

EASEE-gas

European Association for the Streamlining of Energy Exchange - gas

Common Business Practice

Number: 2005-001/01

Subject: Harmonisation of Natural Gas Quality

Approved: 3 February 2005

EASEE-gas CBP 2005-001/01 has been approved by the EASEE-gas Executive Committee on 3 February 2005 and published on 7 February 2005.

About EASEE-gas

Six founding members in Paris created the European Association for the Streamlining of Energy Exchange-gas or EASEE-gas on March 14th, 2002. EASEE-gas's aim is to support the creation of an efficient and effective European gas market through the development and promotion of common business practices (CBP's) that intend to simplify and streamline business processes between the stakeholders. EASEE-gas has set up offices with Association Française du Gaz who provides administrative support.

The formation of EASEE-gas was prompted by the success of the Gas Industry Standards Board in the United States and has been modelled on it. The GISB has now evolved into the North American Energy Standards Board. The creation of EASEE-gas is a project that is fully supported by the European Commission and by the European Regulators through the so-called Madrid Forum. It was achieved through the work of a dedicated Task Force supported by EFET, Eurogas, Eurelectric, GEODE, GTE, OGP and the Edigas group.

The association is fundamentally based on company membership and voluntary contribution towards the development of common business practices.

Full membership in EASEE-gas is open to all companies, European or other, that are involved in the European gas business, from producers to end users, and to companies that are their service providers. Companies can subscribe to full membership in one or more of the eight gas industry segments.

Associate membership in EASEE-gas is open to government agencies, e.g., regulators, to organisations such as gas business trade associations and to individuals that may contribute to the benefit of EASEE-gas. Associate members do not pay annual fees, nor do they have voting rights.

The development of common business practices within EASEE-gas is organised through working groups under the supervision of an executive committee that is representative of the various gas industry segments. Participation in the working groups is limited to members only.

Common Business Practice 2005-001/01 "Harmonisation of Gas Qualities"

1. Introduction

This Common Business Practice (CBP) recommends natural gas quality specifications to streamline interoperability at cross border points in Europe and describes the recommended gas quality parameters, parameter ranges and the implementation plan.

The CBP is limited to cross border and EU entry points for high calorific gas without added odorants, including LNG import terminals and excluding areas of production and isolated systems where production, transportation and utilisation are combined.

Based on standard project lead times, an assessment has been made of the earliest possible implementation date. Therefore, EASEE-gas is of the opinion that the earliest implementation date of any parameter and associated value is 1st October 2006. However, implementation directly related to combustion properties (Wobbe index, relative density, oxygen) will not be reasonably feasible before 1st October 2010.

Safety and technical implications of the CBP values/ranges and the optimum manner to implement these will have to be assessed for and by each individual country. However, implementation of each parameter and associated range needs to be simultaneous at all cross border points.

Specific legislative issues and implementation times for legal change need to be addressed by the relevant governments. EASEE-gas recommends that the member states legislative bodies consult with the relevant industry representatives to investigate such required legislative changes.

The respective parties on a case-by-case basis should address contractual constraints with respect to the implementation of the various parameters and related values. For the avoidance of doubt, it is the common understanding that this recommendation should not limit the parties' rights to agree on specifications outside the proposed ranges and continue their agreements on a bilateral basis.

2. Gas Parameters

The following parameters have been agreed for harmonisation:

WI	- Gross (Superior) Wobbe Index
d	- relative density
S	- Total Sulphur
H ₂ S + COS	- Hydrogen sulphide + Carbonyl sulphide
RSH	- Mercaptans
O ₂	- Oxygen
CO ₂	- Carbon dioxide
H ₂ O DP	- Water dew point
HC DP	- Hydrocarbon dew point

For definition of the parameters, reference is made to ISO 14532:2001 Natural gas – Vocabulary.

3. Parameter units

For this CBP, the parameter units and reference conditions used are according to the EASEE-gas Common Business Practice 2003-001/01. This implies that the energy unit is kWh with a combustion reference temperature of 25 °C, and the volume unit is m³ at a reference condition of 0°C and 1.01325 bar(a). For conversion to other reference conditions, reference is made to ISO 13443:1996 Natural Gas – Standard reference conditions.

4. Parameter ranges and values

The following ranges and values shall apply:

Parameter	Unit	Min	Max	Recommended implementation date
WI	kWh/m³	[13.60]	15.81	1/10/2010
d	m³/m³	0.555	0.700	1/10/2010
Total S	mg/m³	-	30	1/10/2006
H₂S + COS (as S)	mg/m³	-	5	1/10/2006
RSH (as S)	mg/m³	-	6	1/10/2006
O₂	mol %	-	[0.01]*	1/10/2010
CO₂	mol %	-	2.5	1/10/2006
H₂O DP	°C at 70 bar (a)	-	- 8	See note **
HC DP	°C at 1- 70 bar (a)	-	- 2	1/10/2006

* EASEE gas have organised an oxygen measurement survey, which by end of 2005 will examine the maximum feasible limit equal to or at an alternative specified value below 0.01 mol%.

**At certain cross border points, less stringent values are used than defined in this CBP. For these cross border points, these values can be maintained and the relevant producers, shippers and transporters should examine together how the CBP value can be met in the long run. At all other cross border points, this value can be adopted by 1st October 2006.

As Wobbe Index, relative density, and Gross Calorific Value (GCV) are directly related to each other, only the Wobbe Index and relative density are retained as parameters. GCV remains as a parameter for billing purposes.

Wobbe Index and Relative Density

The CBP recommends a Wobbe Index value range of 13.60 to 15.81 kWh/m³. However, due to lack of sufficient data on values lower than 13.76 kWh/m³, the starting point for implementation will be 13.76 kWh/m³ for the lower limit. EASEE-gas recommends that work on safety consequences be initiated to investigate the possibility of changing the lower limit towards 13.60 kWh/m³.

The values for Wobbe Index and relative density have been based on safety considerations applicable only to appliances complying with the Gas Appliance Directive (Directive 90/396/CEE) and assuming low hydrogen content. These ranges may present safety hazards for appliances that do not comply with the Directive. The implementation may also raise a safety issue regarding appliances manufactured to comply with the Gas Appliance Directive, but where burner settings have been adjusted during or after installation.

The widening of the Wobbe Index range that this CBP introduces in some countries, may have an effect on efficiency, emissions level of appliances and capacities of the transmission and distribution networks.

The implementation would pose widely varying impacts for different countries and might require one or more of the following:

- Changes in national legislation
- Domestic and industrial appliances population management (e.g. conversion, adjustment, replacement)
- Changes to maintenance practices and frequency
- Ballasting and/or blending of gas

Furthermore, GCV specifications/legislation in force in some countries with respect to appliances may require modification to accommodate the full ranges of both Wobbe index and relative density.

An implementation date of 1st October 2010 is recommended.

Wobbe Index and relative density are consistently interlinked and the recommended ranges are intended to describe the requirement for safe burner operations. EASEE-gas recommends that all specifications on other combustion parameters at cross border points should be removed by the 1st October 2010 (e.g. Incomplete Combustion Factor, Soot Index, Yellow Tip Index, and Combustion Potential).

Total sulphur, Hydrogen sulphide, carbonyl sulphide and mercaptans

EASEE-gas has not observed any technical constraints in conflict with the proposed harmonised values, and such values can therefore be adopted by 1st October 2006.

Oxygen

Available data on oxygen is insufficient to determine the appropriate maximum value.

EASEE gas has organised an oxygen measurement survey, which by end of 2005 will examine the maximum feasible limit equal to or at an alternative specified value below 0.01 mol%.

Carbon dioxide

EASEE-gas has not observed any technical constraints in conflict with the proposed harmonised values, and such values can therefore be adopted by 1st October 2006.

Water dew point

At certain cross border points, less stringent values are used than defined in this CBP. For these cross border points, these values can be maintained and the relevant producers, shippers and transporters should examine together how the CBP value can be met in the long run. At all other cross border points, this value can be adopted by 1st October 2006.

Hydrocarbon dew point

EASEE-gas has not observed any technical constraints in conflict with the proposed harmonised values, and such values can therefore be adopted by 1st October 2006.

The need for introducing a harmonized measuring method has been identified.

Hydrogen

Future gas operations may lead to use of gases containing significant levels of hydrogen or other synthetic/manufactured gases. Appliance malfunction can occur with the presence of hydrogen or other high flame speed gases. As natural gas does not contain any hydrogen, the recommendations in this CBP are valid only for insignificant levels of hydrogen in order to control risk of flashback. If synthetic/manufactured gases are anticipated to become a cross border issue, the proposed set of parameters needs to be re-evaluated.

Impurities

The natural gas delivered shall not contain other constituents and/or impurities to the extent that it cannot be transported, stored and/or marketed without quality adjustment or treatment.

Odourisation

The CBP applies only to high-calorific gas without added odorants and does not address possible future interoperability issues arising from differences in odourisation practices.

Odourisation practices are different in different countries for reasons of gas supply business structure (central versus local) and cost of operation. Current main gas trade flows are compatible with existing odourisation practices, and any problems in this respect have been solved so far in co-operation between gas companies concerned.

With changing flow conditions, there will be a case for reconsidering odourisation operations by involved parties when required and economically justified.

EASEE-gas recommends that qualification work is initiated on the impact of commingling odorized and non-odorized gas flows.

Nitrogen

EASEE-gas recommends that no gas should be refused as from 1st October 2006 on Nitrogen content provided all other requirements of the CBP are met.

5. Quality variations

It is recognised that variations in gas quality may cause inefficiencies for industrial end users. EASEE-gas recommends that size and frequency of major variations within the ranges as above should be restricted in a reasonable way (e.g. limited to unavoidable technical problems) and in any case be notified to the relevant end users reasonably in advance. It is the common understanding that stability of the natural gas quality remains to be of outstanding importance.

EASEE-gas recommends an initiative to provide information on the current methane content and the variance over time at selected cross border points.

Size and frequency of major variations of methane content should wherever practicable be notified to the relevant end-users reasonably in advance.

6. Billing arrangements

Billing arrangements on national levels in EU have been investigated. No restriction on free trade of natural gas at the cross border points has been identified as result of legal billing requirements. Therefore there is no need for harmonised billing arrangements. However, it has been observed that some contractual arrangements on GCV between certain parties at a particular cross border point interfere with the free trade of natural gas. EASEE gas encourages the relevant parties to remove such arrangements as soon as possible but no later than 1st October 2006.

Appendix A - Cross border point list

This list represents the cross border point covered by this Common Business Practice at the date of approval, and shall be updated to include any new cross-border point completed after the date of this Common Business Practice.

N°	Location	from	to	
1	A Zeebrugge ZPT	Norway	Belgium	Gassco (N) Fluxys (B)
1	B Zeebrugge IZT/Bacton	United Kingdom	Belgium	NGT (B) Interconnector UK (UK/B)
1	C Zeebrugge IZT/Bacton	United Kingdom	Belgium	Interconnector UK (UK/B) Fluxys (B)
1	D Zeebrugge IZT/Bacton	United Kingdom	Belgium	Total (UK) Interconnector UK (UK/B)
1	E Zeebrugge IZT/Bacton	United Kingdom	Belgium	Interconnector UK (UK/B) Fluxys (B)
1	F Zeebrugge LNG	LNG exporters	Belgium	Fluxys (B)
2	A Zelzate Zebra	Belgium	The Netherlands	Fluxys (B) Zebra (NL)
2	B Zelzate GTS	Belgium	The Netherlands	Fluxys (B) GTS (NL)
3	Obbicht	The Netherlands	Belgium	GTS (NL) Fluxys (B)
4	s Gravenvoeren	The Netherlands	Belgium	GTS (NL) Fluxys (B)
5	A Eynatten	Belgium	Germany	Fluxys (B) WINGAS (D)
5	B Eynatten	Belgium	Germany	Fluxys (B) EON Ruhrgas / RWE (D)
6	Bras	Belgium	Luxembourg	Fluxys (B) SOTEG (L)
7	Petange	Belgium	Luxembourg	Fluxys (B) SOTEG (L)
8	A Quevy (H)	Belgium	France	Fluxys (B) Gaz de France T. (F)
8	B Blaregnies (H)	Belgium	France	Fluxys (B) Gaz de France T. (F)
9	Bocholtz	The Netherlands	Germany	GTS (NL) EON Ruhrgas (D)
10	A Oude Stanzijl (H)	The Netherlands	Germany	GTS (NL) WINGAS (D)
10	B Oude Stanzijl (H)	The Netherlands	Germany	GTS (NL) EON Ruhrgas (D)
10	C Oude Stanzijl (H)	The Netherlands	Germany	GTS (NL) BEB (D)
11	A Emden NPT	Norway	Germany	Gassco (N) EON Ruhrgas (D)
11	B Emden EPT1	Norway	Germany	Gassco (N) EON Ruhrgas (D)
11	C Emden NPT	Norway	The Netherlands	Gassco (N) GTS (NL)
11	D Emden EPT1	Norway	The Netherlands	Gassco (N) GTS (NL)
11	E Emden NPT	Norway	Germany	Gassco (N) BEB (D)
11	F Emden EPT1	Norway	Germany	Gassco (N) BEB (D)
11	G Emden NPT	Norway	Germany	Gassco (N) RWE (D)
11	H Emden EPT1	Norway	Germany	Gassco (N) RWE (D)
12	Dornum	Norway	Germany	Gassco (N) EON Ruhrgas (D)
13	Ellund	Denmark	Germany	Gastra (DK) BEB / EON Ruhrgas (D)
14	Dragor	Denmark	Sweden	Gastra (DK) Nova Naturgas (S)
15	Frankfurt / Oder	Poland	Germany	PGNIG T. (PL) WINGAS (D)
16	Gorlitz	Germany	Poland	VNG (D) PGNIG T. (PL)
17	Olbernhau	Germany	Czech Republic	WINGAS (D) Transgas (CZ)
18	A Hill of the St Catherine	Czech Republic	Germany	Transgas (CZ) VNG (D)
18	B Hill of the St Catherine	Czech Republic	Germany	Transgas (CZ) Wingas (D)
19	A Waidhaus	Czech Republic	Germany	Transgas (CZ) EON Ruhrgas (D)
19	B Waidhaus	Czech Republic	Germany	Transgas (CZ) Gaz de France (D)
20	Oberkappel	Austria	Germany	OMV Gas (A) EON Ruhrgas (D)
21	A Burghausen	Austria	Germany	OMV Gas (A) WINGAS (D)
21	B Burghausen	Austria	Germany	OMV Gas (A) Bayerngas (D)
22	Kiefersfelden	Germany	Austria	Bayerngas (D) OMV Gas (A)
23	Wallbach	Germany	Switzerland	EON Ruhrgas (D) Transitgas (CH)
24	Obergailbach	Germany	France	EON Ruhrgas / Gaz de France T. (F)
25	Remich	Germany	Luxembourg	EON Ruhrgas (D) SOTEG (L)
26	Dunkerque	Norway	France	Gassco (N) Gaz de France T. (F)
27	Oltingue	France	Switzerland	Gaz de France T. (F) Transitgas (CH)

N°	Location	from	to	
28	Fos sur Mer	LNG exporters	France	Gaz de France (F)
29	Col de Larrau	France	Spain	Total IGF (F) Enagas (E)
30	Montoir de Bret.	LNG exporters	France	Gaz de France (F)
31	Barcelona	LNG exporters	Spain	Enagas (E)
32	Cartagena	LNG exporters	Spain	Enagas (E)
33	Tarifa	Morocco	Spain	Enagas (E)
34	Huelva	LNG exporters	Spain	Enagas (E)
35	Badajoz	Spain	Portugal	Enagas (E) Transgas (PT)
36	Tuy	Portugal	Spain	Transgas (PT) Enagas (E)
37	Griespass	Switzerland	Italy	Transitgas (CH) SNAM Rete Gas (I)
38	Panigaglia	LNG exporters	Italy	SNAM Rete Gas (I)
39	Mazara del Vallo	Tunisia	Italy	TPMC (Tun.) SNAM Rete Gas (I)
40	Gorizia	Italy	Slovenia	SNAM Rete Gas (I) Geoplina (SL)
41	Tarvisio	Austria	Italy	OMV Gas TAG (A) SNAM Rete Gas (I)
42	Murfeld	Austria	Slovenia	OMV Gas (A) Geoplina (SL)
43	Mosonmagyaróvár	Austria	Hungary	OMV Gas (A) MOL T. (H)
44	A Baumgarten	Slovakia	Austria	SPP (SK) TAG (A)
44	B Baumgarten	Austria	Slovakia	OMV Gas (A) SPP (SK)
45	Lanzhot	Slovakia	Czech Republic	SPP (SK) Transgas (CZ)
46	Velke Kapusany	Ukraine	Slovakia	Ukrtransgas (UKR) SPP (SK)
47	Revithoussa	LNG exporters	Greece	DEPA (Gr)
48	Irish Interconnector (Mo)	United Kingdom	Ireland	National Grid Transco (UK) BGE UK (IRL)
49	A Bacton/Zeebrugge IZT	Belgium	United Kingdom	Fluxys (B) Interconnector UK (UK/B)
49	B Bacton/Zeebrugge IZT	Belgium	United Kingdom	Interconnector UK (UK/B) NGT (B)
50	Kula	Bulgaria	Greece	Bulgargaz (BUL) DEPA (Gr)
51	Imatra	Russia	Finland	Gazprom (RU) Gasum (FIN)
52	St. Fergus Vesterled	Norway	United Kingdom	Gassco (N) National Grid Transco (UK)
53	Beregdaroc	Ukraine	Hungary	Ukrtransgas (UKR) MOL T. (H)
54	Kiskundorozsma	Hungary	Serbia & Montenegro	MOL T. (H) NIS-Gas (S & M)
55	Rogatec	Slovenia	Croatia	Geoplina (SL) Plinacro (HR)
56	Loznica	Serbia & Montenegro	Bosnia & Herzegovina	NIS-Gas (S & M) BIH-Gas (B & H)
57	Isaccea	Ukraine	Romania	Ukrtransgas (UKR) Transgaz (RO)
58	Negru Voda	Romania	Bulgaria	Transgaz (RO) Bulgargaz (BUL)
59	Satu Mare	Ukraine	Romania	Ukrtransgas (UKR) Transgaz (RO)
60	Hermanowice	Ukraine	Poland	Ukrtransgas (UKR) PGNIG T. (PL)
61	Holowczyce	Belarus	Poland	Belarus PGNIG T. (PL)
62	Kondratki	Belarus	Poland	Belarus PGNIG T. (PL)
63	Vilnius S.	Lithuania	Belarus	Lietuvos Dujos (LT) Belarus
64	Vilnius E.	Lithuania	Belarus	Lietuvos Dujos (LT) Belarus
65	Sakaia	Lithuania	Russia	Lietuvos Dujos (LT) Gazprom (RU)
66	Bauska	Latvia	Lithuania	Latvijas Gaze (LV) Lietuvos Dujos (LT)
67	Karksi	Estonia	Latvia	Eesti Gaas (ES) Latvijas Gaze (LV)
68	Zandvliet	Netherlands	Belgium	GTS (NL) Fluxys (B)
69	Audun Le Tiche	France	Luxembourg	Gaz de France T (F) SOTEG (L)
70	SILK Bacton /Zeebrugge	UK	Belgium	TFE Interconnector (UK) Fluxys (B)
71	Bilbao	LNG exporters	Spain	Gas de Euskadi Transporte (S)
72	Sines	LNG exporters	Portugal	Galp Atlantico (PT)
73	Gela	Libya	Italy	Greenstream SNAM Rete Gas (I)