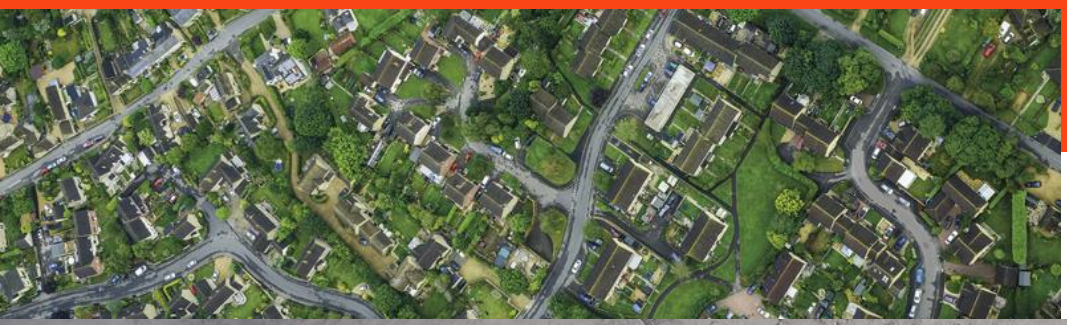
Cadent

Your Gas Network



Network Entry Gas Quality Specification

August 2018

Network Entry
Gas Quality Specification

System Entry and Storage

We require a Network Entry Agreement or Storage Connection Agreement, as appropriate, with the respective operator of all delivery and storage facilities to establish, among other things, the gas quality specification, the physical location of the delivery point and the standards to be used for both gas quality and the measurement of flow.

Specification

Cadent Gas Limited (Cadent) is working with producers, Ofgem, BEIS, HSE, IGEM, equipment suppliers and other GDN's to ensure technical and commercial barriers to entry are removed in a timely manner where demonstrated to enhance the market and not affect the operation of the Network and working within the prescribed limits associated with Cadent's Licence to Operate and taking into account our existing statutory and contractual obligations.

Cadent is developing its Legal, Commercial and Technical process to assist the developing market of Bio Methane, SNG and non-conventional gas sources production for Grid Injection and embed such process developments as business as usual. The connecting Party should contact Cadent (renewablegas.ukd@cadentgas.com) at the earliest opportunity in the project to establish the required entry points, network capacity and to further discuss the requirements associated with Network Entry Quality Specifications.

For any new entry connection to our system, the connecting party should notify us as soon as possible as to the likely gas composition. We will then determine whether the gas can be accepted taking into account our existing statutory and contractual obligations. Our ability to accept gas supplies into the system is affected by, among other things, the composition of the new gas, the location of the system entry point,

volumes entered and the quality and volumes of gas already being transported within the system. In assessing the acceptability of any proposed new gas supply, we will take account of:

a) Our ability to continue to meet statutory obligations (including, but not limited to, the Gas Safety (Management) Regulations 1996 (GS(M)R));

b) The implications of the proposed gas composition on system running costs; and

c) Our ability to continue to meet our contractual obligations.

For indicative purposes, the specification set out below is usually acceptable for most locations and encompasses but is not limited to the statutory requirements set out in the GS(M)R.	
1. Hydrogen Sulphide	○ Not more than 5mg/m^3.
2. Total Sulphur	○ Not more than 50mg/m^3.
3. Hydrogen	○ Not more than 0.1% (molar).
4. Oxygen	○ Not more than 0.2% (molar) for pressures greater than 38 barg. ○ Not more than 1.0% (molar) for pressures up to 38 barg.
5. Hydrocarbon Dewpoint	○ Not more than -2ºC at any pressure up to 85 bar.

6. Water Dewpoint	○ Water dew temperature to be no greater than -10ºC at 7 barg for injection into below 7 barg distribution systems, or ○ Water dew temperature to be no greater than -10ºC at the maximum anticipated pressure for injection onto an above 7 barg (7-16 barg) distribution system, or ○ Water dew temperature to be no greater than -10ºC at 85 barg for injection onto an above 16 barg distribution system.
7. Wobbe Number (real gross dry)	○ The Wobbe Number shall be in the range 47.20 to 51.41MJ/m^3.
8. Incomplete Combustion Factor (ICF)	○ Not more than 0.48.
9. Soot Index (SI)	○ Not more than 0.60.
10. Gross Calorific Value (real gross dry)	○ The Gross Calorific Value (real gross dry) shall be in the range 36.9 to 42.3MJ/m^3, in compliance with the Wobbe Number, ICF and SI limits described above. ○ Subject to gas entry location and volumes, we may set a target for the Calorific Value within this range.
11. Inerts	○ Not more than 7.0% (molar) subject to; Carbon Dioxide: not more than 2.0% (molar).
12. Contaminants	○ The gas shall not contain solid, liquid or gaseous material that may interfere with the integrity or operation of pipes or any gas appliance within the meaning of regulation 2(1) of the Gas Safety (Installation and Use) Regulations 1998 that a consumer could reasonably be expected to operate.
13. Organo Halides	○ Not more than 1.5 mg/m^3.
14. Radioactivity	○ Not more than 5 Becquerels/g.

15. Odour	○ Gas shall be odorised with odorant NB (80% tertiarybutyl mercaptan, 20% dimethyl sulphide) at a nominal odorant injection rate of 6 mg/m^3, which may be varied at the DN Operator's request to meet operational circumstances.
16. Pressure	○ The delivery pressure shall be the pressure required to deliver natural gas at the Delivery Point into our Entry Facility at any time taking into account the back pressure of our System at the Delivery Point as the same shall vary from time to time. The entry pressure shall not exceed the Maximum Operating Pressure at the Delivery Point.
17. Delivery Temperature	○ Between 1°C and 38°C.

Unless stated otherwise all volumes are for the real dry gas at ISO Standard Reference conditions of 15ºC and 1.01325 bar.

Unless stated otherwise all energies are calculated using a gross calorific value for the real dry gas at ISO reference conditions of 15°C (combustion) and 15ºC and 1.01325 bar (metering).

Note that Incomplete Combustion Factor (ICF) and Soot Index (SI) have the meanings assigned to them in Schedule 3 of the GS(M)R.
In addition, where limits on gas quality parameters are equal to those stated in GS(M)R (Hydrogen Sulphide, Total Sulphur, Hydrogen, Wobbe Number, Soot Index and Incomplete Combustion Factor), we may require an operational tolerance to be included within an agreement to ensure compliance with the GS(M)R.

Under the requirements of the Gas (Calculation of Thermal Energy) Regulations 1996 and Amendment 1997, we are required to determine calorific value at locations directed by, and in a manner approved by, the Industry Regulator Ofgem. Instrumentation we use to determine calorific value is approved by Ofgem for use only within a composition range specified by Ofgem for that type of instrument. Consequently, we may require limits in hydrocarbon and inerts content so as to allow us to comply with the approval range of such calorific value determination instrumentation.

Due to continuous changes being made to the system, any undertaking made by us on gas quality prior to signing an agreement will normally only be indicative.

We are working with the BEIS, IGEM and Ofgem in assessing the compatibility of existing specifications (both statutory and contractual) with the longer term needs of the UK in respect of additional gas supplies, and the European Association for the Streamlining of Energy Exchange (EASEE-gas) in the development of a Gas Quality harmonisation Common Business Practice. The outcomes of these projects could ultimately result in changes to our network entry quality specifications in the future.