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_2S + COS	- Hydrogen sulphide + Carbonyl sulphide
RSH	- Mercaptans
O_2	- Oxygen
CO_2	- Carbon dioxide
H_2O 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 m^3 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/m^3**	**[13.60]**	**15.81**	**1/10/2010**
d	**m^3/m^3**	**0.555**	**0.700**	**1/10/2010**
Total S	**mg/m^3**	**-**	**30**	**1/10/2006**
H_2S + COS (as S)	**mg/m^3**	**-**	**5**	**1/10/2006**
RSH (as S)	**mg/m^3**	**-**	**6**	**1/10/2006**
O_2	**mol %**	**-**	**[0.01]***	**1/10/2010**
CO_2	**mol %**	**-**	**2.5**	**1/10/2006**
H_2O 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/m^3 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/m^3.

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.

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

Odorisation 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 odorisation 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 odorisation 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 Businiss 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 Statenzijl (H)**	The Netherlands	Germany	GTS (NL) WINGAS (D)
10	B	**Oude Statenzijl (H)**	The Netherlands	Germany	GTS (NL) EON Ruhrgas (D)
10	C	**Oude Statenzijl (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) Geoplin (SL)
41		**Tarvisio**	Austria	Italy	OMV Gas TAG (A) SNAM Rete Gas (I)
42		**Murfeld**	Austria	Slovenia	OMV Gas (A) Geoplin (SL)
43		**Mosonmagyarovar**	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 & Monteneg	MOL T. (H) NIS-Gas (S & M)
55		**Rogatec**	Slovenia	Croatia	Geoplin (SL) Plinacro (HR)
56		**Loznica**	Serbia & Montenegr	Bosnia & Herzegov	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	Luxemburg	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)