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MANDATE TO CEN FOR STANDARDISATION IN THE FIELD OF GAS QUALITIES

1. MOTIVATION

The purpose of this mandate is to invite CEN to draw up standards for gas quality parameters for H-gas, that are the broadest possible within reasonable costs.

This mandate relates to the Directive 2003/55/EC of the European Parliament and of the Council on the creation of a competitive single European gas market.

Article 6 of the Directive states that: 'Member States shall ensure that technical safety criteria are defined and that technical rules establishing the minimum technical design and operational requirements for the connection to the system of LNG facilities, storage facilities, other transmission or distribution systems, and direct lines, are developed and made public. These technical rules shall ensure the interoperability of systems and shall be objective and non-discriminatory.'¹ In the current situation technical rules hinder the interoperability of systems, and especially for gas quality rules it is not clear if these rules are the minimum operational requirements. This poses a significant barrier to competition and trade within the European Union and is a risk to European security of gas supply.

The High Level Group on Competitiveness, Energy and the Environment, in which Commissioners Verheugen (Enterprise and Industry), Dimas (Environment), Kroes (Competition) and Piebalgs (Energy), as well as Member States and Industry representatives are present, recommended in its first report: 'The interoperability of gas systems requires greater harmonisation including co-ordination of the gas quality specifications at the EU entry points and within the EU to facilitate the development of a liberalised and competitive European gas market.'²

¹ Directive 2003/55/EC of the European Parliament and of the Council, of 26 June 2003, concerning common rules for the internal market in natural gas and repealing Directive 98/30/EC.

² First Report of the High Level Group on Competitiveness, Energy and the Environment, Contributing to an integrated approach on competitiveness, energy and environment policies, June 2 2006 (http://ec.europa.eu/enterprise/environment/hlg/doc_06/first_report_02_06_06.pdf)

The European Gas Regulatory Forum of Madrid, which includes representatives of Member States as well as regulators, industry stakeholders and which is chaired by the Commission, acknowledged on several occasions the importance of interoperability with respect of the creation of an effective European gas market. With the support of the Madrid Forum EASEE-gas was created, an association with members representing the whole gas chain, to tackle the interoperability issues. They have done considerable work, mainly by defining Common Business Practices.

At the tenth Madrid Forum, the Commission was invited 'to consider launching a study with the support of EASEE-gas aiming at establishing an inventory on all interoperability issues, in particular gas quality and providing a sound cost-benefit analysis with a view to resolving outstanding issues'.³ This study is now ongoing.

At the last gathering, 'the Forum stressed the need to study common technical issues on a European level linked to the implementation of the EASEE-gas CBP's on gas qualities, including the functioning of gas appliances, safety, emissions and efficiency. The Commission will explore ways to make progress in this area in consultation with EASEE-gas and Marcogaz and taking into account the views of relevant stakeholders.'⁴

This work will also facilitate the harmonisation undertaken under the Gas Appliances Directive (90/396/EEC).

The Commission has taken the view that the most efficient way to tackle the interoperability issues on gas quality is to issue a mandate to CEN that takes the above considerations into account.

2. DESCRIPTION OF THE MANDATED WORK

The Commission hereby requests CEN to draw up standards that define the minimum range to be accepted for gas quality parameters for H-gas. The standards shall be defined according to reference conditions as recommended by the technical committee ISO TC 193⁵.

In the approach to define the standards, a distinction is made between combustion and non-combustion parameters (see Annex 2). For the combustion parameters a testing programme on safety, efficiency and environmental impact is needed in order to define the standards. For the non-combustion parameters such programme

³ Conclusions of the 10th meeting of the European Gas Regulatory Forum, Madrid, 15-16 September 2005 (<http://ec.europa.eu/energy/gas/madrid/doc-10/conclusions.pdf>)

⁴ Conclusions of the 11th meeting of the European Gas Regulatory Forum, Madrid, 18-19 May 2006 (<http://ec.europa.eu/energy/gas/madrid/doc-11/conclusions.pdf>)

⁵ Those are combustion temperature 288.15 K, volume measurement temperature 288.15 K, combustion and volume measurement pressure 1013.25 kPa. See ISO 13443:1996.

is not needed, and the definition of the standards can be based on the work performed by EASEE-gas.

Therefore the mandate consists of two phases. In the first phase an analysis concerning the combustion parameters is elaborated. The goal of the first step is to create an overview of:

- (1) the existing population of gas appliances falling under Directive 90/396/EEC that are certified for H-gas;
- (2) the current certification practices;
- (3) the installation and inspection rules and practice;
- (4) the behaviour of domestic appliances (falling under Directive 90/396/EEC) in terms of safety, efficiency and environmental performance, handling different gas qualities.

In the second phase combustion and non-combustion parameters are involved, and CEN is invited to draft actual European standard(s) on a European gas quality. The goal is to define standards that are as wide as possible within reasonable costs. This means that the standards enhance the free flow of gas within the internal EU market, in order to promote competition and security of supply minimising the negative effects on efficiency and the environment and allow the maximum number of appliances to be used without compromising safety. To define the optimal standards, the standardisation work shall be based upon the results and conclusions of the first phase as well as the results of the interoperability study that includes a cost-benefit analysis of the European Commission (see Annex 3).

The Standards that will be defined by CEN shall take into account:

- (1) The efforts of the Madrid Forum with respect to interoperability of gas qualities;
- (2) International standardisation activities;
- (3) The results of the Interoperability study of the European Commission;

CEN is invited to base the standardisation work on the achievements of the Madrid Forum process and particularly the achievements of the EASEE-gas' CBP (Common Business Practice) 2005-001-01 on Gas Quality Harmonisation.

The standardisation work must involve representatives of all parts of the gas chain, in the same manner as they are also represented in the Madrid Forum, as well as the gas appliance industry.

Phasing of the mandate:

- (a) Phase 1: Execute an assessment of the combustion parameters according to the requirements stipulated in Annex 1;
- (b) Coordination with the European Commission: CEN will present the results of phase 1 of the mandate and the European Commission will integrate this into the Cost-benefit Analysis of the Interoperability

project. The results of the Interoperability project will provide input for a definition of standards that are the broadest possible within reasonable costs;

- (c) Phase 2: Taking into account the results of Phase 1 and the results of the Interoperability study, draft a European Standard(s) for H-gas qualities, including at least the parameters established in Annex 2.

3. BODIES TO BE ASSOCIATED

CEN should include in the standardisation work the relevant standardisation stakeholders at European level, such as ANEC, ECOS, NORMAPME and ETUI-REHS. Marcogaz should also be involved in the standardisation work.

4 EXECUTION OF THE MANDATE

- (1) The European Standard(s) (EN) shall be adopted within five years of the acceptance of the mandate. This includes two years to perform the testing programme and three years for CEN to draw up the standards. At this time, the three linguistic versions (German, English, French) shall be available.
- (2) The European standard(s) adopted shall be transposed into national standards and differing national standards shall be withdrawn from the catalogues of the national standards organizations in the Member States within six months of their adoption. However, if necessary, Member States may analyse effect of the standards on appliances installed before the coming into force of Directive 90/396/EEC and take the results into account in the use of the standards.
- (3) Acceptance by CEN of this mandate starts the standstill period referred to in Article 7 of Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 (OJ N° L 204 of 21.7.1998).

ANNEX 1 : PHASE 1

As stated above, the goal of phase 1 is to create an overview of:

- (1) the existing population of gas appliances falling under Directive 90/396/EEC that are certified for H-gas;
- (2) the current certification rules;
- (3) the installation and inspection rules and practices;
- (4) the behaviour of domestic appliances (falling under Directive 90/396/EEC) in terms of safety, efficiency and environmental performance, handling different gas qualities.

A cross-European programme should be instigated, allowing more effective working and also making the whole investigation much cheaper. As the situation of many countries is very similar, this collective work will avoid the duplication of actions and it will also give more credibility to the results (same procedures used, wide panel of experts involved). It is therefore important that CEN finds an adequate way of identifying on how to do the work, e.g. via a subcontractor, who must at least comply with the following criteria:

- (1) Have the capacity to effectuate the task in a timely manner, according to the timetable of the mandate;
- (2) Use independent laboratories for the testing programme . This means that only laboratories accredited against ISO 17025 are eligible;
- (3) Be balanced from a geographical and European perspective. This means that testing laboratories should reflect the gas used in the EU; notably North Sea gas, Dutch (H-) gas, Algerian gas, Russian gas, LNG;
- (4) Not more than 5 testing laboratories should be involved in order to make an efficient, unbiased and verifiable testing programme;
- (5) Be aware of the efforts of the Madrid Forum with respect to interoperability of gas qualities;

The investigation should to cover as many EU25 countries as possible, at least the 15 most gas using countries and/or 75% of EU gas market.

Phase 1 of the mandate should at least consist of the following aspects:

- 1) Market study to understand the existing population. How many appliances are installed, typology. Market for new appliances. What will be the future gas profiles (market of the gas in the future);
 - 2) Existing certification practices;
 - 3) Installation and inspection rules and practices;
 - 4) Conclusion for the final test programme and final selection of appliances;
 - 5) Testing of appliances;
 - 6) Conclusions.
- (1) (2) and (3) must be done for each country involved.*

The testing programme itself will be limited to domestic gas appliances since domestic gas users are not able to manage their gas appliances by themselves. The testing programme is limited to domestic appliances falling under Directive 90/396/EEC for the following reasons:

- (1) The above-mentioned Directive indicates the start of the creation of a European market for gas appliances. How Member States manage their domestic appliances dating before this Directive is a national affair according the subsidiarity principle.
- (2) For practical reasons it is not feasible to test all non-domestic appliances. Non-domestic appliances falling under Directive 90/396/EEC are therefore taken into account in the part 1 to 3 of phase 1. Other non-domestic appliances will be subject of study in the framework of the Cost-Benefit Analysis of the Interoperability project (see Annex 3).
- (3) The mandate aims to set standards for gas quality through a forward-looking approach. This means that the possibility is recognised that not all existing appliances will be able to cope with the defined standards, since these standards are concluded based on the results of both the testing programme and the cost-benefit analysis in the Interoperability project. Member States are given the opportunity for a phased introduction of the standards.

ANNEX 2: PARAMETERS ON WHICH STANDARDS ARE REQUIRED

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

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

Concerning Hydrogen, current gas flows do not contain hydrogen and it is not an issue yet in the gas market, i.e. production, transport or appliance-use. The standard therefore does not include hydrogen and only allow for insignificant levels of hydrogen. This is also the case for unsaturated hydrocarbons. If synthetic/manufactured gases are anticipated to become an issue in the gas market, the proposed set of parameters needs to be re-evaluated.

ANNEX 3: COST BENEFIT ANALYSIS OF THE INTEROPERABILITY PROJECT AND LINK TO THE MANDATE

3.1. Goal of the Interoperability project:

Enhance the technical integration of the networks, by establishing an inventory of interoperability issues throughout the whole of the European Union and afterwards producing a cost/benefit analysis of potential solutions as proposed by stakeholders. The project covers various topics relevant for technical market integration, namely gas quality, nomination & matching process, harmonisation of units, IT communication and data format, codification. For the mandate the relevant part of the project, which is also identified as the most important one, is gas quality.

3.2. Set-up of the Interoperability project:

Questionnaires, aimed at all the stakeholders along the gas chain (i.e. gas producers, gas suppliers, large & small gas consumers, gas transmissions system operators, traders, Member States and national regulatory authorities) are sent out. For the industry they are sent through the relevant associations. Per Interconnection Point the stakeholders are asked whether and what interoperability problems are at hand. Stakeholders that do not have a view per Interconnection Point but per zone or country can answer in that respect.

Based on the responses an inventory of issues can be made. The results will be discussed and ratified in (Preparatory) meetings.

3.3. Cost-Benefit analysis

To perform the cost-benefit analysis, the stakeholders are asked in the Preparatory meetings for their analysis of possible solutions and current and future costs and benefits on specific Interconnection Points, but also on costs and benefits upstream and downstream. Therefore the inputs will come from the whole gas chain (from production to burner tip), for example regulators, TSO's, shippers, traders, industrial gas users, and gas appliance manufacturers.

The results of the testing programme will also serve as input for the cost-benefit analysis, because it will provide data that are relevant for the costs and benefits involved in a possible change of gas quality for domestic appliances.

Together this will lead to an overview of EU costs and benefits of harmonising gas quality. This result will serve as input in the discussion for the definition of standards.

3.4. Planning:

The planning of the project is as follows:

- 2006: Questionnaires: distribution, analysis and confirmation of data
- Madrid Forum XII: Presentation of inventory
- 2007: Results of the first part of the cost-benefit analysis (excluding analysis for domestic appliances dependent on the results of phase 1 of the mandate)

- After phase 1 of the mandate: Elaboration of the cost-benefit analysis for domestic appliances and integration into the overall cost-benefit analysis