



Distributed Gas Connections Guide

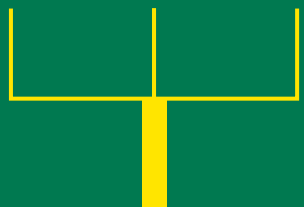
January 2021



SGN
Your gas. Our network.



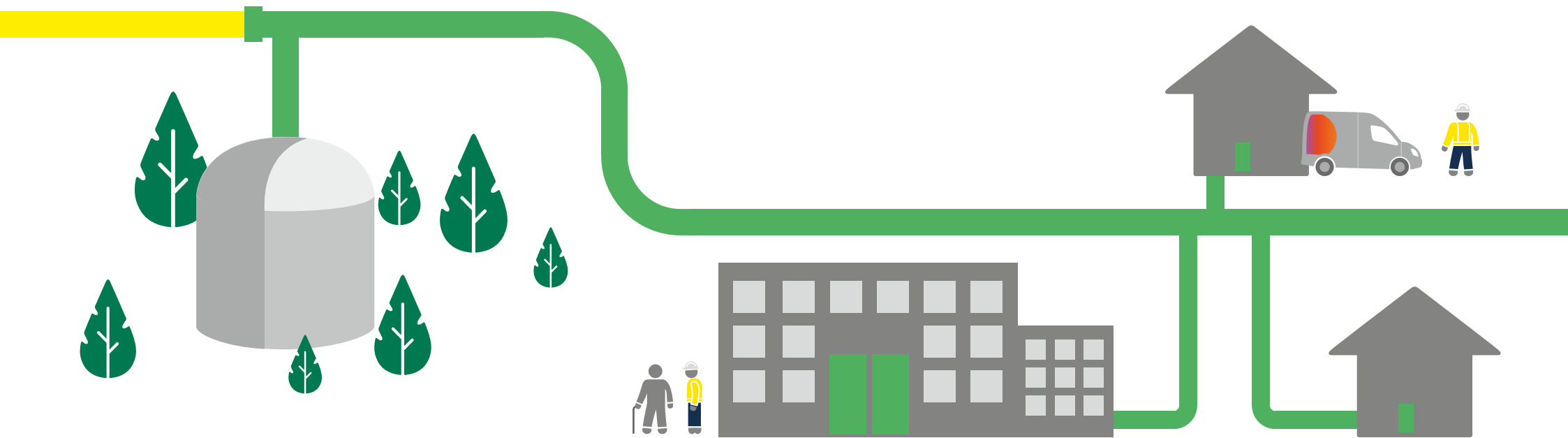
Foreward	3
About SGN	3
The existing gas network	4
Who is involved in the gas market?	4
‘Greening’ the gas	5
How it works	5
Legal requirements	7
How to get connected	7
Initial Enquiry	8
Capacity Study	8
Adopted Entry Facility	8
Agreements	9
Connections Agreement	9
Network Entry Agreement	9
Useful references and contacts	10
SGN	10
Government bodies	10
Other references	10
Appendix 1 - Process Flow Diagram	11





Foreward

This guide is intended to help you, as the owner or developer of distributed gas, to connect your production facility to our network. The types of gas that connect to the network include coal bed methane, shale gas and biomethane. The process for connecting these gases is exactly the same however this guide primarily focuses on biomethane.



About SGN

We manage the network that distributes natural and green gas to 5.9 million homes and businesses across Scotland and the south of England. Whoever your supplier is, our pipes deliver gas safely, reliably and efficiently to every one of our customers. It's your gas, in our network.

We believe that the gas distribution networks will continue to play a crucial role in the domestic heating market and will provide the most cost-effective path for low-carbon transition with significant social benefits in terms of energy security and fuel poverty.

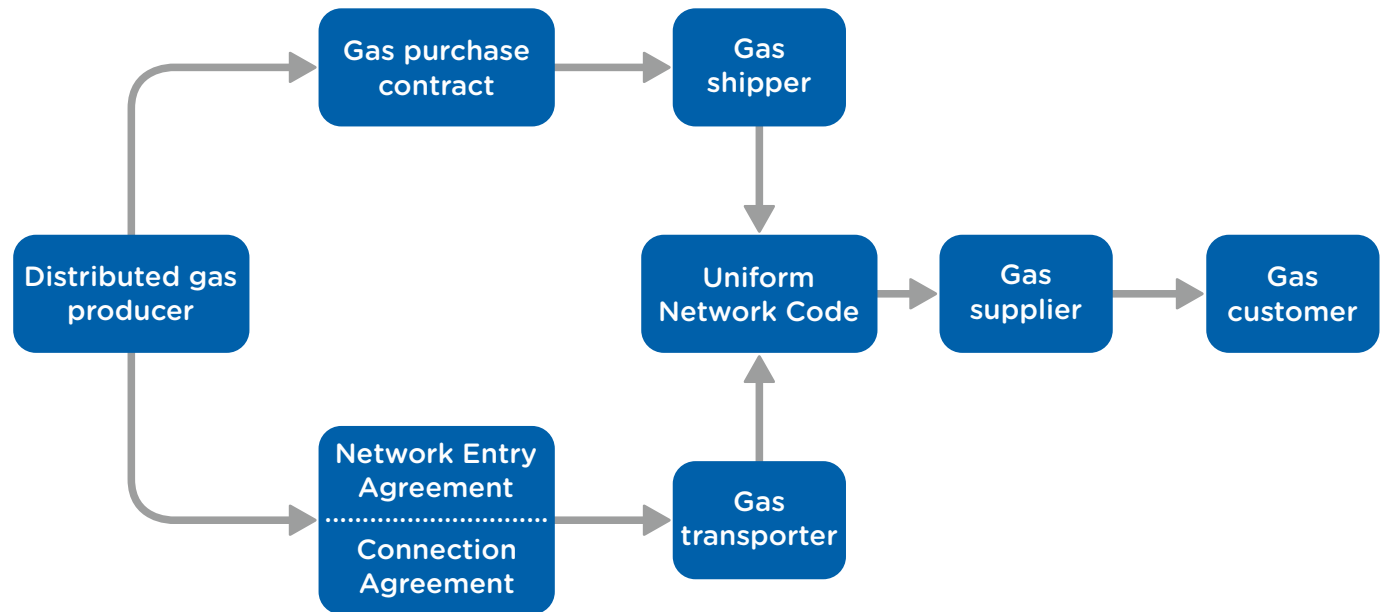


The existing gas network

The UK benefits from one of the most extensive gas networks in the world which transports the energy to heat almost 85% of UK homes and the vast majority of industrial buildings. Gas consumption greatly exceeds electricity consumption in UK homes, particularly during colder months. Natural gas is safe, reliable and convenient for rapid space and water heating. It can also assist those living in fuel poverty as a result of the low relative costs of gas compared to alternative heating systems.

Who is involved in the gas market?

The process of connecting any distributed gas to the network involves a number of parties, where commercial and contractual arrangements are required to be in place. The diagram illustrates this:



Producers – are responsible for producing the gas. The gas produced must meet the quality requirements set out in the Gas Safety (Management) Regulations 1996. The producers must secure sales of their gas with a shipper before it can be injected into the grid.

Gas shippers – convey gas in the pipeline network by contracting with gas transporters, such as SGN. Gas shippers must have a Gas Shippers Licence before taking part in any gas shipping actions.

Gas transporters – own and operate the gas distribution network, using the infrastructure to transport the gas from producer to end consumer. Transporters may take responsibility for quality testing and gas metering.

Suppliers – are responsible for customer interaction and provide an interface for consumers to purchase their gas. Suppliers must have a Gas Retailer Licence before engaging in any consumer contract.

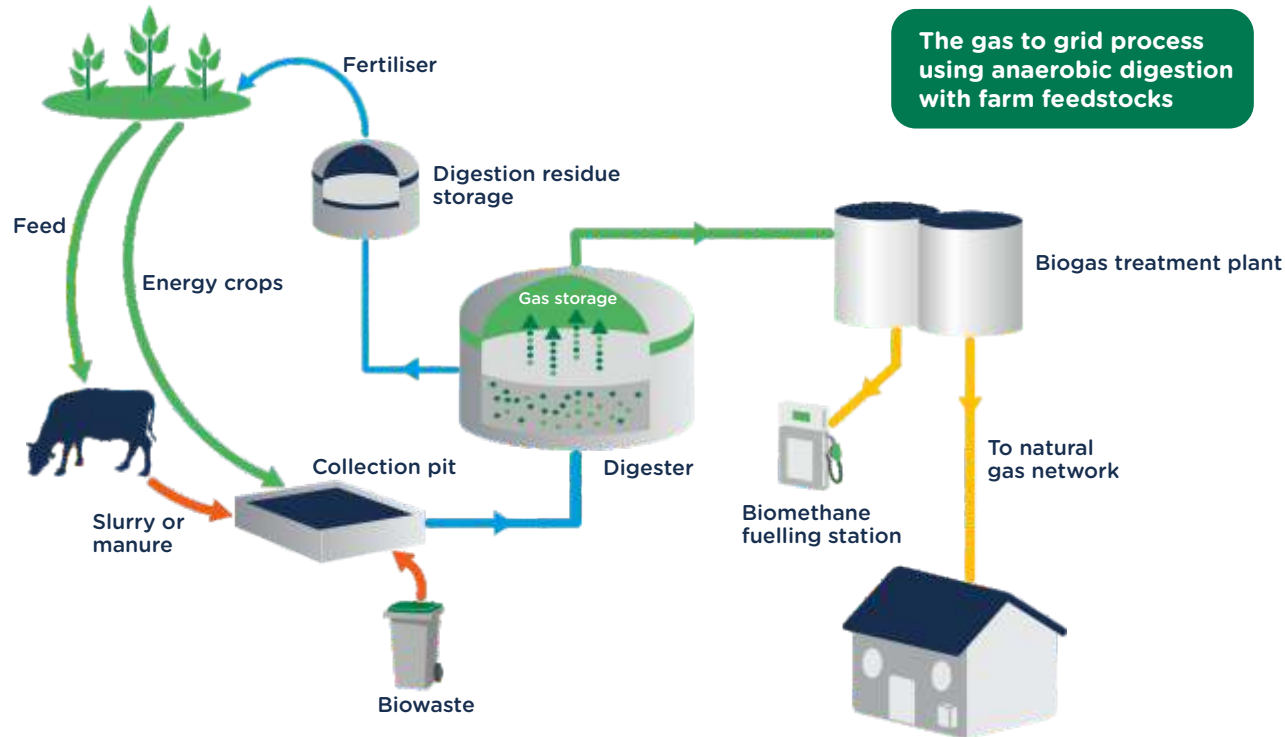
Customers – purchase gas for residential, commercial or individual use. They contract directly with gas suppliers to secure their gas.



'Greening' the gas

We refer to any source of sustainable and low-carbon gas as 'green' gas. This can include substitute gas and hydrogen however currently most of the focus and growth is around biomethane.

Biomethane is derived from biogas which is produced by anaerobic digestion. During this process, organic material is broken down in the absence of oxygen to produce biogas and digestate, a nutrient-rich fertiliser.



The gas to grid process using anaerobic digestion with farm feedstocks

The most efficient use for this biogas is to clean it up and inject it into the gas network. Biomethane is regarded as a low-cost and scalable form of renewable and low carbon heat, which can help towards the country's energy goals.

There are a number of independent studies which have shown the gas networks can be a major component of a low carbon energy system. We also know from our own research people are generally happy using gas for heating and so if

we can decarbonise the gas flowing to people's homes, this then saves households from switching to other more expensive forms of low carbon heat in the future while allowing carbon targets to be met.

Biomethane injection projects are currently supported by the government's 'Renewable Heat Incentive' (RHI) which offers incentives to develop renewable heat technologies. The RHI is absolutely vital for green gas projects.

How it works

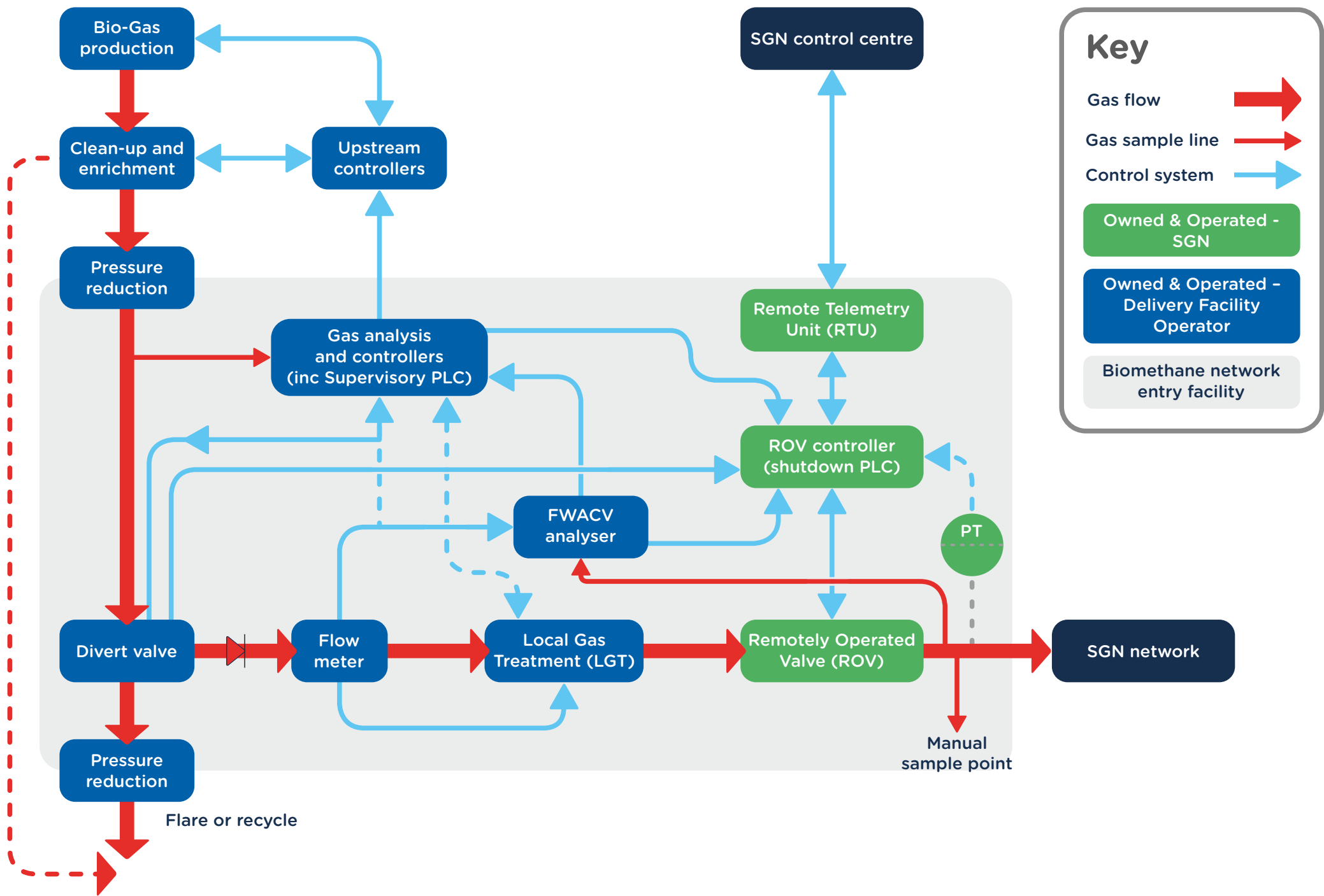
Biomethane for injection into the gas network is produced by cleaning and upgrading biogas that has been created through either an anaerobic digestion or gasification process.

The biomethane may need propane to be added by the biogas producer to ensure it has the required energy content, prior to injecting into the network.

To ensure the biomethane meets the requirements for the gas grid, it passes from the producer's plant through a Network Entry Facility where it is checked for both gas quality and energy content, before being metered and odourised to give it the characteristic smell.

Before being injected into the gas network the biomethane must be sold to a gas shipper. Ofgem can provide details of licensed Gas shippers.

The Network Entry Facility will be installed by the biomethane producer under the guidance of our Functional Design Specification (SGN/SP/BIO/2). We will adopt as a minimum the Remotely Operated Valve (ROV), the Remote Telemetry Unit (RTU) and the connecting pipeline to the network. The diagram overleaf illustrates the equipment and potential ownership in a Network Entry Facility. It does not reflect the actual layout of the equipment on-site.





Legal requirements

As part of our obligations as a gas transporter, we must offer conditions for gas entry points under section D12 of the Gas Transporter Licence.

Biomethane is considered a reliable source of energy, providing it meets all of the Gas Safety (Management) Regulations (GS(M)R) 1996, which stipulate the quality of the gas that is acceptable.

The amount of energy released when a volume of gas is burned is measured by the Calorific Value (CV) of the gas and must comply with The Gas Calculation of Thermal Energy Regulations 1996 (Gas (COTE)R). Some gases have a lower CV than natural gas and in order not to disadvantage customers some enrichment may be required to be added to raise the CV. This will be site-specific, based on the feedstock and equipment being used. As with natural gas, the supply must be odorised so leakages can be detected.

There are a number of governmental bodies, who have responsibilities in the gas sector:

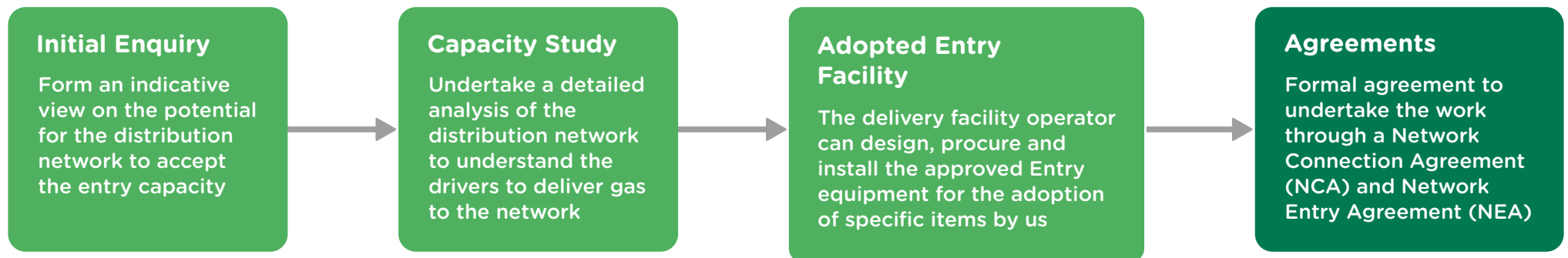
- The Department for Business, Energy & Industrial Strategy (BEIS) accountable for primary legislation of gas, such as the 1986 and 1995 Gas Act, the Completion Act 1998, the Gas Calculation of Thermal Energy Regulations 1996 and the GS(M)R 1996 mentioned above.
- The Office of Gas and Electricity Markets (Ofgem) is responsible for the economic regulation of the gas market.
- The Health and Safety Executive (HSE) is responsible for the health and safety of the gas sector.
- The Uniform Network Code (UNC), a set of guidelines for all gas industry members that allows for market competitiveness, states that the biomethane producer must enter into a Network Entry Agreement (NEA) before gas may be injected into the grid.



For more information please see the useful references page at the back of this guide.

How to get connected

In order for you to get connected to our network there are a number of steps that need to be followed:



Appendix 1 at the back of this guide provides an overview of the Distributed Gas Connections Process.



Initial Enquiry

The Initial Enquiry will provide the customer with an indicative view on the suitability of our distribution network to accept the volume of distributed gas indicated in the customer's submission. This service is free of charge.

The Initial Enquiry response will include:

- The location of the main(s) in relation to the site
- The pressure of the main(s)
- The diameter and material of the main(s)
- The suitability of the main(s) to accept the volume of distributed gas.

We will aim to provide this information within 15 working days from receipt of the Enquiry.

Capacity Study

The Capacity Study report builds on the information provided under the earlier Initial Enquiry response and develops detailed network analysis on a specific site location to understand any potential constraints on the distribution network. The Capacity Study report is chargeable and we will provide a quotation to undertake this work.

The Capacity Study report will include:

- Location of the site
- Network schematics
- Photographs and maps, where appropriate
- Detailed information on the available capacity
- Any other relevant information.

We will aim to issue the study within 30 working days of the receipt of an acceptance.

Adopted Entry Facility

You will design and install the facility following the guidance in our Functional Design Specification (FDS), at the end of which we will adopt specific items of equipment.

We will provide you with an FDS (SGN/SP/BIO/2) which gives you the technical requirements we would expect the facility to adhere to. Once the facility has been constructed, validated and commissioned we will adopt, as a minimum, the following pieces of equipment:

- Remotely Operated Valve
- Remote Telemetry Unit
- Connecting pipeline to our network.

The export pipeline required to connect the Network Entry Facility to the existing SGN infrastructure is a separate project and will be covered under the existing third party connections' rules. This work can be carried out by SGN Connections or a Universal Infrastructure Provider (UIP) of your choice for below 7 bar export pipeline projects. Above 7 bar export pipeline projects will require a separate chargeable feasibility study. We support the competitive provision of any connecting pipeline; information on independent connection providers who hold Gas Industry Registration Scheme (GIRS) membership can be found at the following website:

<https://www.lr.org/en-gb/utilities/girs/search/>



Agreements

The construction of an Entry Facility needs to have a Connections Agreement and Network Entry Agreement in place with us before gas can flow into our network.

Connections Agreement

A Connection Agreement will require to be signed between both parties to ensure the installation is fit for adoption and has been designed and constructed in accordance with the FDS. The installation will also require validation and commissioning.

There will be a charge associated with this process, which will form part of the agreement.

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. We will provide the relevant documents to support such costs and, where applicable, programme changes.

Network Entry Agreement

A Network Entry Agreement (NEA) is the enduring document between both parties which sets out the technical and operational conditions for the connection. The NEA is agreed between the Delivery Facility Operator (DFO) and us and is normally discussed with the future operator of the Entry Facility in parallel with the connection process.

As part of the Network Entry Agreement a risk assessment of gas quality (SGN/PM/GQ8) must be undertaken by the DFO to understand more fully the implications on the distribution network.

The timescales to complete these elements of the project can vary depending on the project complexity.



Useful references and contacts

To enquire about a distributed gas connection:

 **Email us**
SGNGasEntryPoints@sgn.co.uk

Alternatively please contact our Customer Service team with any questions you have:

 **Call us**
0800 912 1700

 **Email us**
customer@sgn.co.uk

 **Write to us**
SGN
2nd Floor
Inveralmond House
200 Dunkeld Road
Perth PH1 3AQ

 **Fax us**
0845 026 0016

If you are deaf or hearing impaired and have a minicom or textphone please contact us on


 **0800 372 787**

Government bodies

- Department for Business, Energy & Industrial Strategy
- Ofgem
- Health and Safety Executive
- Environment Agency

Other References

- Joint Office of Gas Transporters

 To find out more about our charges, visit sgn.co.uk



Process Flow Diagram

