Wales & West Utilities

Distributed Gas Connections Guide

Contents

Foreword

WWU's Distributed Gas Connections Guide has been developed for our stakeholders. The purpose of this guide is to clarify the WWU approach to be taken in the provision of information, quotations and technical matters relevant to the connection of distributed gas to the WWU network. Users of this document should ensure they are using the current version of the document held on WWU's web site.

Introduction

The Distributed Gas Connections Guide details how WWU provides information on the connection of new Distributed Gas entry facilities to its network. This document is reviewed on an annual basis. Distributed Gas connections cover all connections that inject gas into WWU's distribution system and could include the following:

- Biomethane from Anaerobic Digesters
- Shale Gas
- Coal Bed methane
- LNG

The Distributed Gas Connections Guide details:-

1. The Statutory and Regulatory framework (including health and safety considerations) that apply to Distributed Gas connections;

2. The likely cost elements, charges and timescales involved in the application process operated by WWU in respect of such connections;

3. Details of the arrangements and opportunities available for competitive activity in the provision of such connections;

4. Engineering and other technical matters relevant to the commissioning, injection and maintenance of such connections; and

5. Commercial arrangements relevant to such connections.

WWU owns and operates the principal GB gas distribution networks in Wales and the south west of England. Further information regarding us and our activities is available on our web site, www.wwutilities.co.uk. This contains an electronic version of this document.

Part 1 – Statutory and Regulatory Framework

All Gas Distribution Networks (GDNs), including WWU, are governed by their statutory and regulatory obligations under primary and secondary legislation, together with licence conditions. Obligations under the Uniform Network Code (UNC) provide a consistent approach for all GDNs and users of the network. WWU also has to comply with Health and Safety legislation which ensures the safety of its employees and the general public.

Distributed Gas connections must comply with key pieces of legislation in order to ensure the Operator, GDN and downstream customers are not adversely affected by the entry of this gas into the network. The following information provides a summary of the key pieces of legislation and statutory obligations that would are applicable to Distributed Gas connections:

Gas Act 1986 as amended[1]
Section 9 of the Gas Act imposes a duty on a gas transporter to "develop an economic and efficient system pipeline system for the conveyance of gas";

Section 12 states that Ofgem may direct the Calorific Value of gas to be measured at each entry point. Ofgem issues the transporter with a letter of direction for each entry point that states the accuracy to which the measurements must be made. Each piece of equipment used has to be approved and a letter of approval issued by Ofgem. WWU is working on the assumption that Ofgem will issue a letter of direction for all Distributed Gas entry points regardless of size.

Gas Act 1995[2]
Section 12 of this Act relates to Gas Processing Facilities.

Competition Act 1998[3]
The Competition Act applies.

Gas Calculation of Thermal Energy Regulations 1996[4]
The Gas Calculation of Thermal Energy Regulations 1996 (Gas (COTE) R) places obligations on the transporter to measure Calorific Value and contains regulations that describe how to calculate the Flow Weighted Average Calorific Value (FWACV).

The amount of energy released when a volume of gas is burned is measured by the Calorific Value (CV) of the gas. Distributed gas is composed almost entirely of methane and can have a lower CV than natural gas which typically contains some higher hydrocarbon gases such as ethane. In order not to disadvantage customers the producers are likely to be required to enrich the gas before injection to raise the CV.

Gas Safety (Management) Regulations 1996[5]
Paragraph 8.—(1) states
"No person shall, subject to paragraphs (2) to (4), convey gas in a network unless the gas conforms to the requirements specified in Part I of Schedule 3".

Part 1 of Schedule 3, defines gas quality parameters and the requirement to odorise the gas prior to entry into the system.

[1] http://www.legislation.gov.uk/ukpga/1986/44/contents
[2] http://www.legislation.gov.uk/ukpga/1995/45/contents
[3] http://www.legislation.gov.uk/ukpga/1998/41/contents
[4] http://www.legislation.gov.uk/secondary?title=gas%20calculation%20of%20thermal%20energy
[5] http://www.legislation.gov.uk/all?title=Gas%20safety%20management%20

This obligation rests with the transporter and therefore the Network Entry Agreement (NEA) will require the producer to ensure that the gas is compliant before it is allowed to enter WWU's network.

Control of Major Accident Hazard Regulations (1999 and amendments)[6]
Producers may need to comply with these regulations for the storage of propane

Pressure System Safety Regulations (2000)[7]
These regulations apply to systems containing gas or certain liquids above a defined pressure are likely to be applicable to parts of the gas processing and clean up apparatus.

GDN Licence
Standard Special Condition D12 of the gas transporter licence requires WWU to offer terms for the provision of gas entry points. Paragraph 3 (shown below) of this condition lists terms that must be covered by the Network Entry Agreement (NEA):

> *3) In making an offer pursuant to paragraph 2 of this condition, the licensee shall set out the terms on which the licensee shall allow gas to be introduced into the pipe-line system to which this licence relates, including:*
>
> *a) the date (not being earlier than 1 October 2007) when the licensee shall allow gas to be introduced into the pipe-line system to which this licence relates by means of the gas entry point in respect of which the application was made (time being of the essence, unless otherwise agreed by the applicant);*
> *b) terms that offer up to the maximum flow rate available from time to time on the pipe-line system to which this licence relates at the time of the offer, unless the applicant requests a lesser flow rate than the maximum available;*
> *c) terms that require the applicant to pay the licensee's reasonable costs incurred and a reasonable element of profit, so far as the same will not be recoverable by the licensee from elsewhere, through making any necessary reinforcement to the pipe-line system to which this licence relates or carrying out any other activities necessary to enable the gas entry point to be made available;*
> *d) terms that allow the licensee and the applicant to refer any dispute arising over the variation of the terms of the gas entry agreement to the Authority to be settled pursuant to paragraph 8 of this condition; and*
> *e) such other detailed terms in respect of each gas entry point as are or may be appropriate for the purposes of the gas entry agreement.*

Paragraph 4 details the requirement to *"offer terms as soon as reasonable practicable and in any event no more that 6 months after application containing all information reasonably required is received."* whilst paragraph 6 states the requirement *"not to discriminate unduly"*.

Standard Condition 4B requires WWU to produce a statement "4B statement"[8] that details the methods and principles by which WWU sets its connection charges. Some connections are deemed Sufficiently Complex Jobs (SCJs) and subject to a more detailed process. Currently all entry connections are SCJs.

Uniform Network Code Transportation Principal Document
This contract details the arrangements for the transportation of gas on WWU's network.

[6] http://www.legislation.gov.uk/uksi/1999/743/contents/made
[7] http://www.legislation.gov.uk/uksi/2000/128/contents/made
[8] http://www.wwutilities.co.uk/charging-statements2.aspx?GroupKeyPos=02,06,02,01

Section I[9] paragraph 1.1.2 of the Transportation Principal Document (TPD) of the Uniform Network Code (UNC) states that only shippers can enter gas into a gas transportation system.

Paragraph 1.3.1 requires the Transporter and the Delivery Facility Operator ("DN Entrant") to enter into an LDZ System Network Entry Agreement (NEA) before gas is input into the system. The parties to the NEA must include both the Transporter and the Delivery Facility Operator, and the NEA must contain certain Network Entry Provisions and (if not incorporated into the Network Entry Provisions) Local Operating Procedures applicable in respect of the System Entry Point.

Section I also covers both the liabilities to be paid in the event of a failure of by the transporter to take gas at the entry point and the subjects that a Network Entry Agreement must and may include.

Other sections of the UNC are also more generally relevant and cover such areas as system balancing and settlements.

Part 2 – Costs, Charges and Timescales

In order for gas to flow through the physical entry connection into the network three processes require to be completed:

1. The provision of the minimum connection at the Network Entry Point. This will be owned by the GDN.
2. The physical connection to the existing gas network. This is a competitive service.
3. The provision of the Network Entry Facility equipment. This is a competitive service.

Following a customer enquiry, the following outlines the services that WWU will provide.

The process to apply for a distributed gas connection is shown in Appendix 1. WWU offers the following services with regard to distributed gas connections:

- Dedicated point of contact with our Third Party Connections department
- Free land enquiry plus estimate of capacity available;
- Fixed price chargeable gas capacity study;
- Connections Agreement, Design and Construct, if requested;
- Network Entry Agreement; and
- Commercial agreement for the maintenance of the Entry Facility, if requested.

When a project is determined to be of Sufficient Complexity WWU will quote for, charge and having received payment, will carry out the design of apparatus prior to estimating the cost of constructing any equipment. Sufficiently Complex Jobs are charged on the basis of anticipated cost plus applicable overheads.

As indicated above, WWU will supply the customer with a design study in respect of Sufficiently Complex entry connections. The design study is neither an acceptance nor offer by WWU to enter Distributed Gas into its system.

The indicative timescales involved in obtaining an entry connection on to WWU's network are provided in the table below for above and below 7bar connections:

[9] http://www.gasgovernance.co.uk/sites/default/files/02_10_TPDI.pdf

Process	Below 7bar*
Initial enquiry	15 working days
Capacity Study	30 working days

*All periods in working days, unless stated otherwise.

Part 3 – Arrangements and Opportunities

WWU supports the competitive provision of gas entry facility equipment. Three models of asset ownership are set out in the Functional Specification[10] developed by the GDNs to support distributed gas connections. WWU support the use of the "Minimum Connection Model" which is reproduced below. Note that the diagram is intended to show asset ownership and not the physical arrangement of equipment nor devices associated with a particular functional block. In particular: the location of compression; and the location of LPG enrichment with respect to the diverter valve may vary depending on the arrangements agreed between the Delivery Facility Operator (DFO) and WWU.

- MODEL 1 – THE "MINIMUM CONNECTION" MODEL
  In this model the GDN owns only the Remotely Operated Valve (ROV) and the telemetry unit. All other assets associated with the entry facility are owned by the DFO. Figure 1 shows the functional blocks and asset ownership for this model.

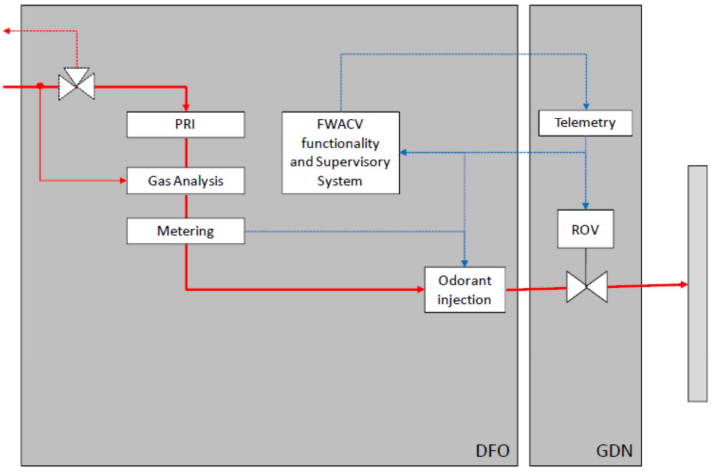

Figure 1.

WWU supports competitive provision of any connecting pipeline. The provision of gas connection services is open to competition. Information of independent connection providers who hold Gas Industry Registration Scheme (GIRS) membership can be found at the following websites:

http://www.lloydsregister.co.uk/girs.html
http://www.sbgi.org.uk/UIP

UIPs will need to have signed WWU's Final Connection Agreement before making connections.

WWU will quote for the connecting pipeline but does not envisage tendering for the construction of the Entry Facility but would be willing to offer services for the maintenance of the Entry Facility.

[10] http://www.gasgovernance.co.uk/sites/default/files/EMIB%20Appendix%203%20%20Functional%20S

Part 4 – Engineering and Technical Matters

Principles

Fundamental Principles

1) The legal obligations upon WWU in respect of gas introduced into its gas systems by a third party, as set out in the GS(M)R and Gas(COTE)R, are such that liabilities cannot delegated to a third party. WWU therefore wishes to retain control of the Remotely Operable Valve that is installed as part of the minimum connection.
2) Gas not complying with the requirements of Part 1 of Schedule 3 of the GS(M)R shall not be injected into a gas grid unless an exemption from a particular requirement has been granted by the Health and Safety Executive to WWU. In such a situation DFO and WWU shall ensure that any requirements conditional to the granting of such an exemption are met. The DFO will be required to pay for the cost of the exemption request and any ongoing cost associated with monitoring compliance with exemption
3) Where the WWU has been directed by Ofgem to determine calorific value, the facility and its operation shall be in accordance with the relevant Letter of Direction.
4) The costs associated with the capping of area calorific value in accordance with regulation 4A(1) of Gas (COTE) Regulations are disproportionate to the quantity of Distributed gas being injected. It is therefore essential that measures are taken to ensure that capping is avoided either by enrichment, which is WWU's prefered option or, where technically and economically feasible, by blending with other gas being conveyed by the WWU The DFO will be required to pay for the cost of any feasibility study into blending and any ongoing cost associated with monitoring the blended gas.

Measurement Risk Assessment

1) The DFO and WWU shall participate in a measurement risk assessment in accordance with WWU/PM/GQ/8 to determine which parameters shall be monitored, the frequency of measurement and the speed of response of measurement system.
2) The recommended limit values shall be assessed by risk assessment.
3) The initial risk assessment shall set out those changes (for example a proposed change of feedstock to the Anaerobic Digester, equipment change, etc.) that will require review of the risk assessment. In the event of one or more such changes, the risk assessment shall be reviewed. Where a particular parameter shows increased risk then a change in the monitoring scheme may be appropriate. The risk assessment will determine the appropriate alarms that need to be put in place which will be defined in the Network Entry Agreement.

Provisions Of The DFO

1) The DFO shall provide Distributed gas to the entry connection that is compliant with the requirements of Part 1 of Schedule 3 of the GS(M)R.
2) Where the strategy for calorific value requires enrichment the DFO shall provide Distributed gas with a gross calorific value that equals or exceeds the target CV agreed with the GDN on a daily basis.
3) Where the DFO owns and operates the odorant injection equipment the DFO shall add odorant at the rate agreed with the GDN. The GDN may for operational reasons require injection at rates higher or lower than that generally required.
4) Where the DFO owns and operates the entry connection the DFO shall also provide to the WWU's telemetry system signals from the entry connection of those parameters identified by risk assessment.
5) The DFO shall agree with the WWU a local operating procedure for the management of non-compliant gas, including issue of TFA, advance notification of Remotely Operated Valve (ROV)

shutdown and procedures for restoration of Distributed gas flow following ROV closure. This will involve the installation of a diverter valve.

Provisions Of The GDN

1) WWU shall provide full details of the format of data for the telemetry interface so as to enable the DFO to procure suitable equipment to achieve appropriate repeat signals.
2) WWU shall agree with the DFO a local operating procedure for the management of non-compliant gas, including issue of TFA, advance notification of remotely operated valve (rov) shutdown and procedures for restoration of distributed gas flow following rov closure. This may or may not involve the installation of a diverter valve.

Asset Ownership Models

Assets associated with the entry connection are those that carry out the following functions:

a. Pressure reduction and control
b. Gas analysis for compliance monitoring
c. Metering
d. Odorant injection
e. FWACV functionality
f. Supervisory system

In addition, the following assets shall always be owned and operated by WWU:

g. The ROV
h. The telemetry unit

For these purposes other functions required for production of Distributed gas are assumed to not be associated with the entry connection. Such functions include:

i. Clean-up
j. Enrichment with LPG and control of calorific value
k. The distributed gas diverter valve, if arrangements have not been made with the GDN for disposal of non-compliant gas that may have entered the entry connection.
l. Compression, if required.

Functional Requirements

The GDNs have prepared a functional specification for the equipment used in the Network Entry Point[11]. This is being developed by the Institute of Gas Engineers and Managers (IGEM) into an IGEM document.

Part 5 – Commercial Arrangements

In order for gas to flow through the entry connection into the network three processes require to be completed:

1. The physical connection to the network is completed and appropriate measurement equipment has been validated;
2. The Network Entry Agreement (NEA) has been signed;

[11] http://www.gasgovernance.co.uk/sites/default/files/EMIB%20Appendix%203%20%20Functional%20Specification.pdf

3. An agreement has been signed between the Developer and a Shipper to obtain sufficient capacity via the relevant process.

The following outlines the services that WWU can provide with regards to the provision of a physical connection.

Connections Agreement

If a Capacity Study demonstrates that there is sufficient capacity to allow then injection of gas then the various assets will need to be constructed. Where WWU is carrying out any of the construction a Connections Agreement is required to be signed between WWU and the Developer. This agreement is used for the procurement of the detailed design and construction of the entry connection. Where WWU is required to reinforce or modify its system to allow gas to entry this will be chargeable to the customer requesting the entry connection.

The Connections Agreement operates on a cost pass through basis.

The construction phase will proceed after completion of the Connections Agreement unless the developer terminates the agreement in accordance with its terms.

Typically the main activities carried out or managed by WWU under the construction stage would include:

- Programme of work
- Detailed design
- Procurement of materials
- Preparation and issuing of tenders
- Management of legal issues for easement acquisition (if required)
- Ensuring compliance with safety and environmental legislation
- Obtaining the necessary permissions from land owners and consents from local authorities and other bodies
- Construction
- Commissioning and validation of facilities
- Identifying requirements for emergency, operational and maintenance procedures

The agreement itself would define:

- The developer's obligations
- WWU's obligations
- Completion dates
- Payment
- Liability and Indemnity
- Ownership
- Scope of work
- Outline technical specifications

WWU will have provided an estimate for the construction stage and payment is usually in the form of stage payments which are subject to credit status which reflects the cash flow requirements of the works, with a final reconciliation to be made after completion.

Other costs such as easement payments to land owners to secure the pipeline route, unforeseen costs (such as poor ground conditions), and costs due to the actions of third parties or a change to the agreed scope of work are added to the base cost. WWU provides relevant documents to support such costs and where applicable programme changes.

Network Entry Agreement

A Network Entry Agreement (NEA) sets out the technical and operational conditions for the connection. The NEA is agreed between the Delivery Facility Operator (DFO) and WWU and is normally discussed with the future operator of the entry facility in parallel with the connection process (see above).

The typical NEA will specify:

- The point of entry (marked on a diagram)
- The plant and equipment, and its ownership
- Responsibilities for maintenance and operational control of equipment
- Gas quality specification and obligations on the DFO and WWU
- Liabilities, indemnities and warranties
- Measurement arrangements
- Local Operating Procedures (LOPs)

The LOPs are day-to-day procedures and cover such items as:

- Notification of intended gas flows
- Confirmation of actual gas flows
- Site security
- Management of flow rates, pressures and gas quality
- Emergency arrangements
- Maintenance arrangements

The GDNs have produced an outline of the indicative terms of a NEA for distributed gas entry[12]

Entry capacity and settlements process

For all new entry connections, the Shipper (or potential Shipper) needs to ensure that they have purchased sufficient daily capacity rights to accommodate gas entry flows from the connecting point and have registered the site as required in accordance with the gas settlements process in the UNC. For the avoidance of doubt WWU does not provide a service to Shippers for the purposes of entering data into the gas settlements system.

[12] http://www.gasgovernance.co.uk/sites/default/files/Overview%20of%20generic%20NEA%20%20from%20ENA%20Distributed%20Gas%20Group%2012%2003%2012_0.pdf

Appendix 1 - Process flow Diagram