-1 of the IUK pressure requirements at the Interconnection Point for Gas Day D. The notice will be the completed IUK pressure requirement notice as set out in Schedule D.
- (b) The IUK Pressure Requirement Notice may be revised at any time up to 20:00 hours on Gas Day D-1. If IUK submits a Pressure Requirement Notice for Gas Day D after 16:00 on Gas Day D-1 or change the pressure requirements for Gas Day D after 16:00 Gas Day D-1 then IUK will indicate on the Pressure Requirement Notice that this is a late pressure request.
- (c) Upon receipt of an IUK Pressure Requirement Notice up to 16:00 hours on Gas Day D-1, National Grid Gas shall take the necessary actions in order to meet the pressure requirements of IUK.

Upon receipt of a late IUK Pressure Requirement Notice requesting an increase in pressure, National Grid Gas shall use reasonable endeavours in order to meet the pressure requirements of IUK.

- (d) If National Grid Gas cannot meet the pressure requirements as requested by IUK then National Grid Gas will as soon as is reasonably practicable, but no later than 24:00 hours on Gas Day D-1 (or within four hours of the receiving a late request) return the IUK Pressure Requirement Notice. National Grid Gas will give reasons and supply an estimate of the pressure to be supplied for all or part of Gas Day D.

If, in National Grid Gas's reasonable opinion, the expected or actual pressure at the Interconnection Point may differ from that returned on the latest Pressure Requirement Notice, National Grid Gas will notify IUK with reasons of the revised pressure on an updated Pressure Requirement Notice.

- (e) If in respect of any day, National Grid Gas does not receive a Pressure Requirement Notice from IUK then National Grid Gas will aim to provide between 45 barg and 55 barg at the Interconnection Point.

9. NON - ROUTINE NOTIFICATIONS DURING PHYSICAL FORWARD FLOW

9.1 Offtake Flow Advice (OFA)

- (a) If it is not feasible for National Grid Gas to make gas available for offtake in accordance with the most recently submitted OPN for one/any of the reasons outlined in Annex B-4 5.6 of the Interconnection Agreement, National Grid Gas will issue an OFA to IUK. The OFA represents the 'Curtailed Notice' as described in the Interconnection Agreement Annex B4.
- (b) National Grid Gas must issue an OFA in accordance with the timescales detailed in Annex B-4 5.9 of the Interconnection Agreement. The OFA must indicate the reasons for which it is being given and the maximum Hourly Energy Quantities that it anticipates the National Grid Gas System may be able to accommodate and the minimum Change Lead Time required. The OFA will specify whether or not the relevant circumstances constitute an Exceptional Event affecting the National Grid Gas System.
- (c) National Grid Gas will telephone IUK and confirm by facsimile when the Curtailed Notice set out in an OFA no longer applies.

- (d) Upon receipt of an OFA, IUK shall take the necessary actions in order to meet the OFA profile. IUK will, as soon as is reasonably practicable, notify National Grid Gas of a revised OPN in accordance with Section 8.1.
- (e) In the event that IUK does not respond to an OFA within a reasonable timeframe, National Grid Gas may take action to physically limit the offtake to the OFA profile. National Grid Gas shall telephone IUK to co-ordinate actions.

9.2 National Grid Gas Off Specification Gas Notice

- (a) National Grid Gas shall, as soon as it is aware that Natural Gas not meeting the requirements provided under Annex B2 of the Interconnection Agreement, is being or is going to be made available during Gas Day D, issue a National Grid Gas Off Specification Gas Notice as set out in Schedule E. The notice will indicate to what extent and for how long these requirements cannot be met.
- (b) The National Grid Gas Off Specification Gas Notice shall be revised at any time prior to or during Gas Day D, if the Natural Gas characteristics and/or duration are expected to change from the previous notification. This will include a return to normal operations.
- (c) After IUK has received such a notice from National Grid Gas, IUK shall issue an OPN to National Grid Gas in accordance with Section 8.1 if the Expected Hourly Energy Quantity and/or Expected Daily Energy Quantity is to be revised.
- (d) If IUK receives a notice or IUK equipment detects that the quality of any component or property is outside the limits of Annex B2 of the Interconnection Agreement, IUK will instruct its IUK Representative (Bacton) to immediately cease offtake.
- (e) If Natural Gas outside the limits of Annex B2 of the Interconnection Agreement has entered the IBT plant IUK will instruct its IUK representative (Bacton) to arrange for the IUK Bacton Terminal plant to be flushed back to the National Grid Gas System until the non-compliant gas has been replaced.
- (f) In the event that Natural Gas outside the limits of Annex B2 of the Interconnection Agreement has entered the Interconnector pipeline IUK will arrange for IUK Shippers to revise their nominations such that Reverse Flow mode is adopted and the non-compliant gas returned to the National Grid Gas System. In such event IUK will liaise with National Grid Gas by telephone and facsimile.

10. ROUTINE NOTIFICATIONS DURING PHYSICAL REVERSE FLOW

10.1 IUK Delivery Flow Notice (DFN)

- (a) IUK shall notify National Grid Gas at the earliest opportunity, but no later than 20:00 on Gas Day D-1 of the Expected Hourly Energy Quantities, the Expected Daily Energy Quantity and an estimate of the GCV of the Natural Gas that is expected to be delivered on Gas Day D. The notice will be as set out in Schedule G.
- (b) Before Gas Day D commences and/or during Gas Day D, IUK will, as soon as is reasonably practicable following the time at which it is made aware of any changes requiring an update to the DFN, notify the National Grid Gas Representative of any such changes as exceed the relevant Tolerances. IUK will submit a revised DFN indicating when the change is likely to take effect.
- (c) In the event that National Grid Gas receives a DFN specifying an Expected Hourly Energy Quantity which National Grid Gas reasonably anticipates the National Grid Gas System will not be able to accommodate, it will as soon as is reasonably practicable so advise IUK in accordance with Section 9.1.
- (d) In the event that IUK does not issue a DFN by 20:00 Gas Day D-1, National Grid Gas will assume that the DFN is zero.

11. NON ROUTINE NOTIFICATIONS DURING PHYSICAL REVERSE FLOW

11.1 Transportation Flow Advice (TFA)

- (a) If in National Grid Gas's reasonable opinion, the National Grid Gas System will be unable to accommodate any Expected Hourly Energy Quantity as notified on the DFN, National Grid Gas will as soon as is reasonably practicable advise IUK by means of a telephone call and confirm by issue of a TFA. In so doing National Grid Gas will advise IUK as to the hourly Energy Quantities that it anticipates the National Grid Gas System may be able to accommodate in order to achieve the daily Energy Quantity set out on the DFN. National Grid Gas will give a reason for its advice including but not limited to non-acceptance of gas outside the requirements of Annex A2 of the Interconnection Agreement. The telephone advice and TFA will specify whether or not the relevant circumstances constitute an Exceptional Event affecting the National Grid Gas System. In the case where they do constitute an Exceptional Event, National Grid Gas will issue a further advice to the other Operator when the Exceptional Event has ceased.

- (b) Upon receipt of a TFA, IUK shall take the necessary actions in order to meet the TFA profile. If appropriate, IUK will, as soon as is reasonably practicable, notify National Grid Gas of a revised DFN in accordance with Section 10.1.
- (c) In the event that IUK does not respond to the TFA within one hour before the change of Expected Daily Energy Quantity on the latest DFN would take effect, National Grid Gas will telephone IUK to co-ordinate actions.

11.2 IUK Off Specification Gas Notice

- (a) IUK shall, as soon as it is aware that Natural Gas not meeting the requirements provided under Annex A2 of the Interconnection Agreement, is being or is going to be made available during Gas Day D, issue an IUK Off Specification Gas Notice as set out in Schedule F. The notice will indicate to what extent and for how long these requirements cannot be met.
- (b) The IUK Off Specification Gas Notice shall be revised at any time prior to or during Gas Day D, if the Natural Gas characteristics and/or duration are expected to change from the previous notification. This will include a return to normal operations.
- (c) After National Grid Gas has received such notice from IUK, National Grid Gas may issue a TFA to IUK in accordance with Section 11.1.

12. PLANNED MAINTENANCE

Representatives of National Grid Gas and IUK will meet in September to discuss any maintenance plans for the following April to September and in January to discuss any maintenance plans for the following October to April and confirm plans for the April to September period.

Within these meetings each Operator will discuss their respective planned maintenance programmes, emergency shut down tests, pipeline operations and procedures associated with these activities. Within day profiles for maintenance purposes will be discussed at these meetings and IUK will make reasonable endeavours, subject to the agreement of IUK Shippers, to confirm such within day profiles, by fax to the National Grid Gas Representative seven days before they are intended to take effect. The maintenance related flow profiles would subsequently be detailed on the DFN or OPN in accordance with Sections 10.1 and 8.1 respectively.

Prior to any period of planned shutdown and upon planned re-start following a period of shutdown any OPN submitted to National Grid Gas will be subject to validation for compliance with Annex C (Measurement Provisions) of the Interconnection Agreement.

13. INFORMATION QUALITY

If it becomes apparent over a period of time that the estimates of the changes do not reasonably reflect the actual changes, then the representatives will meet to discuss the relevant data with a view to improving the accuracy of such estimates in the future. If reasonably requested by National Grid Gas, IUK will use reasonable endeavours to co-operate in the provision of additional information to National Grid Gas regarding DFN and/or OPN changes to assist in any analysis of the balancing of the National Grid Gas System.

Similarly, if it becomes apparent over a period of time that the reasons provided by National Grid Gas on a TFA or OFA do not provide IUK with sufficient detail in order to submit a revised OPN, then representatives will meet to discuss the relevant information with a view to providing reasons that do provide IUK with sufficient detail.

14. MAXIMUM AND MINIMUM FLOW RATES

14.1 Maximum Instantaneous Flow Rate

The Maximum Instantaneous Forward Flow Rate is 28,000 (Twenty Eight Thousand) Megawatts, equivalent to 672 GWh/day. National Grid Gas will use reasonable endeavours to make available offtake quantities above this level when so requested by IUK.

14.2 Minimum Hourly Forward Flow Rate

Whenever IUK has a Daily Energy Quantity that is less than 5200 MW (124.8 GWh) IUK will submit an OPN, in accordance with Section 8.1, indicating discontinuous flow. The OPN will indicate the minimum sustainable hourly Energy Quantities giving a duration, in hours, to achieve IUK Shipper requirements. Each hourly Energy Quantity shall not exceed 217 MW (5.2 GWh). IUK will not request a normal pressure service greater than 45 barg when requesting discontinuous flow.

National Grid Gas will use reasonable endeavours to accommodate the discontinuous flow. IUK and National Grid Gas will liaise by telephone to co-ordinate the preferred start and finish times within Gas Day D to achieve the Daily Energy Quantity and will advise their respective operators accordingly.

If National Grid Gas are unable to comply with the requested discontinuous flow profile submitted by IUK then National Grid Gas will advise by telephone and confirm by facsimile to IUK, indicating the reasons for the rejection of the requested discontinuous flow.