European Oil and Gas Innovation Forum
Technology for a Sustainable Energy Future

EUROGIF position on the Communication
Towards a future Maritime policy for the Union : A European vision for the oceans and seas

Background

EUROGIF, the European Oil and Gas Innovation Forum, was formed in 1996 by major companies and industry associations representing more than 2500 organisations of the European Oil and Gas Engineering, Manufacturing, Supply and Service (EMSS) industry (i.e. large companies, SMEs, research establishments, universities, etc…)

The EUROGIF mission is to stimulate innovation, pan-European collaboration and technological progress to improve industry competitiveness within the context of sustainable development.

In the period 1999 to 2002, EUROGIF initiated the development of a number of Thematic Networks (TN's) representing the upstream oil and gas value chain. The purpose was to engage the industry in identifying technology gaps with a view to selecting priority actions that would meet the needs of the offshore oil and gas EMSS industry, explore all available opportunities that provide incentives to trans-national collaborative research work, while contributing to the EU policy objectives on sustainable development and security of supply:

- TRENDS- Quality, Health, Safety and Environment
- GOTek- IST Gas and Oil Technologies and Knowledge Forum
- FLOATTECH- Floating Structures Technologies
- SEARCH- Subsea and Downhole Production Systems
- Smart Reservoir Net
- Environmental Gas Technology
- CO2Net- European Carbon Dioxide Thematic Network

Four of these TN's have been co-financed by the European Commission under FP5 with a three-year work programme involving more than 170 organisations, contractors, SMEs, research institutes and universities from 17 European countries (including Russia):

Moreover, starting from the work of EUROGIF Thematic Networks, EUROGIA, the first EUREKA cluster on energy, was labelled by government authorities in March 2004, where the oil and gas industry is actively cooperating with the shipbuilding industry.

Address: rue Wiertz 50/28
1050 Brussels
BELGIUM

Phone number: 0032-2- 378 2926
Fax number: 0032-2- 377 6184
e-mail: secretary@eurogif.org

A few years ago, the offshore hydrocarbon exploration and production industry came up with significant innovations in both technological and economic terms: oil companies changed their approach to the development of new oil and gas fields with the aim of reducing the time from discovery to production. The deployment of ship-shaped platforms (FPS) and subsea technology supported this improvement aiming to marketing the oil within three or four years from discovery.
Consequently, the offshore construction and the shipbuilding sectors are now far closer than they ever were. This is a major industrial trend.

EUROGIF and the EU Maritime policy

EUROGIF has been involved as one of the main stakeholders of the Maritime Industries Forum, since its launch in 1992[1].

Oceans and seas are of utmost importance for the Oil and Gas EMSS industry in at least two consolidated areas:

- **34% of the worldwide oil production was produced offshore in 2004**. This should increase to 40% by 2015. This is mostly due to the increase of production in the deep offshore, whose share should move from 10% in 2004 to 25% in 2015. Within one decade, oil production from the deep offshore should increase by 11,5% per year, moving from 2,5 Mb/day in 2004 to 8,25 Mb/day in 2015, producing then as much oil as Saudi Arabia in 2002.
- During the same period, **gas production from the offshore should increase from 28 to 34%**. Gas international trade has increased steadily by 8,4% a year during the past decade. Though gas discoveries occurred in almost every continent, the new producing zones are quite often far away from their markets, increasing then international trade of gas. CEDIGAZ estimates (2004) that LNG transport should move from 230 millions tons/ per year in 2010 to 350/380 in 2020.

Therefore, deep and ultra deep waters, where only 3 million km2 out of 55 million km2 of sedimentary basins of interest have been explored. Institut Français du Pétrole has estimated that 40% of the oil and gas will be in water depths from 0-500 meters, 20% between 500 and 1500 meters, and 40% from 1500 to 3000 meters. The combination of water depth environment, reservoirs and lack of infrastructure will require new solutions such as subsea systems combined with floating production and conversion to natural gas.

[1] At that time EUROGIF was called EUGOES

Address: rue Wiertz 50/28
1050 Brussels
BELGIUM

Phone number: 0032-2- 378 2926
Fax number: 0032-2- 377 6184
e-mail: secretary@eurogif.org

Moreover, an emerging area where the Oil and Gas EMSS industry could find an opportunity for further development is **methane hydrates**. Vast accumulations have been identified in the last 25 years in deep marine sediments in most of the major continental shelves worldwide. The present estimate of this resource is around 10,000Gt of carbon equivalent, which amounts to as much as all other fossil fuels resources combined (used and to be exploited). They lay under crystalline form under high pressure and low temperature and would be metastable under room conditions. They do have large energy content (164 cm3 of methane for 1 cm3 of water) and their detection is easy through non-intrusive geophysical surveys at sea. Their exploitation, though, presents major technical challenges in terms of collection, conditioning, transport and conversion to commercial methane gas, all of which could eventually be performed at sea, as Syntroleum envisioned. Some international consortia are actively involved in exploratory technology investigations, such as JNOC in Japan with ten other partners and supported by MITI and other initiatives in USA, Canada and Russia

The Offshore Equipment industry

As exploration and production moves into deeper waters and areas where pipeline infrastructures are less well developed, the demand for floating production systems are set to increase significantly. Europe holds a technological edge due to the advanced developments in the North Sea, but needs to further develop skills, capabilities and capacity to meet the increased competition from non-European companies with significant political backing due to security of supply issues.

So far, the three leaders in the offshore equipment, engineering and construction sector, whose market value is estimated at 25 billion $ (2004 data), are European companies:

- Technip (France)
- Saipem (Italy)
- Aker Kvaerner (Norway)

In order to maintain and even increase their competitive edge, they need to develop continuous innovations in the following areas:

- Tools for hydrodynamic and structural analysis of offshore structures, including model testing and full-scale instrumentation and validation
- Cost effective mooring and station keeping, dynamic positioning systems and technology. Tools for design, rules and regulations for qualification of new materials

Address: rue Wiertz 50/28
1050 Brussels
BELGIUM
Phone number: 0032-2- 378 2926
Fax number: 0032-2- 377 6184
e-mail: secretary@eurogif.org

- Riser technology for deep and ultra deep waters, including new and advanced materials. All types of risers for drilling, production and import/export including floating pipelines
- Marine operations associated with installation or removal of floating production systems
- Efficient topside facilities, including drilling, processing, utility systems
- Ultra deep floaters in water depths below 2000 meters with focus on total concepts, including FPSO(Floating Production Storage and Off-loading)/Barges with surface trees and drilling, new and innovative floater concepts
- Cost effective floating production systems, with focus on deep draft floaters, FPSO and semi-designs

In all these areas step innovation need to be developed to tackle the forthcoming objectives of 3000 m water-depth.

Environmental considerations

Very important progresses have been made by the industry in the Quality, Health, Safety and Environment over the last few years through reduced emissions to air, reduced chemical discharge, and cleaner produced water exemplified by 70% capture of Volatile Organic Compounds under offshore loading, 30% reduced chemical discharge.

Oil spill response capability improved considerably by new technologies: permanent monitoring buoys, floating containment booms for coast and shore protection, high efficiency environmental friendly dispersants and oleophilic sorbents, have been developed.

With new challenges in terms of deep water, hostile environments, high pressure/high temperature reservoirs and extending production at ageing facilities, there is potential for further improvements, in particular, in the following areas:

- A better understanding of the effect of mixtures of pollutants is important, coupled to the impact in deep and artic waters and better tools for assessment of chronic/accumulated effects
- Models, monitoring, management and decision support should be improved with respect to emissions to air and discharges to sea. Oil spill response capability should be improved
- Modelling of CO_2 and H_2S gas injection should be improved and combined with underground monitoring after injection to ensure a stable state without leakage.

Address: rue Wiertz 50/28
1050 Brussels
BELGIUM

Phone number: 0032-2- 378 2926
Fax number: 0032-2- 377 6184
e-mail: secretary@eurogif.org

In the recent past, when oil spill disasters at sea occurred in Europe: ERIKA, EVOLY SUN, KURSK submarine, PRESTIGE, preeminent members of our O&G Supply industry were deeply involved in the design and the operations of the solutions to solve the problems and this with great success.

Conclusions and recommendations

EUROGIF believes that a Maritime policy coordinated at European level could help the different actors in identifying: **areas of common interest**, where a stronger cooperation is needed to improve the existing synergies; **areas of overlapping**, where a better coordination is needed in order to avoid duplications; and, eventually, **areas of contrast**. In this last case, a careful evaluation of the diverging interests of the different sectors has to be conducted.

In particular, a European approach could give important results with respect to **research in marine science and technology**. As the Communication "Towards a future Maritime Policy for the Union" clearly points out: *"Considerable resources are needed to develop marine science and research, and to develop new technologies for improved sustainable uses of the seas and for the monitoring of the marine environment. Increased efforts at all levels of the EU are required in order to create synergies and to achieve the necessary critical mass"*

EUROGIF has presented some examples where it believes that a European approach to support research in marine science and technology could improve the competitiveness of the industry, while increasing the synergies between the different sectors, and reducing the environmental impacts of industrial activities on the sea.

Today, research in marine science and technology is not recognised as an independent research areas in the different Framework Programmes, but rather as a horizontal priority, where themes from different priority areas can be merged.

EUROGIF believes that such an approach could seriously reduce the possibility for development and innovation in this area.

Address: rue Wiertz 50/28
1050 Brussels
BELGIUM
Phone number: 0032-2- 378 2926
Fax number: 0032-2- 377 6184
e-mail: secretary@eurogif.org