



BUSINESS PLAN

CEN/TC 12

MATERIALS, EQUIPMENT AND OFFSHORE STRUCTURES FOR PETROLEUM, PETROCHEMICAL AND NATURAL GAS INDUSTRIES

EXECUTIVE SUMMARY

From a **societal perspective**, oil and gas provide the world's 7,6 billion people with 53 percent of their daily energy needs. The other 47 percent comes from coal, nuclear, biofuels and waste, hydro, and other "renewables" including geothermal, wind, solar and tide/wave/ocean,. Oil and gas are also the raw materials used to manufacture fertilisers, fabrics, synthetic rubber and the plastics that go into almost everything we use these days, from toys to personal and household items to heavy-duty industrial goods.

From a **business perspective**, oil and gas represent global commerce on a massive scale. World energy markets are continually expanding, and companies spend billions of dollars annually to maintain and increase their oil and gas production. Over 200 countries have invited companies to negotiate for the right to explore their lands or territorial waters, hoping that they will find and produce oil and gas, create local jobs and provide billions of dollars in national revenues.

From a **geopolitical perspective**, large quantities of oil and gas flow daily from "exporting" regions such as the Middle East, Africa and Latin America to "importing" regions such as Europe and the Far East. This creates political, trade, economic and even national security concerns on both sides.

In this general context, the management of all steps of the value chain of oil and gas production and marketing has a great importance for the world economy and thus European political, economical, social and societal, and technical interests. So, creating the best working frame to produce one set of international standards in order to spread best practices around the world and specific geographical areas is a big challenge to ensure the security and the efficiency of this activity.

Covering the standardisation of the upstream sector, commonly known as the exploration and production (E&P) of oil and gas, the strategy of CEN/TC 12 is focused on the preservation of the interests of European companies into the worldwide market and to assist European regulators to minimise environmental risks, by taking into account the need to preserve the security of the Union's energy supply. CEN/TC 12 works closely with ISO/TC 67 to publish « **international standards to be used locally worldwide** » by adopting ISO standards into the CEN portfolio and by ensuring a European presence through parallel work under the frame of the Vienna Agreement. As part of its mission, CEN/TC 12 also promotes the harmonisation in standardisation with technical committees from other relevant regional standardisation bodies.

CEN/TC 12 Business plan

Date: July 2018

Version: final

Page: 2

1 BUSINESS ENVIRONMENT OF CEN/TC 12

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 12, and they may significantly influence how the relevant standards development processes are conducted and the content of the resulting standards.

General information regarding the sector

The hydrocarbons have a very important place in the world total consumption of energy (9.384 Mtoe [million tonnes of oil equivalents] in 2015, more than a doubling since 1973). As shown in Table 1¹, oil and gas consumption represented 55,9 % (41,0 % and 14,9 %, respectively) of the world total final consumption of energy, mainly consumed in OECD countries (38,6 %), in China (20,4 %) and other Asian countries (12,5 %). Among the OECD countries, American and European countries are the bigger consumers of total final energy. Figure 1¹ illustrates the evolution of the world total final energy consumption from 1971 to 2015 by fuel and by region.

Table 1 — Global energy consumption in 1973 and 2015

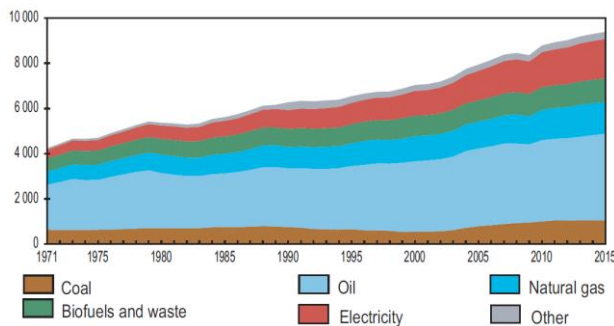
Fuel shares of total consumption			Regional shares of total final consumption		
	1973	2015		1973	2015
Coal ^a	13,5%	11,1%	OECD ^d	60,3%	38,6%
Oil	48,3%	41,0%	China	7,8%	20,4%
Natural gas	14,0%	14,9%	Non-OECD Americas	3,6%	5,0%
Biofuel and waste ^b	13,1%	11,2%	Non-OECD Asia (excl. China)	6,3%	12,5%
Electricity	9,4%	18,5%	Non-OECD Europe and Eurasia	13,6%	7,5%
Other ^c	1,7%	3,4%	Africa	3,7%	6,1%
			Middle East	0,7%	5,1%
			Bunkers ^e	4,0%	4,1%
Total (Mtoe)	4.661	9.384	Total (Mtoe)	4.661	9.384

^a Coal includes peat and oil shale.
^b Data have been estimated for a number of countries.
^c Other includes geothermal, solar thermal, and heat.
^d OECD includes OECD Europe (36,3 % in 1973 and 33,1% in 2015 of total OECD), OECD Asia and Oceania (10,7 % in 1973 and 15,8 % in 2015 of total OECD) and OECD Americas (53,0 % in 1973 and 51,1 % in 2015 of total OECD).
^e Bunkers include international aviation and international marine bunkers.

The estimation of the proven reserves of hydrocarbons are huge and are regularly increasing due to new discoveries or to new improved techniques of enhanced recoveries, under existing economic and operating conditions. Globally, the reserves of crude oil and gas comprise several decades of consumption, estimated in 2016 as 1.650 billion barrels for crude oil and 6.879 trillion cubic feet of natural gas. In Europe, the estimation of proven reserves of hydrocarbons in 2017 represent a small part of the world reserve, namely 12 billion barrels of crude oil and 117 trillion cubic feet of natural gas².

1 Source: Key world energy statistics 2017, International Energy Agency (IEA)

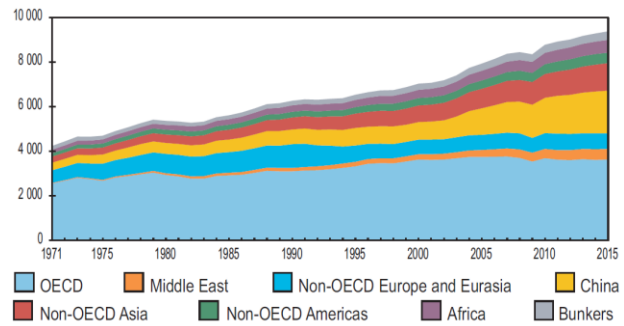
2 Source: International Energy Statistics, U.S. Energy Information Administration (EIA Beta); links for [crude oil](#) and [natural gas](#).



a) world total final consumption by fuel

Notes:

- world includes international aviation and international marine bunkers;
- coal includes peat and oil shale;
- data for biofuels and waste final consumption have been estimated for a number of countries;
- other includes geothermal, solar thermal, and heat.



b) world final consumption by region

Notes:

- data for biofuels and waste final consumption have been estimated for a number of countries;
- non-OECD Asia excludes China;
- bunkers includes international aviation and international marine bunkers.

Figure 1 — Evolution of global energy consumption in the period 1971- 2015 by fuel and region

General information regarding the standardised products

The oil and gas industry is often divided in three major sectors (although in recent years have seen an increasing number of so-called integrated projects notably on liquefied natural gas (LNG) and gas-to-liquids (GTL) that blur the lines between these sectors):

- The **upstream** sector includes the searching for potential underground or underwater crude oil and natural gas fields, drilling of exploratory wells, and subsequently drilling and operating the wells that recover and bring the crude oil and/or raw natural gas to the surface.
- The **midstream** operations include LNG facilities. These can be an integral part of an upstream project. Other projects are sometimes seen as part of downstream operations.
- The **downstream** sector commonly refers to the refining of petroleum crude oil and the processing and purifying of raw natural gas, as well as the marketing and distribution of products derived from crude oil and natural gas. The downstream sector touches consumers through products, such as gasoline or petrol, kerosene, jet fuel, diesel oil, heating oil, fuel oils, lubricants, waxes, asphalt, natural gas, and liquefied petroleum gas (LPG) as well as hundreds of petrochemicals.

The **scope of CEN/TC 12** is covering all three sectors and the petrochemical industry that use oil and gas as feedstock for other products, as shown schematically in Figure 2.

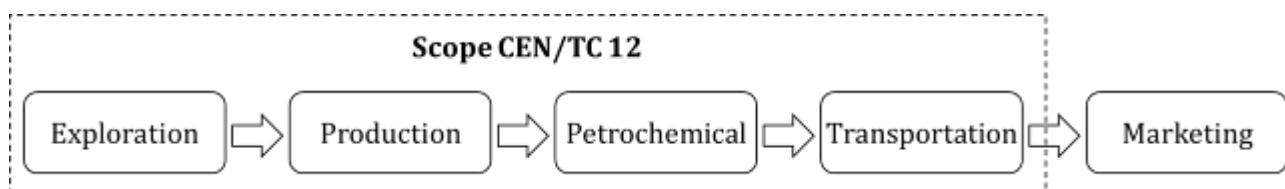


Figure 2 — Schematic representation of scope of CEN/TC 12

The scope of CEN/TC 12 is defined as standardisation of the materials, equipment and offshore structures used in the drilling, production, transport by pipelines and processing of liquid and gaseous hydrocarbons within the petroleum, petrochemical and natural gas industries, excluding gas infrastructure from the input of gas into the onshore transmission network up to the inlet connection of gas appliances (covered by CEN/TC 234), installation and equipment for LNG (covered by CEN/TC 282) and those aspects of offshore structures covered by IMO requirement (ISO/TC 8). The standardisation is to be achieved wherever possible by the adoption of ISO standards.

CEN/TC 12 Business plan

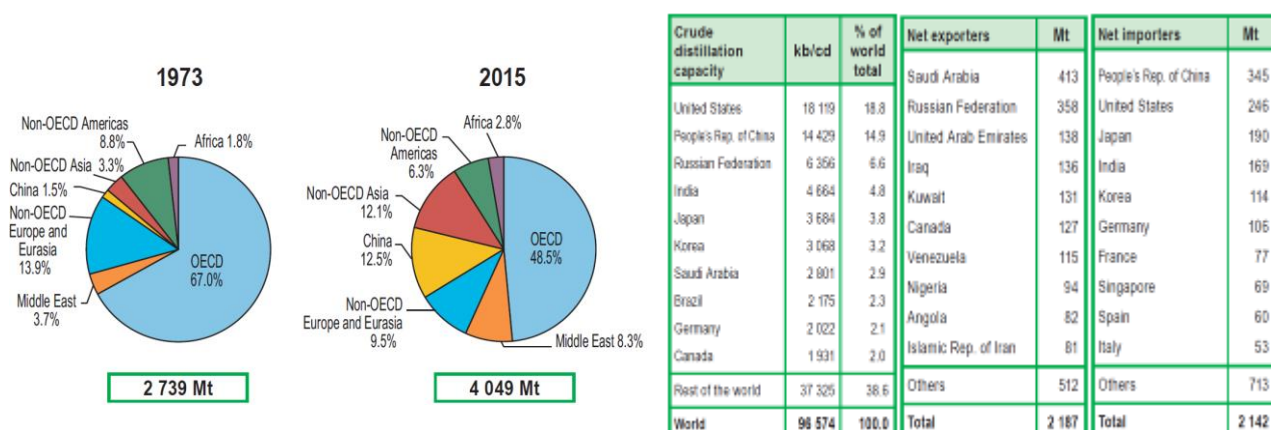
Date: July 2018

Version: final

Page: 4

It should be considered that the two main activities (upstream and downstream) have different impacts for OECD and European countries.

Figure 3³ shows the regional shares of refinery intake in 1973 and 2015, and refinery capacity, net exporters and net importers of oil in 2015/2016. The OECD countries are in the top list of consumers of oil and gas in the world and they refine 48,5 % of the crude oil in the world. Although mainly dominated by the United States of America (18,8 %) and China (14,9 %), Europe has several countries that present a good crude distillation capacity, notably Germany (2,1 %). Since a decade, Europe's oil refining industry is less competitive than other areas in the world and encounters refinery closures mainly due to a declining interior demand and a historical overcapacity. Within Europe, the principal refinery activity consists of modernisation and upgrading of existing sites. Therefore European companies should engage in the international market in order to remain competitive within Europe. Concerning the need for international standards in Europe, the equipment used in refineries is identical to the one used in an upstream production centre and the standards should therefore be identical as well. Then, the Russian Federation, as a non-OECD country, represents itself 6,6 % of the world refinery capacity.



Notes:

- world refinery intake includes crude oil, NGL, refinery feedstocks, additives and other hydrocarbons;
- non-OECD Asia excludes China.

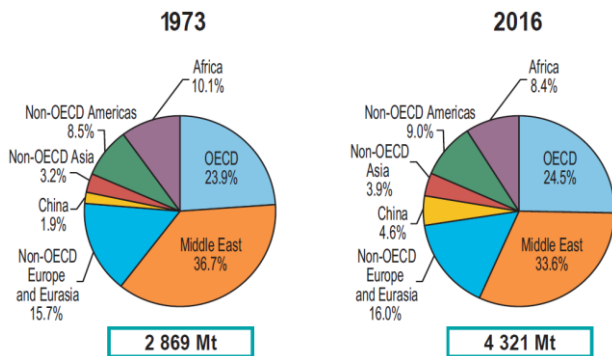
Notes:

- refinery capacity, net exporters and net importers of oil includes crude oil and oil products;
- data of refinery capacity are based on 2016; data on net exporters and net importers are based on 2015.

Figure 3 – Regional shares of refinery intake in 1973 and 2015, and refinery capacity, net exporters and net importers of oil including crude oil and oil products in 2015/2016

Figure 4³ shows the regional shares of crude oil and natural gas production in 1973 and 2016, and net producers, net exporters, and net importers of crude oil and natural gas in 2015/2016. The production of hydrocarbons is dominated by the Middle East (36,7 % of crude oil and 16,2 % of natural gas) and other non-OECD countries (28,9 % of crude oil and 35,1 % of natural gas). OECD countries show better activity in natural gas production (36,2 % [compared to 71,5 % in 1973]), with Norway ranking in top-10, than in crude oil production (24,5 %), without any European country ranking in the top-10.

³ Source: Key world energy statistics 2017, International Energy Agency (IEA)



Notes:

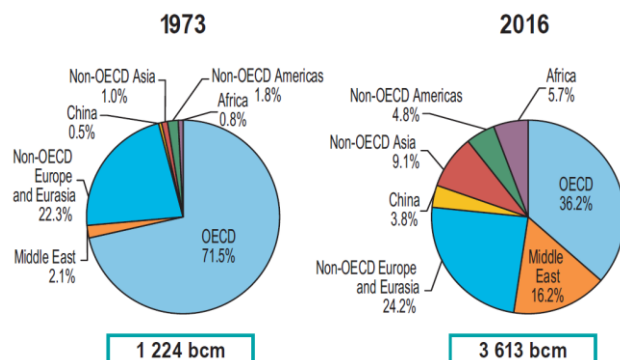
- crude oil production includes crude oil, NGL, refinery feedstocks, additives and other hydrocarbons;
- non-OECD Asia excludes China.

Producers	Mt	% of world total	Net exporters	Mt	Net importers	Mt
Saudi Arabia	583	13.5	Saudi Arabia	369	United States	348
Russian Federation	546	12.6	Russian Federation	243	People's Rep. of China	333
United States	537	12.4	Iraq	148	India	203
Canada	220	5.1	United Arab Emirates	125	Japan	165
Islamic Rep. of Iran	200	4.6	Canada	116	Korea	139
People's Rep. of China	200	4.6	Nigeria	104	Germany	91
Iraq	191	4.4	Kuwait	100	Italy	67
United Arab Emirates	182	4.2	Venezuela	98	Spain	65
Kuwait	159	3.7	Angola	86	Netherlands	59
Brazil	135	3.1	Islamic Rep. of Iran	64	France	57
Rest of the world	1 368	31.8	Others	539	Others	514
World	4 321	100.0	Total	1 992	Total	2 041

Notes:

- refinery capacity, net exporters and net importers of oil includes crude oil and oil products;
- data of producers are provisionally based on 2016; data on net exporters and net importers are based on 2015.

a) Crude oil



Note:

- non-OECD Asia excludes China.

Producers	bcm	% of world total	Net exporters	bcm	Net importers	bcm
United States	749	20.7	Russian Federation	206	Japan	116
Russian Federation	644	17.8	Qatar	117	Germany	79
Islamic Rep. of Iran	190	5.3	Norway	115	People's Rep. of China	69
Canada	174	4.8	Canada	61	Italy	65
Qatar	165	4.6	Algeria	54	Turkey	46
People's Rep. of China	137	3.8	Turkmenistan	53	Korea	44
Norway	121	3.3	Australia	41	Mexico	43
Algeria	92	2.5	Indonesia	34	France	43
Saudi Arabia	90	2.5	Malaysia	24	United Kingdom	38
Australia	88	2.4	Nigeria	23	Spain	28
Rest of the world	1 163	32.3	Others	142	Others	286
World	3 613	100.0	Total	869	Total	857

Notes:

- net exports and net imports include pipeline gas and LNG;
- all data are provisionally based on 2016.

b) Natural gas

Figure 4 – Regional shares of crude oil and natural gas production in 1973 and 2016, and net producers, net exporters, and net importers of crude oil and natural gas in 2015/2016

Interested parties in the standardisation process

The industry comprises several categories of actors, all within a supply chain (supply of goods, services, capital and labour), which increasingly collaborate together within networks. Interested parties in the standardisation of this field are:

- oil and gas companies at national, regional or international level, either private or public;
- service companies performing work for the above companies (e.g. drilling contractors, engineering firms, conformity assessment bodies);
- petroleum, petrochemical and gas equipment and materials manufacturers;
- regional and international associations of oil and gas companies;
- regional associations of petroleum, petrochemical and gas equipment and materials suppliers;
- governmental policy makers and regulators, including European Commission;
- national, European and international standardisation bodies;
- universities and research institutes;
- non-governmental organisations.

CEN/TC 12 Business plan

Date: July 2018

Version: final

Page: 6

Type and size of companies

All types and sizes of companies are involved, from large, integrated multinational oil and gas companies, medium-sized ones at national levels, and companies that focus on one sector e.g. on refining and distribution only or in petrochemical activities. Manufacturers and contractors can also be major international units or smaller ones in local environment. Small- and medium-sized enterprises (SMEs) are mainly concerned through their manufacturers associations or syndicates.

Technical issue

Today, oil and gas are produced in almost every part of the world, from 20 meters deep reservoirs (onshore) to 3.000 meter deep wells in more than 2.000 meters water depth (offshore) with a large scale of technologies used. Figure 5⁴ illustrates the different oil and gas production facilities.

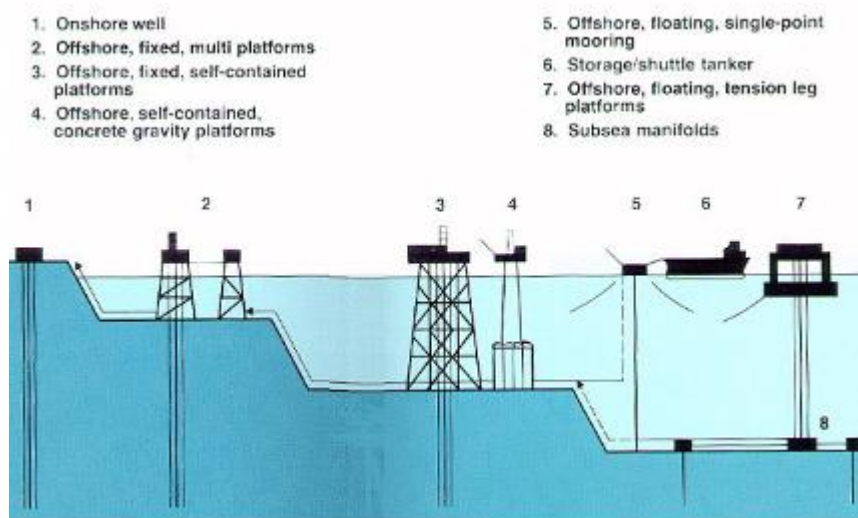


Figure 5 — Oil and gas production facilities

The functions of the upstream business of oil and gas companies are securing access to find and to produce oil and gas for supply or sale into downstream operations. Technologies used are focused on exploration, well drilling, oil production, wellhead gas compression, gas gathering and boosting, and advanced recovery processes. For offshore plants, the technology is depending on size and water depth for which a whole range of different structures are used. Last decade, big developments are taking place in so-called unconventional hydrocarbons production (e.g. shale oil, shale gas, tight gas and coalbed methane) in which technical innovations result in producing unconvensionals at lower cost, improving the economic conditions for production. In this technology context, standardisation needs to offer the best practice to secure capabilities of all companies to reduce the costs and limit the risks linked to their activities.

Regulatory and legal issue for offshore activities

Since some accidents relating to offshore oil and gas operations have occurred, in particular in the Gulf of Mexico in 2010, the European Commission (EC) has focused its strategy to reduce as far as possible the occurrence of those accidents and to limit their consequences, thus increasing the protection of the marine environment and coastal economies against pollution. In this context, the EC published the report to the Parliament, named "Facing the challenge of the safety of offshore oil and gas activities" in 2011 and in parallel organised a workshop to point out the gap between law and standardisation. On the basis of this work, the EC submitted a draft mandate related to the ATEX Directive (Directive 94/9/EC), the

⁴ Source: Oil and Gas Production Handbook, Håvard Devold, 2006, ABB ATPA Oil and Gas

Pressure Equipment Directive (Directive 97/23/EC) and the Machinery Directive (Directive 2006/42/EC) to CEN and CENELEC in the field of equipments used in the offshore oil and gas industry in 2012. This mandate was rejected by CEN and CENELEC. Since this time, the EC had listed the safety of offshore machinery as a priority in its standardisation strategy in order to improve the safety of those equipment. The EC is preparing a standardization request (previously known as mandate) for certain specific items of safety-critical equipment. Moreover, the EC published the Directive on safety of offshore oil and gas operations (Directive 2013/30/EC) to establish minimum conditions for safe offshore exploration and exploitation of oil and gas, to limit possible disruptions to EU's indigenous energy production and to improve the response mechanisms in case of an accident, in cooperation with member states and the competent regulatory authorities.

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 CEN/TC 12.

Consumption of hydrocarbons in Europe exceeds production by a wide margin. As presented in Table 1 and Figures 3 and 4, the main upstream activity is outside of this geographical area, and users of technologies as well as manufacturers are outside Europe. For the standardisation activity, those parameters explain why CEN/TC 12 works closely under the Vienna Agreement to publish European standards (EN ISO or EN).

The international oil and gas companies, which are traditionally the big investors in technology (more than 700 M€ are spent in R&D annually), have reduced their technological activities. National (state owned) oil and gas companies, mostly located outside Europe, seem to increase their investments. Increasingly, the integrated service and supply companies now provide the industry with their technology and related expertise needs. The increasing weight of this supply and services industries has consequences in the turnover of European petroleum and natural gas industries due to the fact that those companies have increased the outsourcing as part of their previous activity in order to focus on their core business. The turnover of these European supply and services industries reaches 40 billion euros and a workforce of 250.000 direct employees is involved. This turnover reaches 25 % of the worldwide one.

On the other hand, the development of shale gas in Europe could add as many as one million jobs to the economy, make industry more competitive and decrease the region's dependence on energy imports. Some researches have quantified for the first time how much Europe's economy could benefit from domestic shale gas production. Shale gas could add a total of 1,7 trillion to 3,8 trillion euros to the economy between 2020 and 2050, according to data from IOGP.

2 BENEFITS EXPECTED FROM THE WORK OF CEN/TC 12

Benefits expected from the work of the CEN/TC 12 are mainly to:

- Adopt ISO standards into EN portfolio in order to avoid the duplication of work by all European interested parties and to ensure an official European presence into ISO works via the formal Vienna Agreement procedure.
- Support petroleum and natural gas industries in the reduction of their costs, the increase of business efficiency (economical benefits), the improving of technical integrity and the establishment of a common technology base. The adoption of standards is entirely voluntary, but companies estimate savings millions of euros through having a common set of agreed standards.
- Contribute indirectly to the development of the European petroleum and natural gas activity in the European area or by European actors in order to preserve its political, economic, social and societal, technical impacts ;
- Assist European regulators to achieve their objectives for safe exploration and exploitation of oil and gas in Europe with the need to preserve this industry and the security of the EU's energy supply.

CEN/TC 12 Business plan

Date: July 2018

Version: final

Page: 8

3 PARTICIPATION IN CEN/TC 12

All the CEN national members are entitled to nominate delegates to CEN/TC 12 and experts to working groups, ensuring a balance of all interested parties. Participation as observers of recognised European or international organisations is also possible under certain conditions. To participate in the activities of CEN/TC 12, please contact the national standards organisation in your country.

4 OBJECTIVES OF CEN/TC 12 AND STRATEGIES FOR THEIR ACHIEVEMENT

4.1 Defined objectives of CEN/TC 12

CEN/TC 12 elaborates standards on materials, equipment and offshore structures used in the drilling, production, transport by pipelines and processing of liquid and gaseous hydrocarbons within the petroleum, petrochemical and natural gas industries, excluding gas infrastructure from the input of gas into the on-shore transmission network up to the inlet connection of gas appliances (covered by CEN/TC 234), installation and equipment for LNG (covered by CEN/TC 282) and those aspects of offshore structures covered by IMO requirements (ISO/TC 8). The standardisation is to be achieved wherever possible by the adoption of ISO/TC 67 standards.

In this scope, the stakeholders of the petroleum and natural gas industries decided to write « ***international standards to be used locally worldwide*** », mainly because their activities are at the international level. To reach this objective, European companies decided to adopt most of international standards developed by ISO/TC 67 "Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries" as European standards. The transfer to CEN/TC 12's portfolio is done through parallel work under the frame of the Vienna Agreement.

CEN/TC 12 has several objectives, such as:

- Contribution to the development of ISO standards, which can take into account specifications from European companies by the nomination of European experts into the ISO structures taking into account CEN/TC 12's interests.
- Elaboration of European standards from ISO documents within the framework of the Vienna Agreement in order to give a single set of normalised documents, which share technological solutions or best practices recognised and applied worldwide to all CEN/TC 12's members and their companies;
- Working closely with European regulators in order to study ISO standards and their compliance with European regulations and try to preserve European specifications at the international level in order to influence the structure of ISO documents in line with most of pertinent European directives.
- Promote harmonisation in standardisation between CEN/TC 12 and relevant technical committees from other relevant regional standardisation bodies, such as member countries of the Euro Asian Council for Standardisation, Metrology and Certification (EACS), the Russian Federation and the Gulf Cooperative Council (GCC), which are all well involved in this industry, as described in 1.1.

4.2 Identified strategies to achieve CEN/TC 12's defined objectives

Strategies adopted to reach the objectives:

- a) The choice of the standardisation programme of CEN/TC12 has to take care of the corresponding programme of ISO/TC 67, but with the primary objective being that only those standards used for procurement are chosen as well as those of any other interest. The development of the work programme is published by CEN.
- b) The work items must include the European requirements in order to be identical worldwide.
- c) Each time a problem occurs, CEN/TC 12 shall find a solution with the international partners to reach the objective to have only one standard worldwide.
- d) CEN/TC 12 shall avoid to write European standards, except for specific items to give a quick and operational technical responses for some European stakeholders.

Mode of operation:

- a) Each new work item of ISO/TC 67 is also voted at CEN/TC 12 level, if possible in parallel.
- b) To be finally approved, at least experts from five European countries (CEN members) shall be nominated to participate in the work to be done in the ISO work group.
- c) European experts are provided with specific guidance related to CEN policy to ensure that the ISO standard developed can be adopted without modification.
- d) A management committee exists in ISO/TC 67 that includes participation of the main stakeholders and chairperson of CEN/TC 12 to find solutions for possible problems occurring during the parallel procedures. In this respect, several relevant documents were prepared, voted in ISO and CEN, and distributed to interested parties on various matters, including normative references, standard clauses, how the Vienna Agreement is implemented, et cetera.
- e) A summary of European requirements is included in the ISO/TC 67 "Policy and procedures" guide.

4.3 Environmental aspects

International standards for the petroleum, petrochemical and natural gas industries are needed to give integrated technical answers about safety, health and environmental concerns. The concept of "global standards used locally worldwide" is one of the main CEN/TC 12 issues with the need to publish European standards in accordance with European environmental policy and directives.

As an overall review, petroleum, petrochemical and natural gas activities could cause environmental damage at different upstream and downstream stages, from exploration, production, to transporting and refining. In this context, one of the main goals is to identify possible ways in which the life-cycle environmental impacts for those products and equipment associated with greatest environmental impact can be reduced.

To reach this objective, CEN/TC 12 had established an ad-hoc group (Resolution 4/2000 - Brussels), called CEN/TC 12 AH 6 "Environmental aspects", to investigate and report to the CEN/TC 12 members about questions of environmental considerations to be incorporated in drafts of European standards. Among its mission, this ad-hoc group is in charge of making proposals to CEN/TC 12 for the preparation of environmental guidelines for the oil and gas sector, after connections with other CEN/TCs involved in petroleum, petrochemical and natural gas activities and informal contacts with CEN Sector Forum Gas, and to list life-cycle environmental impacts.

5 FACTORS AFFECTING COMPLETION AND IMPLEMENTATION OF CEN/TC 12's WORK PROGRAMME

Risk analysis:

- a) **Work done in ISO** – For the reasons explained, CEN/TC 12 is closely linked to ISO/TC 67. The productivity in ISO/TC 67 has been affected since 2011 by the perceived threat of EU and US trade sanctions. Severance of the ties with ISO/TC 67 would not resolve this issue: besides the risk of duplication of efforts (inefficient in itself) experts would still be affected by the EU trade sanctions. In cooperation with ISO/TC 67 and IOGP (the International Association of Oil and Gas Producers) a solution has been found to allow the continuation of developing and revising the standards responding to industry needs and keeping the standards portfolio synchronised and up to date⁵.
- b) **Transfer to CEN** – In addition to above-mentioned complicated situation, CEN/TC 12 has also to face to the purely European matters bound to normative references, New Approach directives, and complexity of the Vienna Agreement procedures which are not very well known by experts.
- c) **Lack of resources** – If CEN/TC 12 wants to have an acceptable and useable European standard, sufficient European experts have to participate in the ISO work. Therefore, CEN/TC 12 requires

⁵ See for more information about this so-called IOGP Standards Solution the [website of IOGP](#).

CEN/TC 12 Business plan

Date: July 2018

Version: final

Page: 10

participation by at least experts from five European countries (or occasionally three with a derogation by CEN/BT) for each of the work items in ISO groups (as hereabove stated) and provides guidance to European experts to create added value standards for the European market. It continues to be difficult to commit experts to CEN/TC 12's activities. Factors that affect this issue include an aging resource base, economic and geopolitical (investment) climate, as well as lack of positive recognition of expert contributions in general. National standardisation bodies shall be actively involved in finding experts to participate.

- d) **Duplication of work** – As CEN/TC 12 is mainly a sectorial technical committee, likewise ISO/TC 67 in the global arena, CEN/TC 12 can face potential overlaps in scope of work. These overlaps need to be primarily resolved by ISO/TC 67 and the other ISO/TC's concerned, but in close consultation with CEN/TC 12. This clarification process can be complex and can take long time. To add to this difficulty, the scopes of ISO/TC's and CEN/TC's are not always similar as a consequence of historical developments (i.e. TC's dealing with similar topics are established at different years). This means that CEN/TC 12 in some cases has additionally to resolve scope of work with other CEN/TC's concerned to avoid conflicts or duplication. All this leads to compromises, which are not always satisfactory (however, still better than when a compromise does not exist) or even to involve other decision-making bodies in ISO and CEN to provide clarification.
- e) **Necessity to be vigilant** – In order to give CEN/TC 12 the best chances of success, CEN/TC 12 maintains strong liaisons between ISO/TC 67 and CEN/TC 12 at all levels: chair, secretaries and members. CEN/TC 12 tries to involve the same people from Europe at CEN and ISO level. CEN/TC 12 implements ISO liaisons at ISO/TC 67 level and CEN ones at CEN/TC 12 level.