BUSINESS PLAN

CEN/TC 234
GAS INFRASTRUCTURE

EXECUTIVE SUMMARY

Business Environment

Natural gas is the second most used energy in Europe[i]. With an annual consumption of approx. 393 billion m^3 it shares 23,1 % of the European Primary Energy Consumption and 21.6% of the final energy consumption in Europe in 2012. Through a total length of pipelines of 2 mio. kilometer, approx. 118 mio. gas consumers (domestic, commercial and industrial) are supplied with natural gas.

The European policy aims at a common European energy market requiring common and coherent technical standards. Gas plays a significant role in this market.

CEN/TC 234 is providing functional standards for the gas sector for the design, construction, operation and maintenance of gas infrastructure including gas installation.

Parties involved are:

- Gas transmission and distribution network operators
- Manufacturers designing and manufacturing products for the gas sector
- Contractors
- Consumers/Public/Society (domestic, commercial and industrial)
- Public Authorities responsible for energy and/or environment (e.g. EC, ACER, National Regulators, National Ministries)
- European organisations installed by EU legislation (e.g. ENTSOG)
- European Organisations/Associations (e.g. Marcogaz, EASEE-gas, EHI, EUROMOT, others)

Benefits

To provide the necessary technical standards for a functioning gas infrastructure including gas installation respecting the desired level of

- technical safety of the system and the safety of the public,
- technical reliability and
- technical interoperability of gas networks in Europe.

Since 1990, 24 standards and other deliverables have been adopted and maintained.

Priorities

To make European standards available related to:

- gas infrastructure systems including gas installations
- implementation of European legislation

1 BUSINESS ENVIRONMENT OF THE CEN/TC 234

1.1 Description of the Business Environment

The following political, economic, technical, regulatory, legal, societal and/or international dynamics describe the business environment of the industry sector, products, materials, disciplines or practices related to the scope of CEN/TC 234, and they may significantly influence how the relevant standards development processes are conducted and the content of the resulting standards:

- Society is getting more and more dependent on energy;
- Gas is considered as an important energy in the future low-carbon energy mix (confirmed by EU policies);
- The state of the art in the field of provision with gas is the basis for the European Standards;
- A safe, reliable, efficient, economic and environmentally friendly gas infrastructure including domestic, commercial and industrial gas installations is in the interest of private consumers, the producing industry, the gas network operator and in general for the public welfare, consequently it is in the interest of European and national authorities and CEN stakeholders;
- The European policy and regulation on the basis of the EU Directive for a common gas market (2009/73/EC) including interoperability of European gas networks, the injection of biomethane into gas network, unbundling of gas trade and network operation influences the responsibilities and structures in the gas sector significantly. The implementation of the EU policy can be based (among others) on the technical standards, where appropriate. Recent example are the reference of the ENTSOG the Network Code on Interoperability and Data Exchange (measurement principles) to EN 1776 (gas measuring systems) and the EU Mandate M/400 Gas Quality to CEN(TC 234).
- The recognition of CEN in the European policies strengthens the role of the standards in general and leads to an increased involvement of related European organisations (ENTSOG, EASEEgas, EUROMOT; OGP, …)
- Initially mandated in the context of the EC Procurement Directive (93/38/EC, current version: 2014/25/EU) the TCs work especially aims to implement the requirements of the EC Directive for a common gas market (2009/73/EC). Furthermore, it respects the other relevant directives such as the EC Construction Products Directive (….), Energy Efficiency.
- The development of a common European respectively international gas market requires European technical standards in order to eliminate barriers by national technical requirements.
- European and global policy for protection of the environment lead to changes in the role of gas (natural gas/non-conventional gases). Furthermore, growing focus is given on the consideration of environmental impacts of and on gas infrastructure in standardization.
- The tendency to international standardisation in ISO (Vienna Agreement; EC REG 1025-2012) increases the need of CEN/ISO co-operation and liaisons in the gas sector, thus CEN/TC 234.
- Approach of self-responsibility of sectors in standardisation, CEN/TC 234 is continuously supported by European organisations/associations related to the gas sector, Marcogaz (European association of gas companies) and further TC liaison organisations.

1.2 Quantitative Indicators of the Business Environment

The following list of quantitative indicators describes the business environment in order to provide adequate information to support actions of the CEN /TC:

- **Role of natural gas in the energy sector in numbers**
  (Source: Eurogas statistical Report 2013)

Figure 1: Natural Gas sales by sectors (EU) in 2012:

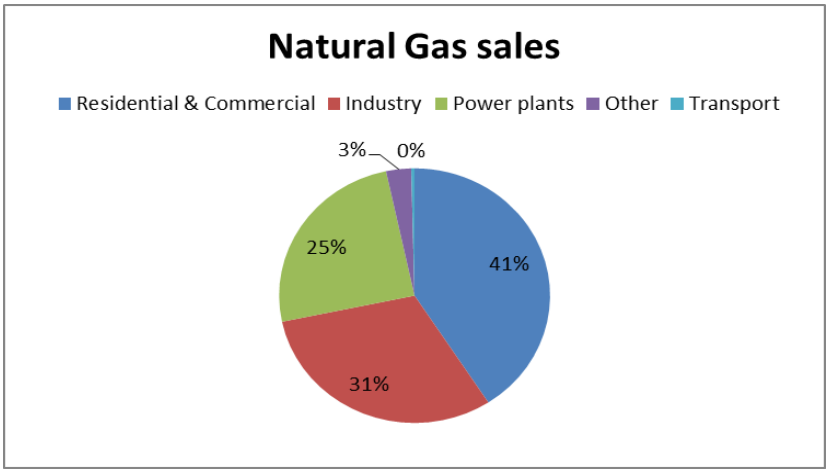

Figure 2: Primary Energy Consumption by fuel (EU) in 2012:

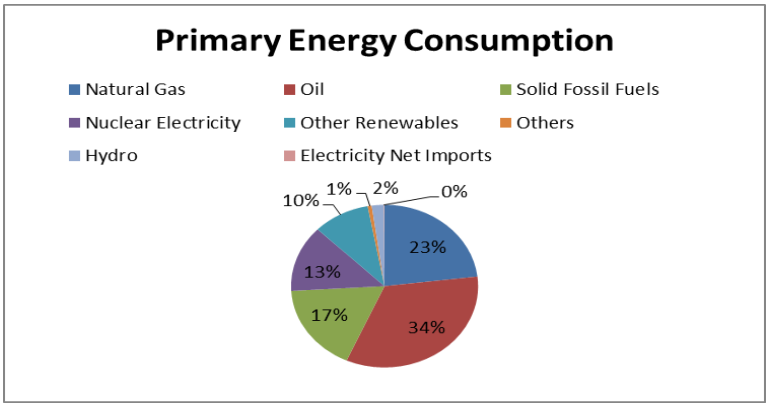

Table 1 – Number of gas customers, employees in gas industry and length of pipelines (EU 28) in 2012

	Total length of pipelines*	Number of gas costumers ** (in thousands)	Number of employees
Austria	42900	1350	2949
Belgium	73744	3161	7194
Bulgaria	6737	65	1700
Croatia	21055	642	2053
Cyprus	0	0	0
Czech Republic	77419	2868	3037
Denmark	17924	420	1400
Estonia	2870	52	340
Finland	3229	36	450
France	231627	11272	32000
Germany	477000	19678	38793
Greece	6930	289	881
Hungary	90784	3514	2726
Ireland	13309	651	600
Italy	286681	22727	30000
Latvia	6110	444	1275
Lithuania	10100	557	1700
Luxembourg	3034	83	210
Malta	0	0	0
Netherlands	135229	7111	9500
Poland	184130	6730	36000
Portugal	17333	1251	1070
Romania	53666	3201	41007
Slovakia	35349	1500	4548
Slovenia	4925	153	520
Spain	80097	7394	6615
Sweden	3220	40	250
United Kingdom	285600	23003	54178
EU-28	2171002	118191	280996
Switzerland	19103	430	1595
Turkey	82240	9177	77800

** In kilometers*

*** Number of gas customers is counted by number of meters, and include domestic as well as non-domestic (industrial, commercial and other) customers, except Germany for which the number of domestic customers is equivalent to the number of dwellings supplied with natural gas for heating.*

- **Indication of cases governmental adoption of CEN/TC 234 standards into legislation/regulation**

Reference to CEN/TC 234 standards in legislation is given in France (EN 1594) and Italy.

- **Indication of cases of normative References in European Standards:**

As CEN/TC 234 elaborates system standards for the different parts of the gas chain they are strongly related to each other, therefore, cross references are given in the whole set of the CEN/TC 234 standards.

Furthermore, the relevant product and functional standards related to gas infrastructure and gas installation refer to CEN/TC 234 standards, where appropriate.

2 BENEFITS EXPECTED FROM THE WORK OF THE CEN/TC 234

- provision of a set of coherent functional and technical requirements related to design, construction, operation and maintenance of the complete gas infrastructure, including gas installation, supporting operators of gas infrastructure in their practical doing and gas installation owners in fulfilling their responsibilites
- alignment of technical requirements related to gas systems in Europe in support of a common European market
- support of the EC requirement of non-discrimination and objectivity by technical harmonization of requirements for planning, construction, operation and maintenance (e.g. harmonization of gas quality...);
- cost savings and the remove of technical barriers to trade and open markets throughout Europe by the application of common technical requirements
- safeguard and strengthening of the European-wide:
    - technical safety of gas network and gas installations;
    - technical reliability of gas systems
    - technical interoperability of European gas networks
- achievement of technical interoperability of gas networks in respect of the EU Directive 2014/25/EU on public procurement and the EU Directive 2009/73/EC on the common market
- strengthening the self-responsibility approach of standardisation taking the advantages of the knowledge and experiences of the gas sector, also supporting the implementation of requirements resulting from EC policies and directives
- increasing the confidence of consumers in the technical safety and reliability of gas
- 1 standard is harmonized and cited in Official Journal

3 PARTICIPATION IN CEN/TC 234

Generally, the broad representation of European gas sector in CEN/TC 234 by delegates from about 26 CEN Member States leads to a high recognition and broad willingness of implementation of the standards in the gas sector.

All the CEN national members are entitled to nominate delegates to CEN Technical Committees and experts to Working Groups, ensuring a balance of all interested parties. Participation as observers of recognized European or international organizations is also possible under certain conditions. To participate as national delegate in the activities of this CEN/TC, please contact the national standards organization in your country. To participate as European organization, please contact CEN/TC 234 secretariat or CCMC.

4 OBJECTIVES OF CEN/TC234 AND STRATEGIES FOR THEIR ACHIEVEMENT

4.1 Defined objectives of CEN/TC 234

CEN/TC 234 aims at providing the gas industry with the necessary standards, i.e. the functional requirements required to design, construct, operate and maintain gas infrastructure and to ensure the technical interoperability between networks.

CEN/TC 234 aims at an utmost of technical safety and technical reliability and availability of the gas infrastructure including gas installation.

Within the framework of CEN there is a distinction between product related standardisation and function related standardisation. CEN/TC 234 elaborates "functional standards". These specify function of technically complex systems, function meaning: "*the work or activity something is designed to do*". The functional standards for gas infrastructure therefore cover the many activities related to the creation of gas infrastructure systems, and to their proper operation and maintenance. Therefore, the term functional refers in broad terms to all of the technical and operational activities necessary to ensure that gas infrastructure systems fulfil their purpose, i.e. to provide a safe, continuous and reliable supply of gas to consumers.

CEN/TC 234 aims at elaborating and maintaining the complete and coherent suite of functional standards for the gas sector. It covers all parts of the gas infrastructure system from the input of gas to the transmission system up to the inlet connection of the gas appliances, whether for domestic, commercial or industrial purposes. This includes transmission, distribution, storage, compression, regulation and metering, installation, injection of non-conventional gases, gas quality issues and others.

The CEN/TC 234 functional standards shall specify the common appropriate principles, taking the form of: recommendations, requirements, and the recognised practices concerning design, construction, operation and maintenance, all for the safety and integrity of gas infrastructure systems. This does not preclude the possibility of introducing detailed technical requirements/specifications providing consensus can be reached between the members of CEN/TC 234.

Such details can include:

- precise physical limitation;
- pressure levels;
- temperature ranges;
- type of gas;
- relationship with codes of practice and/or national detailed standard or specification.

It is the aim of CEN/TC 234 to extend the details contained in the standards as they are revised over the years respecting the objective of CEN to harmonise technical standards on a European and international level.

The functional standards of CEN/TC 234 are established within the framework of the EC Directive 93/38 following the EC standardisation mandate M/017. Directive 93/38 is now superseded by "DIRECTIVE 2014/25/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 on the procurement by entities operating in the water, energy, transport and postal services sectors and repealing Directive 2004/17/EC".

However, with view to current EC energy policy regarding liberalization of the gas market, interoperability of gas network and free trade of products and services, **the CEN/TC 234 work aims at** supporting especially the "DIRECTIVE 2009/73/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC (the revision of 98/30/EC) but also other EC requirements.

Furthermore, **CEN/TC 234 aims** at providing a platform to exchange knowledge and experience of experts in the gas industry and from gas consumers and at creating added value for the organisations making experts available for participation in committees and working groups.

To achieve these objectives, **CEN/TC 234 aims at** efficient liaisons with:

- the relevant CEN and ECISS Committees to cover the issues in the field of gas infrastructure including gas installation properly and in coherence with each other; an aspect which is significant for a reliable gas system;

  CEN/TC 234 elaborates functional standards for gas systems, product standard should fit into the system. Therefore, liaisons are used to avoid overlaps and to bring the requirements in line with each other in an early phase of standardisation.

- with all technical oriented European organisations and associations and those where interfaces with the CEN/TC 234 occur;
- with the relevant ISO Committees
  - to monitor the standardisation work,
  - to ensure the integration of European requirements related to technology, safety philosophies and technical approaches in EN ISO standards,
  - to use the liaison rights of the CEN/ISO co-operation,
  - to exchange technical know-how, to avoid overlaps,
  - to implement the Vienna Agreement.

With respect to limited availability of resources (also as a consequence of EU regulation of the European energy market), good liaison management and planning is necessary.

4.2 Identified strategies to achieve the CEN/TC's defined objectives.

General strategies

CEN/TC 234 achieves its objectives by

- continuous monitoring of the developments in the gas sector related to the CEN/TC 234 scope,
- installation of specific Working Groups unifying the experts on the aspects to be standardised

- consideration of the relevant aspects and developments at CEN/TC 234 Plenary, Conveners' and Working Group meetings
- regular work in the Working Groups (physical meetings/by correspondence)
- liaison work on CEN and ISO level
- co-operation with Marcogaz (Technical Association of the European Gas Industry) and other associations/organisations

supported by Plenary Decision taking at meeting and/or by correspondence.

The current CEN/TC 234 Working Groups are:

WG 1 Gas installation

WG 2 Gas supply systems up to and including 16 bar and pressure testing

WG 3 Gas transportation

WG 4 Gas underground storage

WG 5 Gas measuring

WG 6 Gas pressure regulation

WG 7 Gas compression

WG 8 Industrial piping

WG 9 (abundant)

WG 10 Service Lines

WG 11 Gas Quality

Further approaches and aspects for the efficient TC work:

- Continuously updated internal definition paper supports WGs to find common understandings in the group and in the harmonized use of terms while standard' drafting;
- Available European, national or international source documents (national standards, technical rules, IGU/EU/Marcogaz studies) are used as basis of TC 234 deliverables, where available and appropriate ;
- CEN/TRs and CEN/TSs are used to make recommendations available at short terms and to give technical advice to the gas sector;

4.3 Environmental aspects

General

This topic keeps becoming more and more important due to the ongoing climate change and the rising awareness that a failure to act will cause irreversible damage to environment. This has led to the phrasing of several clear objectives within the EU concerning environmental issues (e.g. low carbon goal, etc.).

Gas and environment

Gas is an essential component to a clean, competitive and secure energy future. It is unanimously recognized as the most environmentally friendly and sustainable fossil fuel with the lowest CO_2 emissions. Furthermore, it can enable renewable energy sources. Using gas instead of other fossil fuel, it is the cheapest and fastest way to reduce CO_2 emissions significantly. Lastly, gas is not only quickly available but can also be stored effectively in large quantities.

Gas Infrastructure, by being by far the safest way to transport energy, reflects an excellent safety level.

Therewith, gas corresponds to the European energy vision (e.g. low carbon energy). It offers a promising the higher objectives of the EU commission strategy 2050: A secure low carbon energy system that focuses on security, energy efficiency and sustainability.

Environmental aspects in CEN/TC 234

CEN/TC 234 elaborates functional standards for gas infrastructure in which standardized products are used. As the environmental aspects related to the manufacturing of products and the use of materials are already dealt with in each product standard (CEN guide 4:2008), CEN/TC 234 standards refer exclusively to the environmental aspects related to gas infrastructure including transmission, distribution, storage, compression/ stations, pressure regulating stations and metering, installation, injection of non-conventional gases, gas quality issues and others.

In this respect, potential environmental indicators are:

- resources used
- energy consumption/ use
- emissions to air
- emissions to water
- waste
- nuisances
- risk to environment by accident or misuse
- environmental impact on land
- migration of dangerous substances
- impact on soil
- climate change

The named indicators are described in relation to the specific processes in detail in CEN/TR 16388. Where necessary, CEN/EHD is contacted for assistance.

Referring to the allocation of an EU Mandate to CEN/CENELEC on the (potential) adaptation of standards to climate change (2014), the aspects of climate conditions are respected in the CEN/TC 234 standards which deal with design, construction, operation and maintenance of gas infrastructure including gas installations. Consequently, the consideration of climate change is included in the design and construction of new infrastructure.

The adaptation of existing infrastructure cannot be covered in these standards. Climate change issues should be considered in asset management or safety management as an option.

Environmental aspects are being regularly and recurrently discussed at TC 234 meetings. It is explicitly requested that the issues concerning this topic as well as the progress in approaching final objectives are kept track of.

Reflection in New Work Item Proposals

In case of New Work Item Proposals (NWIPs) or in case of adoption of Work Items, CEN/TC 234 takes care that the necessary expertise is incorporated in the dedicated working groups. In this regard, CEN/TR 16388 represents a guideline in setting requirements regarding environmental issues in the gas infrastructure and serves as a fundamental background for the experts. Within the work of CEN/TC 234 it has the intent to elicit an in-depth reflection on all possible

environmental consequences. It intends to do so during the planning as well as the actual execution of an operative action.

5 FACTORS AFFECTING COMPLETION AND IMPLEMENTATION OF THE CEN/TC WORK PROGRAMME

- Lack of transparency in CEN/ISO communication: information flow rely mostly on personal engagement of liaison officers
- Limited availability of resources especially for continuous liaison work with other CEN TCs and ISO TCs
- Getting fewer experts available due to company policy on operational costs

[i] EU-28, source Statistical Report 2013, EUROGAS, available on www.eurogaz.org