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Message from the President

Dear Members,

The liberalisation process which has been initiated in Europe in 1998 with Directive 98/30/EC (1st Gas Directive) and continued with Directive 2003/55/EC (2nd Gas Directive) in view of the completion of the internal gas market has deeply modified the organisation of the European Gas Industry. The fragmentation induced by the separation of commercial activities from network operations has resulted in a growing number of Organisations representing the Gas Industry at European level. This very complex situation involving many new actors in the gas chain is a new challenge for the Gas Industry when dealing with issues related to safety, environment or energy efficiency.

In this difficult context, natural gas, a safe, clean and efficient energy, has reinforced its position as the fuel of choice for the 21st Century. Such a success has been recently mentioned by the International Energy Agency which expects the consumption to raise from 520 bcm in 2003 to 778 bcm in 2030 in European countries (reference scenario). But at the same time the European gas dependency will move from around 50% in 2004 to more than 70% in 2030, raising the issue of security of supply.

Since its origin, the European Gas Industry has always produced a lot of efforts to set up its own technical rules for designing, constructing and operating extremely safe complex gas systems. This very high safety level has been demonstrated by the European Gas Incident Group (EGIG) last publication as well as by the recent study published by PSI (Comparative Assessment of Natural Gas Risks - January 2005).

During the last 2 years, MARCOGAZ has continued to promote safety, reliability and cost effectiveness of gas infrastructure systems and modern efficient gas uses, being involved in an increasing number of technical issues and producing through high level expert groups many position documents.

This annual report 2004-2005 aims at providing the reader with the latest information on past and future MARCOGAZ activities, for a very safe gas supply in Europe.

Prof. Klaus Homann
President of Marcogaz
Introduction

Created in 1968, MARCOGAZ has developed over the years an efficient reputation with the official bodies in the European Union and other influential partners.

MARCOGAZ chief mission is to serve its members as the European window for any technical issue regarding natural gas.

As the representative organisation of the European Natural Gas Industry, it aims at monitoring and taking influence when needed on European technical regulation, standardisation and certification with respect to safety and integrity of gas systems and equipment, and rational use of energy.

Environment, Health and Safety issues related to natural gas systems and utilisation are also of great importance for MARCOGAZ.

Mission and tasks of MARCOGAZ

<table>
<thead>
<tr>
<th>Chief mission</th>
<th>To serve the members as the European window on technical legislation and standardisation and to promote technical conditions required for the market success of natural gas</th>
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</thead>
</table>
| Main tasks | To promote safety, reliability, cost effectiveness and environmental advantages of natural gas systems and appliances  
- To identify, monitor and take action on technical legislation at EU level  
- To promote with the EU institutions fair European legislation reflecting the industry's high safety record and respecting subsidiarity  
- To actively monitor standardisation activities related to natural gas conducted by CEN, ISO, OIML and others  
- To identify appropriate levels of competence for a safe and effective operation of gas systems  
- To study any technical subject of interest for its members  
- To promote cooperation with other associations representing the gas industry and the manufacturers |

Achievement of the mentioned aims is sought by means of:

- defining views and common positions on issues of shared interest and representing these to international bodies, in particular to the European Commission, the European Standards Organisation (CEN) and the International Standards Organisation (ISO);
- promoting and monitoring European standardisation and related certification in selected areas;

- identifying the need for any new standards on topics of interest to the gas sector and associated research;

- promoting technical co-operation among the Gas Industry members;

- promoting and organising co-operation with related industries’ associations, including other pipelines operating industries and manufacturers of equipment and appliances used for gas supply and for gas utilisation and with consumers’ organisations.

The activities of MARCOGAZ are listed in this report, implicitly highlighting the major objective for MARCOGAZ members to achieve an effective industry presence and response towards public and official queries and regulatory initiatives facing the gas sector at the European level and often following through to the national level. Industry co-operation within MARCOGAZ will ensure timely information, consultation and response, while offering a platform for authoritative and consistent industry representation making most effective use of industry resources in terms of experts, knowledge and finance required.

MARCOGAZ is affiliated to IGU (International Gas Union) and is an Associated Member of EASEE-gas (European Association for the Streamlining of Energy Exchange)

MARCOGAZ co-ordinates with EUROGAS (European Union of the Natural Gas Industry), GERG (European Gas Research Group), and GIE (Gas Infrastructure Europe) through selected joint programmes. MARCOGAZ also co-operates with other major gas industry or consumer organisations such as:

<table>
<thead>
<tr>
<th>AEGPL</th>
<th>European LPG Association</th>
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<tr>
<td>AFECOR</td>
<td>European Control Manufacturer’s Association</td>
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<tr>
<td>ANEC</td>
<td>European Association for the Co-ordination of Consumer Representation in Standardisation</td>
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<tr>
<td>CECED</td>
<td>European Committee of Domestic Equipment Manufacturers</td>
</tr>
<tr>
<td>CEFACD</td>
<td>European Cooker and Space Heater Manufacturers Association</td>
</tr>
<tr>
<td>CEFIC</td>
<td>European Chemical Industry Council</td>
</tr>
<tr>
<td>CONCAWE</td>
<td>Oil Industry European Association for Environment, Health and Safety in Refining and Distribution</td>
</tr>
<tr>
<td>EASEE-gas</td>
<td>European Association for the Streamlining of Energy Exchange-gas</td>
</tr>
<tr>
<td>EFMA</td>
<td>European Fertilizer Manufacturers Association</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
</tr>
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<tr>
<td><strong>EHI</strong></td>
<td>Association of the European Heating Industry</td>
</tr>
<tr>
<td><strong>EI GA</strong></td>
<td>European Industrial Gases Association</td>
</tr>
<tr>
<td><strong>ENGVA</strong></td>
<td>European Natural Gas Vehicle Association</td>
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<tr>
<td><strong>EURELECTRIC</strong></td>
<td>Union of the Electricity Industry</td>
</tr>
<tr>
<td><strong>EURO AIR</strong></td>
<td>European Association of Air Heater Manufacturers</td>
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<tr>
<td><strong>EUROGAS</strong></td>
<td>The European Union of the Natural Gas Industry</td>
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<tr>
<td><strong>EUROHEAT&amp;POWER</strong></td>
<td>The International Association for District Heating, District Cooling and Combined Heat and Power</td>
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<tr>
<td><strong>FACOGAZ</strong></td>
<td>Chambre Syndicale des Fabricants de Compteurs à Gaz</td>
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<tr>
<td><strong>FAREGAZ</strong></td>
<td>Union of European Manufacturers of Gas Pressure Controllers</td>
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<tr>
<td><strong>GCI-UICP</strong></td>
<td>International Union of the Associations of Heating Ventilating and Air Conditioning Contractors</td>
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<tr>
<td><strong>GERG</strong></td>
<td>The European Gas Research Group</td>
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<tr>
<td><strong>GIE</strong></td>
<td>Gas Infrastructure Europe</td>
</tr>
<tr>
<td><strong>IGU</strong></td>
<td>International Gas Union</td>
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<tr>
<td><strong>INTERGAS MARKETING</strong></td>
<td>International Natural Gas Organization for Supporting Marketing</td>
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</table>
It consults and co-operates with other industry and business organisations involved in the issues at hand.

**Membership in MARCOGAZ**

Membership is open to natural gas infrastructure operators and national technical organisations in European Union Member States and all other European countries interested in co-operation towards shared safety and quality objectives and standards, on any technical issue regarding the gas infrastructure systems, utilisation and protection of the environment.

For each country concerned, one membership represents all relevant national gas companies or organisations involved.

Each country membership is requested to pay to MARCOGAZ an annual fee, which can possibly be split between individual companies or associations part of the membership.
At the conclusion of 2005, the membership extends over sixteen countries

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Address Details</th>
<th>Phone Numbers</th>
<th>Website URLs</th>
</tr>
</thead>
<tbody>
<tr>
<td>ÖVGW</td>
<td>Österreichische Vereinigung für das Gas- und Wasserfach Schubertring 14 - Postfach 26 A - 1015 WIEN AUSTRIA</td>
<td>T +43 1 513 158813</td>
<td><a href="http://www.ovgw.at">www.ovgw.at</a></td>
</tr>
<tr>
<td>ARGB/ KVGB</td>
<td>Association Royale des Gaziers Belges Avenue Palmerston 4 B - 1000 BRUSSELS BELGIUM</td>
<td>T +32 2 3830231</td>
<td><a href="http://www.gasinfo.be">www.gasinfo.be</a></td>
</tr>
<tr>
<td>DGC</td>
<td>Danish Gas Technology Centre Dr. Neergaards Vej 5B DK - 2970 HORSHOLM DENMARK</td>
<td>T +45 45 169600</td>
<td><a href="http://www.dgc.dk">www.dgc.dk</a></td>
</tr>
<tr>
<td>Czech Gas Association</td>
<td>Belgicka 26 CZ - 120 00 Prague 2 CZECH REPUBLIC</td>
<td>T +420 222 518 811</td>
<td><a href="http://www.cgoa.cz">www.cgoa.cz</a></td>
</tr>
<tr>
<td>AFG</td>
<td>Association Française du Gaz 62, rue de Courcelles F - 75008 PARIS FRANCE</td>
<td>T +33 1 44 018787</td>
<td><a href="http://www.afgaz.fr">www.afgaz.fr</a></td>
</tr>
<tr>
<td>DVGW</td>
<td>Deutsche Vereinigung des Gas- und Wasserfaches e.V. Josef Wirmerstrasse 1-3 D - 53123 BONN GERMANY</td>
<td>T +49 228 9188800</td>
<td><a href="http://www.dvgw.de">www.dvgw.de</a></td>
</tr>
<tr>
<td>National Grid</td>
<td>NGT House Gallows Hill GB - WARWICK CV34 6DA UNITED KINDGOM</td>
<td>T +44 1926 655790</td>
<td><a href="http://www.nationalgrid.com">www.nationalgrid.com</a></td>
</tr>
<tr>
<td>DEPA</td>
<td>Public Gas Corporation of Greece S.A. 357-359 Messogion Avenue GR - 15231 ATHENS GREECE</td>
<td>T +30 210 6501540</td>
<td><a href="http://www.depa.gr">www.depa.gr</a></td>
</tr>
<tr>
<td>G-E</td>
<td>Association of Gas Distribution Companies Aradi u. 8-10 HU - 1062 BUDAPEST HUNGARY</td>
<td>T +36 1 3010904</td>
<td><a href="http://www.hungas.hu">www.hungas.hu</a></td>
</tr>
<tr>
<td>MOL Natural Gas Transmission PLC</td>
<td>Tánácsbázstr 5 - POB 102 HU - 8400 SIÓFOK HUNGARY</td>
<td>T. +36 84 505 064</td>
<td><a href="http://www.mol.hu">www.mol.hu</a></td>
</tr>
</tbody>
</table>
Organisation

MARCOGAZ was registered on 23rd May 2005 as an International Association under Belgian law on non profit Association, non profit International Association and Foundations (laws 27th June 1921 and 2nd May 2002).
Its headquarters are located in Brussels. Copy of the official statutes can be obtained upon request to MARCOGAZ General Secretariat.

The **General Assembly** of MARCOGAZ consists of national delegations representing the various gas industry companies and bodies sharing in the membership.

The **Executive Board**, meeting normally 3 times a year, defines, adopts and controls strategies. It gives guidance to the two Standing Committees Gas Utilisation and Infrastructure, and, jointly to EUROGAS, to the Joint Group Environment Health and Safety.

Industry **executives** and **high level experts** are members of the two Standing Committees and the Joint Group, in charge of their respective fields of activity.

**Working groups** are set up when required to deal with specific subjects.

The **General Secretariat**, representing MARCOGAZ with all relevant external official and industry partners and servicing the activities of MARCOGAZ internal bodies, consists of one full time executive (the Secretary General), one full time Technical Adviser with secretarial assistance.

**Contacts**

**Daniel HEC**, Secretary General
Tel +32 2 237 11 35 or +33 1 47 54 32 58
Mobile: +33 6 72 27 48 14
e-mail: daniel.hec@marcogaz.org

**Alessandro CIGNI**, Technical Adviser
Tel. 0032 2 237 11 36
e-mail: alessandro.cigni@marcogaz.org

**Ann BOTERMAN**, Administrative Secretary
Tel: + 32 2 237 11 39
E-mail: ann.boterman@marcogaz.org
Internal Organisation Chart
Status at 1st December 2005

* WG Industrial Gas Installations and WG Distribution will start beginning of 2006
MARCOGAZ has its own homepage on the Internet at http://www.marcogaz.org which offers general information on the Association and its organisation and activities as well as access to major reports and publications. It gives information on:

- MARCOGAZ organisation
- Objectives
- Activities
- News related to the gas world

Decision has been taken to entirely renew MARCOGAZ website with separate sections for the Public and the Members.

For the Members the sites offers the possibility to have access to more internal information such as:

- Minutes from all meetings;
- Presentations;
- Reports;
- Legislation;
- Meeting agenda.

Most of the documents are downloadable from the site (for members only)
General Assembly

The General Assembly held its annual Plenary Sessions in May 2004 in Vienna (A) and May 2005 in Berlin (D).

On this occasion, review of the activities of the Standing Committees and Joint Group Environment Health and Safety was carried out, new business plans were approved and liaison with other bodies examined. External organisations were invited to present their activities (EUROGAS, IGU, GIE, GERG).

Executive Board

Attendances
Prof. Klaus Homann (RWE Transportnetz Gas) was elected MARCOGAZ President in 2003 for a 2 years term with Luigi Scopesi, Vice-President. Their mandates were extended for an additional year to 2006.

In the two last years, the following changes occurred:

In 2004:
- Roland CHVATAL (Wien EnergIe) replaced Helmut MIKSITS
- Liam NOLAN (Bord Gais Eireann) replaced Patrick WALSHE
- Gabor MOLNAR (GE) joined the Executive Board
- Kazimir KMET (SPP) joined the Executive Board

In 2005:
- David SALISBURY (National Grid) replaced Clive MUSGRAVE
- Marc FLORETTE (Gaz de France) replaced Jean-François CARRIÈRE
- Milos KEBRDLE (Czech Gas Association) replaced Jiri BUCHTA

Meetings
The Board had three meetings in 2004:
- 27th February - Brussels (B),
- 13th May - Vienna (A)
- 15th October - Brussels (B)

and three meetings in 2005:
- 11th March - Brussels (B),
- 12th May - Berlin (D)
- 25th October - Brussels (B)

To review and direct the Standing Committees activities and to assess MARCOGAZ positions as well in regard to European Regulatory issues, CEN ISO activities and other points of involvement of MARCOGAZ including relations with manufacturers’ and consumers’ organisations. These are mentioned in appropriate sections of this report.
Relationship with other Organisations

**International Gas Union (IGU)**

On 28th January 2004, MARCOGAZ and IGU signed an Agreement about MARCOGAZ becoming affiliated to IGU.

MARCOGAZ has therefore the possibility to attend IGU Council and Co-ordination Committee meetings and to send and receive position papers and documents on issues of relevance for its activities.

Exchange of information between MARCOGAZ Standing Committees and relevant IGU Working Committees and Programme Committee have started (WOC3, WOC4, WOC5, PGCD).

The MARCOGAZ General Secretary attended the last IGU Co-ordinating Committee and Council meeting, in Tianjing (China) on 18th and 19th October 2005.

**Gas Infrastructure Europe (GIE)**

Since the beginning of the 90’s, MARCOGAZ has identified, monitored and taken actions related to the safety of natural gas infrastructures, including high pressure transmission pipelines with the objective to promote safety, reliability, cost effectiveness and environmental advantages of natural gas systems.

MARCOGAZ has been very active in monitoring the development of European Regulation concerning major hazards (for example the SEVESO II Directive where MARCOGAZ action led to the exclusion of pipelines from the scope) and was specially involved in the elaboration of the full set of functional standards which are now the technical standards of reference for gas transmission and distribution.

GTE, Gas Transmission Europe, is representing the European TSOs and covering the transmission activities within GIE, Gas Infrastructure Europe, the European association of the gas infrastructure operators (transmission, storage and LNG terminals). GIE is committed to the development of an efficient internal market for natural gas in Europe.

GTE supported the MARCOGAZ survey on third party damage on gas infrastructures and urged the TSOs to answer to the questionnaire launched in December 2004.

The GTE Plenary unanimously decided to set up the GTE Safety, Security and Environment WG (SSE WG) in April 2005. The SSE WG will elaborate the GTE positions on safety and notably consider the managerial aspects.

In order to exchange, co-operate and avoid overlap between the two organisations, GTE and MARCOGAZ have signed an agreement on 6th June 2005, to:
- open MARCOGAZ WG Transmission Pipelines and WG Third Party Interference to GIE representatives.
- open the recently created GIE Supply Security and Environment WG to MARCOGAZ representatives.

The co-operation is now fully operative.

**Energy Security Platform**

MARCOGAZ is a founding member of the recently created Energy Security Platform which was set up to exchange views, identify common issues, and co-ordinate the contacts with the European Authority on Security questions.

CEFIC, ETSO, EUROGAS, EURELECTRIC, EUROPIA, GIE, MARCOGAZ, OGP and UCTE are members of the Energy Security Platform.
**General Secretariat**

Daniel HEC became Secretary General in 2004 and Jean-Marie DEVOS was nominated Honorary Secretary General.

In July 2005 Alessandro CIGNI, from Snam Rete Gas, joined MARCOGAZ as Technical Adviser.

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**Executive Board Members at 31 October 2005**

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
<th>Country</th>
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<tbody>
<tr>
<td>K. Homann, President</td>
<td>RWE Transportnetz Gas</td>
<td>Germany</td>
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<td>L. Scopesi, Vice-President</td>
<td>ATIG</td>
<td>Italy</td>
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<td>M. Florette</td>
<td>Gaz de France</td>
<td>France</td>
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<td>R. Chvatal</td>
<td>Wien Energie Gasnetz</td>
<td>Austria</td>
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<tr>
<td>G. de Hemptinne</td>
<td>Fluxys</td>
<td>Belgium</td>
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<tr>
<td>P.I. Hinstrup</td>
<td>Danish Gas Technology Centre</td>
<td>Denmark</td>
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<tr>
<td>G. Molnar</td>
<td>Association of gas Distribution Companies (GE) and MOL</td>
<td>Hungary</td>
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<tr>
<td>M. Kebrdle</td>
<td>Czech Gas Association</td>
<td>Czech Republic</td>
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<td>L. Nolan</td>
<td>Bord Gais Eireann</td>
<td>Ireland</td>
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<td>F. Haak</td>
<td>Nederlandse Gasunie</td>
<td>The Netherlands</td>
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<td>K. Sjoen</td>
<td>Statoil</td>
<td>Norway</td>
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<td>K. Kmet</td>
<td>Slovak Gas and Oil Association</td>
<td>Slovak Republic</td>
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<td>J. Pons</td>
<td>Sedigas</td>
<td>Spain</td>
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<td>W. Girsberger</td>
<td>SVGW</td>
<td>Switzerland</td>
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<td>V. Gourioti</td>
<td>Depa</td>
<td>Greece</td>
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<tr>
<td>D. Salisbury</td>
<td>National Grid</td>
<td>United Kingdom</td>
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**Developments in 2004 and 2005**

The three main fields of MARCOGAZ activity are in the hands of the three following corresponding main groups:

- Standing Committee Gas Utilisation
- Standing Committee Gas Infrastructure
  - Joint Group Environment, Health and Safety.

The latter is a Joint Group of MARCOGAZ and EUROGAS.
Within their respective scopes, the three groups have the following tasks:

- to develop **industry policies and positions** regarding safety and integrity of gas networks, rational use of energy and protection of the environment

- to monitor **new developments** at National, European and International levels and to **advise future requirements** with technical legislation, specifications and standards, quality issues and certification

- to promote the use of **modern methodologies and technologies** giving advantage to natural gas

- to monitor the **standardisation** activities conducted by CEN, ISO...

- to initiate **enquiries, studies** and to issue **Industry statements** regarding any technical issue interesting its members

- to develop and support **Gas Industry contacts** and communications with external partners such as the EU Commission, the other Industry Associations, International Organisations like IGU or UN

- to promote **safety, reliability, cost effectiveness and environmental advantages** of natural gas systems and appliances

- to study any **technical subject of interest** for its members

Specific scopes and activities in 2004 and 2005 are reported in the following sections.


**Summary**

In the field of gas infrastructure, the main actions decided in 2004 were carried out, namely those related to Pipeline Safety, the ERMON project and standardisation issues. In view of the Ghislenghien accident, an additional action focusing on third party interference has been launched.

Energy efficiency is becoming a key aspect of European Energy policy and many regulatory initiatives took place in the last two years: national implementation of the Energy Performance of Buildings Directive; adoption of a framework Directive on Eco-design of Energy using Products; revision of the labelling system in place; revision of the Boilers Efficiency Directive and promotion of energy services.

MARCOGAZ activities in gas utilisation are therefore closely related to energy efficiency. A longstanding good relationship with the EU Commission helped MARCOGAZ Industry to promote its ideas.

Gas Quality was also a subject of high interest during the last two years, with MARCOGAZ advising EASEE-gas and the Madrid Forum on the influence of gas characteristics variations on end-user gas appliances.

Over the past year, the EUROGAS/MARCOGAZ Joint Group on Environment, Health and Safety was especially active, producing many valuable results:

- Questions and Answers on methane emissions
- Health and Safety report
- Launch of a Life Cycle Analysis study
- Production of a new Environmental brochure

MARCOGAZ continues to collaborate well with other Associations: common activity with EUROGAS on environmental issues; participation in the EASEE-Gas Advisory Panel; discussions with GIE concerning safety issues and participation in IGU committees.
In 2005, the European Third Party Safety Organisation (ETPS) in charge of collecting and analysing data related to incidents occurred on distribution systems and internal installation, joined MARCOGAZ. First results of this important activity are expected in 2006.

More detailed information on the main issues in MARCOGAZ three areas of activity are given below.

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**Standing Committee Gas Utilisation**

**Scope of activity: gas appliances, in-house installation, ducting systems and related equipment**

The overall objective is the promotion of good technical conditions for the development of efficient modern gas technologies.

Particular consideration is given to:

- the establishment of a technical regulatory environment favourable to gas appliances and without discrimination against natural gas in competition with other fossil fuels and electricity;
- promote standards for high performance and consumer attractive and innovative products;
- safeguard appropriate safety and reliability through a high “quality” CE marking and conformity assessment procedures specific to gas;
- secure adequate and safe installation of gas equipment under changing market conditions;
- study and evaluate the impact of gas composition variations on end-use appliances;
- develop partnership with manufacturers trade associations, installers and consumers organisations;
- support R & D in the field concerned;
- support qualification/education schemes for gas installers;
- express technical requirements;
- develop the use of Natural Gas for Vehicles

The Standing Committee, chaired by T. Jannemann (DVGW, D) had two meetings in 2004:
- 22\(^{nd}\) - 23\(^{rd}\) April – Hoersholm (DK)
- 23\(^{rd}\) - 24\(^{th}\) September – Athens (GR)

and two meetings in 2005:
- 7\(^{th}\) – 6\(^{th}\) April - Milan (I)
- 6\(^{th}\) – 7\(^{th}\) October – Barcelona (E).
The main issues of interest were:

**Gas Appliances Directive**

MARCOGAZ is participating in the Gas Appliances Directive Working Group, in charge of monitoring the implementation and future modifications of this important EU regulation for the Gas Industry.

MARCOGAZ was especially active in the course of the GAD revision text, by providing different position papers. The extension of the scope of the directive to elements of internal gas installations (such as valves, regulators or connectors) would solve many problems related to CE marking, but is not yet accepted. Lobbying is also made by MARCOGAZ Members towards those National Authorities responsible for safety to support MARCOGAZ position.

The MARCOGAZ proposal for harmonizing in Europe the declaration by the Member States of the types of gases distributed and supply pressures should be part of the revised directive.

**Energy Performance of Buildings (EPB)**

This framework directive is based on a dual approach of insulation and the rational use of energy (heating, cooling and aeration) in order to achieve energy savings. SCGU, focused on the parts of the directive relevant to heating appliances. The provisions of the directive leave much room for subsidiarity when implementing at national level, so the Committee carried out a benchmarking exercise.

Each member presented the state of implementation in their country and indicated any particularities or difficulties encountered. Different compulsory inspection schemes for gas boilers were noted as a potential problem in some EU Member States.

**Eco-design of End-Use Equipment of Energy using Products (EuP)**

SCGU has followed the development of this framework directive (2005/32/EC) which has been published in July 2005. This general directive will be put into force through specific implementation directives. For gas appliances this will start by the revision of the existing Labelling Directive (92/75/EEC) and Boilers Efficiency Directive (92/42/EC) revision

In revising the above two documents the Commission intends to:
- set minimum efficiency requirements for gas boilers so as to remove the least efficient from the market;
- develop a labelling system to promote use of the best appliances by informing both installers and consumers

MARCOGAZ has issued an Industry position paper on labelling, where the need for a reliable system and the importance of harmonised strict measurement procedures are highlighted. This position was sent to the Commission in May 2005.
Cooperation with the gas appliances manufacturers’ organisations (EHI, CECED) is sought. MARCOGAZ also supports the Good Laboratory Practises issued by LABNET which should find an adequate status.

MARCOGAZ was also involved in the discussion concerning the draft directive on the labelling of water heaters (comments sent on 10th November 2005).

**Qualification of Gas Installers**

Performance of gas appliances are strongly related to the quality of the whole installation directly linked to the competence of gas installers. Therefore a MARCOGAZ working group undertook to lay down the essential provisions and recommendations for a quality construction in which all the components (pipework, accessories, appliance and flue) would be in line with the intended use. The participation in this working group of representatives of the European Federation of Installers GCI-UICP shows a real interest by the profession for a European approach.

The MARCOGAZ position paper on Safety of Gas Installations, dealing with requirements for qualification of installers will be the corner stone for designing a European Qualification recognition scheme.

**Gas Quality**

Harmonisation of gas quality characteristics is a major issue for gas system interoperability.

MARCOGAZ after studying the influence of gas quality variations on the functioning of domestic gas appliances, has provided EASEE-gas with proposals for different gas characteristics (relative density, Wobbe Index, GCV) to be included in the Gas Quality Common Business Practice (CBP) to be used as reference for H gas exchange at cross boarder points in Europe.

MARCOGAZ was asked by the Madrid Forum to be involved in the monitoring of the Gas Quality implementation in Europe. This activity will start beginning of 2006 when Member States and Stakeholders will express their views on this issue.

On 13th December 2005, MARCOGAZ organised in Paris a workshop entitled “Towards a harmonised European Gas Quality specification for high calorific gases” to inform and exchange with stakeholders representing notified bodies, certification institutes, gas appliances manufacturers and standardisation committees involved.

Communications presented and results of the workshop will be displayed in January 2006 on MARCOGAZ website.

**Key issues for 2005-2006**

In the near future, MARCOGAZ SCGU will continue to be very active with different aspects of European energy policy, particularly in the field of energy efficiency.

Issues related to energy efficiency tend to be treated globally. For example gas boilers are no longer considered solely as independent appliances but as part of the whole energy in a building system, influenced by overall insulation requirements and energy balance concepts.

Concerning the revision of GAD, MARCOGAZ is ready to help the Commission to provide a draft revised directive.
Industrial gas installation, today submitted to a very complex net of sometimes conflicting regulation, will be discussed in a new WG which will start its activity in 2006.

The development of non conventional gases (such as biogas or biomass) that can be injected in gas grids as well as preparation for the hydrogen economy are becoming issues of high interest for MARCOGAZ.

**Standing Committee Gas Infrastructure**

**Scope of activity:** gas pipeline networks, associated plant and related equipment

Particular consideration is given to:

- promoting the understanding that gas supply is adequately regulated by existing safety and prevention laws throughout the Community thus meeting the aims of EU precautionary principle and the objectives of the EU internal energy market policy;

- ensuring that the EU Authorities take into account the industry’s high safety record, achieved by a process of continuous improvements in application of the Pipeline Integrity Management System (PIMS);

- the inherent need for gas to be available in a safe and secure system of supply that will meet without interruption the requirements of customers as they arise;

- the availability required of components and equipment, which comply with the specific gas industry safety requirements to construct safe and reliable gas supply systems specified in the CEN/TC234 functional standards.

The Standing Committee, chaired by J-P. Beringuier (Gaz de France, F) had two meetings in 2004:

- 18th March – Prague (CZ)
- 7th October – Stratford-upon-Avon

and two meetings in 2005:

- 3rd March – Budapest (HU)
- 5th October – Barcelona (E).
The major issues are the monitoring of EU initiatives, and more specially a possible EU pipeline safety instrument, but also the review of technical issues to be examined in the movement towards liberalisation in Europe.

**Review of strategy and activities**

In line with the Executive Board recommendations to reinforce Gas Industry self regulation, the Standing Committee reviewed its current field of activities and priorities, and identified areas where pro-active actions are required to achieve MARCOGAZ objectives which consists in avoiding the development of new legislation without added value and, if any, the legal approach should be a goal setting instrument recognising current good industry practices.

**Safety Issues**

MARCOGAZ Secretariat continues to monitor any regulatory developments concerning possible future regulation in this field.

At the same time the Gas Industry continues to work on a voluntary basis on elaboration of self regulation concerning Pipeline Integrity Management Systems in order to be ready to demonstrate at any time its ability to operate gas systems in an efficient and safe manner.

**Guide on Performance Indicators**

WG Transmission Pipelines is specially active in the field of pipelines safety and integrity. One of the most relevant outcomes produced in the last two years by the WG is the preparation of the guideline for the definition of Performance Indicators for Safety Management Systems (SMS).

The purpose of this guide is to establish a general methodology to support the operator in defining the Performance Indicators to measure the effectiveness of the technical policies adopted and thus the achievement of the safety targets defined in the SMS, tailored to each Company’s needs.

The safety measures can be evaluated by the definition and calculation of appropriate performance indicators: the operator shall define the set of these indicators fit for the purposes according to the architecture of the adopted SMS.

Now the guideline is finalized and under approval of the competent MARCOGAZ Committee for further use as a guideline by EU transmission system operators.

**DG TREN - Working Group on Pipeline Safety**

The Common Group of Experts created in June 2003 to advise the Commission on a strategy to deal with accidents in the transport sector, decided to set up five specific Working Groups, one which deals with oil and gas pipelines. The Gas Industry is represented by three experts in this group. The main decision taken was to prepare a report listing the safety legislation and standards concerning transmission gas pipelines, identifying the main threats and proposing some recommendations. For the Gas Industry, this document highlights the fact that third party damage is the main safety issue. Discussions also turned around the creation of an “independent European investigation body”. Due to the very few number of incidents concerning gas pipelines, MARCOGAZ is not in favour of such an initiative in the Gas Industry. Gas Industry safety records show very few accidents or incidents suggesting an emphasis mainly on prevention.
**Third Party Interference**

Two meetings of this recently created group took place in 2005 on 30th March and 4th October 2005.
A first draft report, gathering all the responses to the initial questionnaire, was issued.
The group aims to deliver the following:

1 - Description of the current situation of gas networks in Europe:
   - Gas networks under the supervision of national authorities
   - Gas networks are the safest way of conveying gas
   - Gas operators share good practices to manage gas pipelines in a safe and a cost effective way (PIMS)
   - Gas industry participation in standardization bodies and recognition by European authorities

2 - Pro-active behaviour of the EU Gas Industry:
   - Standards revision process
   - Frame of reference regarding PIMS, EQAS...
   - R&D programmes to develop new technologies for network survey (PRESENCE project, GERG...)
   - International cooperation

3 - Identification of key issues concerning third party interferences for improving safety:
   - Checking implementation of requirements and procedures responsible of most accidents
   - Informing key players of risks, requirements, coordination procedures...
   - Informing the public in case of emergency
   - Testing of emergency plans

A position paper addressing the above issues and proposing recommendation is currently being discussed and will be released in 2006.

**ERMON project**

On 22nd of November 2004, MARCOGAZ signed with the EU Commission Joint Research Centre a MoU to become a partner in the ERMON project which aims to develop a set of descriptors related to risk characterisation. Within this project, MARCOGAZ received two reports for comments:

- a first report on the “Analysis of reported risk figures for natural gas transmission pipeline” which was circulated to WG Transmission Pipelines who issued some remarks.

- a second report on “Life cycle analysis of the gas chain” is examined by SCGI and JG Environment members.

A major event organised under ERMON project was the SEIF-CV (Safety & Security of Energy Infrastructures in a Comparative View) organised from 14th to 16th November 2005 in Brussels. MARCOGAZ was deeply involved in the organisation of this conference, being a Member of the Scientific Committee and providing 4 communications through its members.

Co-operation with JRC will continue in 2006 with a joint communication on safety issues concerning gas pipelines.

A programme of actions to be performed by MARCOGAZ and JRC has been agreed.
Energy Measurement

MARCOGAZ decided to set up a guidance note for the implementation of the OIML Recommendation “Measuring systems for gaseous fuels”. The main objective of the document was to clarify some concepts related to energy determination and proposing practical solutions for the use by the Gas Industry, Standardisation Bodies and other Authorities. During the last two years the WG worked intensively on this issue producing the final version of the document to be approved. The next step to be carried out during 2006 will be to decide how to issue this document and to spread to the most interested stakeholder.

PE Pipes Systems

During the last 2 years the WG focused mainly on the preparation of the document “Guidance concerning a quality plan for PE pipes, fitting and valves for use in natural gas distribution systems” and the Charter to be used by the participants to the scheme.

The aim of the Guidance is to define a quality plan for the components used in the gas distribution grid using as a reference the EN 1555 series. Expected benefits of this guide are:

- Improvement of the quality of the PE systems (gas operators)
- Optimization of testing costs (gas operators - manufacturers)
- Encourage innovation (manufacturers)
- EN standards to be used for procurement (gas operators)

The document has now been approved by many MARCOGAZ members. The next step will be to implement the scheme in the different MARCOGAZ Member Countries participating.

A new issue of development of the MARCOGAZ Members from WG is also the proposal for the document “Towards a harmonization of technical specifications on PE tools and ancillaries” which aim is to reach a common standard regarding the tools used during the construction and maintenance of the PE pipes system.

An important dialogue and collaboration started also between MARCOGAZ and the two major associations of the PE products manufacturers, PE100+ and TEPPFA

Opportunity to create a WG Distribution

The progressive opening of the gas market is likely to force the Gas Industry to deal with many new issues, especially those related to National Regulators. A European benchmarking study of regulators’ requests (both technical and economic) should be an interesting way to anticipate and develop a common position for the European Gas Industry. A preliminary work item has been launched to explore the possibility of creating a WG Distribution to deal with those items.

This WG will start its activity in 2006
The increased use of renewable energies is a major objective in European energy policy and Directive 2003/55/EC explicitly asks for non discriminatory access to gas networks for non conventional gases.

In this context, MARCOGAZ has prepared a recommendation indicating technical requirements for a safe injection of non conventional gases (biogas, biomass...) in national gas networks. The final first version of this specification will be ready by mid 2006 and could be used as a basis for a future European standard on this issue.

MARCOGAZ is closely co-operating with GERG which is currently preparing a European R&D project on biogas.

**ETPS (European Working Group on Third Party Safety)**

ETPS was created 10 years ago to collect and analyse incidents/accidents occurred on gas distribution networks and internal installations (similar to EGIG for transmission networks).

In the year 2004 ETPS WG chaired by P. SAGARRA (Gas Natural, E) decided to join MARCOGAZ.

Its main concerns today are the following:

- To extend representation from the main EU gas countries for ETPS to be of European value
- It is not possible today to show the very good track record in the distribution sector because of lack of facts and figures, which could lead to Gas Industry weakness when discussing with European or National Authorities
- Common understanding of risk factors and therefore definition of measures to prevent incidents/accidents is not possible at EU level

Therefore ETPS thinks that there is a need for a reliable European data base on incidents/accidents in gas distribution and gas installation as a convincing argument to underline the successful Gas Industry self-control and to prevent unnecessary additional regulations.

**Key issues for 2005 – 2006**

More and more groups at European level are tackling safety issues. MARCOGAZ is striving to be the European leader in this field and promotion of Gas Industry self regulation is the goal. However, good awareness of all these expert group's activities is a key issue that the SCGI should consider so as to avoid overlap and inconsistencies, which would be very harmful to the gas industry. The actions listed above demonstrate that MARCOGAZ continues to have a pro-active attitude concerning these issues.
The scope of activity covers the collection of industry data and preparation of views relating to environmental studies and policy proposals by the European Communities and other international bodies, which may affect gas industry interests and operations of gas supply and utilisation.

Particular attention is given to:
- promoting natural gas as the cleanest fossil fuel; as part of the solution to air pollution and to meeting the climate change objectives;
- ensuring that natural gas is not discriminated against in environmental policies;
- Providing EUROGAS and MARCOGAZ with policy, technical and practical operational advice on environmental issues.

Chaired by L. SCOPESI (ATIG, I), the Joint Group met three times in 2004:
- 3rd February – Brussels (B)
- 21st – 22nd June – Helsinki (FI)
- 27th October – Brussels (B)

and three times in 2005:
- 10th March – Brussels (B)
- 22nd – 23rd June – Prague (CZ)
- 12th October - Brussels (B)

EUROGAS, the European Association of Gas Suppliers, and MARCOGAZ co-operate on environmental issues relevant to the gas chain. Within the Joint Group the emphasis of the work is on technical questions. Policy and commercial issues from the perspective of gas suppliers are the responsibility of EUROGAS Group.

**Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis of Environmental Issues**

In 2004, the Joint Group completed the study Strength, Weaknesses, Opportunities, Threats (SWOT) in the gas chain. To be used primary as an internal reference document, the study analyses the impact on the environment of gas chain activities. The following topics are covered:
- Climate Change
- Ozone Depletion
- Acid Rain and Air Quality
- Energy Efficiency Activities
- Noise
- Water Quality
- Soil Contamination
- Indoor Air quality
- Urban Air Quality
- Waste Disposal

Each category was examined in relation to global, regional and local pollution. Transport, storage, distribution and utilisation were within the scope of the exercise, but not exploration and production.

The outcome of the overall analysis confirmed the relative environmental strengths of gas compared with oil and coal. The comparative strengths were especially notable in end-use.

The Joint Group agreed to review the analysis periodically.

**Methane Emissions**

The working group which had been set up in 2002 to work on methods and recommendations for evaluating methane emissions continued its work. Following agreement in 2003 as a methodology for estimating methane emissions in the different parts of the gas chain, which all members are asked to adopt for their reporting procedures, the Joint Group charged the sub-group with three other tasks:

- To develop a question/answer sheet on the methane issue to serve eventually external communications on environmental issues;
- To explore the possibility of developing guidelines for choosing appropriate values for ranges of emission factors;
- To examine best practice techniques to mitigate emissions.

The first task was completed by October 2004. The second is in progress. The third is an area kept under review by the experts.

**Health and Safety Issues**

The working group on Operational Health and Safety completed in 2004 a study based on data from companies to serve as a basis of better understanding of occupational hazards and risks.

The Joint group has asked the sub-group to refine its analysis further. The sub-group is also looking at contractors related with health and safety issues.

**Environmental Performance indicators**

Reports on environmental Performance indicators 2003-2004 have been prepared, so summary tables are available for 1998-2003.

**Life Cycle Analysis Study**

In 2004, the Joint Group set up a working group to develop a Life Cycle Analysis for gas consumed in Europe. The main aim of this work is to define an LCA for the whole gas chain, from the exploration & production to the final utilization, trying to highlight the environmental advantages related to the use of natural gas, especially compared with the use of the others fossil fuels like oil and coal. This work is to be completed by the end of 2005 and will become part of the IGU LCA study that will be presented in the IGU World Gas Conference in June 2006.
**National Allocation Plan**

The Joint Group reviewed the introduction of countries National Allocation Plans to reduce CO₂ emissions, with particular emphasis on operational implications.

**Other activities**

The Joint Group monitored the pollution legislation and regulatory developments relevant to gas industry interests. In particular, it contributed to the process to develop Best Available Technology Reference Notes for Large Combustion Plant.

The Joint group assisted in the preparation of a EUROGAS/MARCOGAZ brochure “Natural Gas: The Energy for a Sustainable Future”.

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**Work in relation to European Committee for Standardisation (CEN) and the International Standardisation Organisation (ISO)**


Positions of the European Gas Industry relative to CEN activities are co-ordinated and expressed by MARCOGAZ.

**Sector Forum Gas**

MARCOGAZ was involved in the creation of the Sector Forum Gas with 2 Sub-groups “Infrastructure” and “Utilisation” which, by being a consultation forum between all parties interested in standardization relative to gas, can issue recommendations for TCs.

MARCOGAZ General Secretariat was in 2004 and 2005 an active participant in the activities of SFG and relative working groups.

**CEN/ TC 234 “Infrastructure”**

MARCOGAZ maintains a close relationship with this Standardization Committee in charge of setting up the necessary functional standards used by gas operators.

MARCOGAZ is in favour of the revision process being carried out for most of CEN/TC 234 standards with the aim to check and improve the current standards (EN 1594, EN 1775, EN 12007).

MARCOGAZ also strongly supports the development of EQAS (European Quality Assurance System) technical specification for transmission and distribution. The MARCOGAZ Guide on Performance Indicators, which should be used to check the effectiveness of transmission operators PIMS (Pipeline Integrity Management System) will be referred to the EQAS Transmission document.
CEN/TC 235 “Gas pressure regulators and associated safety shut-off devices for use in gas transmission and distribution”
In 2005, MARCOGAZ, in cooperation with FAREGAZ clarified the position of the Gas Industry on the standardisation of service line regulator especially concerning the CPD (Construction Product Directive) harmonisation which is irrelevant for such products.

CEN/ BT JWG Energy Efficiency
MARCOGAZ was active in this group in charge of advising CEN and CENELEC on all political and strategic matters relative to standardisation in the field of energy efficiency.

The main result of the JWG is an overview of priorities in standardisation in the next years.

Another outcome will be the creation of a Sector Forum Energy Management which should be decided in 2006.
Membership at 1st December 2005 of Standing Committees, Joint Group Environment, Health & Safety and Working Groups

**SC Gas Utilisation**

T. Jannemann, Chairman (DVGW, D)
M. Bugler (British Gas, UK)
P. Chenot (Gaz de France, F)
B. Ciocca (ENI, I)
K. De Wit (KVBG, B)
F. Dupin (DVGW, D)
V. Gourioti (DEPA, GR)
A. Krijgsman (Gasunie, NL)
M. Kerul-Kmec (SPP OZ Kosice, SLO)
F. Laurent (Gaz de France, F)
L. Nolan (Bord Gais Eireann, IRL)
S. Myskova (Gas s.r.o., CZ)
P. Persson (Copenhagen Natural Gas, DK)
J. Schweitzer (Danish Gas Technology Centre, DK)
J. Sahun (Gas Natural, E)
M. Weichselberger (Wien Energie Gasnetz, A)
J. Winkler (SVGW, CH)

**WG Gas Installers (continued)**

S. Myskova (Gas s.r.o., CZ)
J. Sander (DVGW, D)
C. Soerig (Danmarks Gasmateriel Provning, DK)
J. Solis Marzal (Gas Natural, E)
J. Tomaz-Gomez (Aecops, P)
B. Thomas (KVBG, B)
B. Towse (HVCA, UK)
M. Weichselberger (Wien Energie Gasnetz, A)
K. Viehmann (Bundesinnung Sanitar Heizung Lüftung, A)

**WG Gas Quality**

F. Cagnon (Gaz de France, F) *
K. De Wit (Technigas, B)
A. Erdal (Statoil, N)
U. Klaas (DVGW, D)
D. Lander (National Grid, UK)
H.B. Levinsky (Gasunie Research, NL)
M. Seifert (SVGW, CH)
F. Sichar (Sedigas, E)
C. Soerig (Danish Safety Technology Authority, DK)
B. Viglietti (SnamReteGas, I)
H. Wackertapp (E.ON-Ruhrgas, D)

**WG Biogas**

U. Klaas (DVGW, D) *
E. Dejean (Gaz de France, F)
O. Florisson (Gasunie Research, NL)
J. Franek (Wien Energie Gasnetz, A)
O. Jonsson (Swedish Gas Center, S)
D. Lander (National Grid, UK)
M. Seifert (SVGW, CH)
F. Straka (Czech Gas Association, CZ)
H. Vinck (KVBG-ARGB, B)

**WG Energy Efficiency**

J. Schweitzer (Danish Gas Technology Centre, DK) *
M. Bugler (British Gas, UK)
P. Chenot (Gaz de France)
B. Ciocca (ENI, I)
F. Dupin (DVGW, D)
V. Gourioti (DEPA, GR)
M. Kerul-Kmec (SPP OZ Kosice, SLO)
A. Krijgsman (Gasunie, NL)
F. Laurent (Gaz de France, F)
L. Nolan (Bord Gais Eireann, IRL)
P. Persson (Copenhagen Natural Gas, DK)
S. Myskova (Gas s.r.o., CZ)
S. Rossato (AFG, F)
M. Weichselberger (Wien Energie Gasnetz, A)

**WG Gas Installers**

T. Langhorn (British Gas, UK) *
J. Bugler (Imca, UK)
J. Byrne (Corgi, UK)
A. Defedele (Italgas, I)
B. Delcour (Gaz de France, F)
M. Esitini (Assistal, I)
F-J. Heinrichs (Zentralverband Sanitar Heizung Klima, D)
A. Krijgsman (Gasunie, NL)
W.P. Kubbe (Uneto-VNI, NL)
O. Loebel (CGI-UICP, B)
A. Martin (Martin Van Epperzeel, B)
I. Peiro Gomez (CONAIIF, E)
**SC Gas Infrastructure**

J.-P. Beringuier, Chairman (Gaz de France, F)
S. Akel (Gaz de France, F)
J.-M. Baillard (Gaz de France, F)
R. Bolt (Gasunie, NL)
R. Bräuer (SGWA, CH)
C. Chiodaroli (SnamReteGas, I)
S.U. Dalsager (Dong Energiservice, DK)
U. de Castro (Italgas, I)
D. Deberdt (Fluxys, B)
A. Erdal (Statoil, N)
J. Fentz (Naturgas MIDT/NORD, DK)
R.C. Ford (Advantica Technologies Ltd, UK)
M. Fuchs (OMV Erdgas, A)
V. Gourioti (DEPA, GR)
K. Haring (Tigas, A)
R.D. Heinrich (NETG, METG, SETG, D)
D. Jagodzinski (DVGW, D)
M. Kerul-Kmec (SPP, SLO)
G. Linke (E.ON-Ruhrgas, D)
L. Nolan (Bord Gais Eireann, IRL)
N. Pericacho (Enagas, E)
A. Rovelli (SnamReteGas, I)
P. Stefl (Gas s.r.o., CZ)
M. Sola Sugranes (Gas Natural, E)
J. Trounson (National Grid, UK)

**WG PE Pipes**

M. Durandeau (Gaz de France, F) *
F. Berthier (Gaz de France, F)
G. Carens (Belgian Gas Association, B)
B. Clausen (Hovedstadsregionens Naturgas, DK)
G. Carens (Belgian Gas Association, B)
J. Grafeneder (EVB AG, A)
D. Grahl (RWE Gas, D)
I. Kas (ARGB, B)
T. Neumann (RWE Gas, D)
D. Robinson (National Grid, UK)
P. Stefi (Gas s.r.o., CZ)
J. Solis Marzial (Gas Natural SDG, E)
M. Wolters (Gastec, NL)

**WG Transmission Pipelines**

M. Kornalijnslijper (Gasunie, NL) *
A. Cappanera (SnamReteGas, I)
S.U. Dalsager (Dong Energiservice, DK)
D. Deberdt (Fluxys, B)
A. Erdal (Statoil, N)
M. Fuchs (OMV, A)
D. Jagodzinski (DVGW, D)
F. Laurens (Gaz de France, F)
G. Linke (E.ON-Ruhrgas, D)
K. Haring (Tigas, A)
M. Harzenmoser (Swissgas, CH)
L. Heerne (Bord Gais Eireann, IRL)
R.D. Heinrich (NETG, METG, SETG, D)
A. Hilgenstock (E.ON-Ruhrgas, D)
K. Homann (RWE Transportnetz Gas, D)
N. Jackson (National Grid, UK)
I. Komouros (RWE Transgas, CZ)
N. Pericacho (Enagas, E)
M. Poitou (GIE, B)
J. Winkler (SVGW, CH)
J. Zanting (Gasunie, NL)
J. Zarraga (Enagas, E)

**WG Energy Measurement**

G-H. Joffre (Gaz de France, F) *
S. Ambroz (Vyhodoceska Plynarenska, CZ)
C.M. Andersen (Dong, DK)
J.-L. Beccat (Gaz de France, F)
J. Dehaeseleeer (Electrabel, B)
D. Lander(National Grid, UK)
M. Marin (Fluxys, B)
M. Uhrig (E.ON-Ruhrgas, D)
B. Vigletti (SnamReteGas, I)
F. Vulovic (Gaz de France, F)
J. Winkler (SVGW, CH)

**WG Gas Meters**

J. Dehaeseleeer (Electrabel, B) *
J. Beccat (Gaz de France, F)
V.M. Cannizzo (SnamReteGas, I)
F.A. de Jong (Gasunie, NL)
U. de Castro (Italgas, I)
A. Erdal (Statoil, N)
P. Grosshennig (Bayerngas, D)
K. Haring (Tigas, A)
E. Kaiser (RWE Energy, CZ)
C. Le Flohic (Gaz de France, F)
L. Maina (Italgas, I)
M. Marin (Fluxys, B)
L. Nolan (Bord Gais Eireann, IRL)
J. Senave (Facogaz, B)
J. Sibley (Advantica Technologies Ltd, UK)
M. Uhrig (E.ON-Ruhrgas, D)
P. Stefl (Gas s.r.o., CZ)
J. Winkler (SVGW, CH)

**WG Third Party Interference**

J.-P. Beringuier(Gaz de France, F) *
S. Akel (Gaz de France, F)
R. Bolt (Gasunie, NL)
C. Chiodaroli (SnamReteGas, I)
D. Deberdt (Fluxys, B)
J. Fentz (Naturgas MIDT/NORD, DK)
F. Fuchs (OMV, A)
D. Jagodzinski (DVGW, D)
M. Kerul-Kmec (SPP OZ, SLO)
M. Kornalijnslijper (Gasunie, NL)
G. Linke (E.ON-Ruhrgas AG, D)
N. Pericacho (Enagas, E)
M. Poitou (GIE, B)
P. Roovers (Fluxys, B)
A. Rovelli (SnamReteGas, I)
D. Willett (National Grid, UK)
J. Zanting (Gasunie, NL)
**Joint Group Environment, Health and Safety**

L. Scopesi, Chairman (ATIG, I)
S. Basiu (EUROGAS, B)
K. Bjurling (Swedish Gas Association, SE)
H. Casterman (Gaz de France, F)
S.U. Dalsager (Dong, DK)
P. De Jong (National Grid, UK)
F. Dupin (DVGW, D)
V. Gourioti (DEPA, GR)
D. Gullentops (Synergrid, B)
H. Heidinger (OMV, A)
J.K. Jensen (Danish Gas Technology Centre, DK)
P. Karinen (Gasum, FI)
M. Kebrdle (Czech gas association, CZ)
T. Kleppe (Statoil, N)
R. Kopny (Slovensky Plynarensky Priemysel, SLO)
G. Laroche (Gaz de France, F)
M.A. Loudon (EUROGAS/MARCOGAZ Secretariat, B)
O. Matile (ASIG, CH)
M. Mondino (Italgas, I)
L. Nolan (Bord Gais Eireann, IRL)
B. Postmus (Gasunie, NL)
J. Puertas Agudo (Gas Natural, E)
A. Riva (SnamReteGas, I)
M. Rottner (Transgas, CZ)
M. Schäufele (German Gas and Water Industries, D)
T. Veenstra (Gasunie, NL)
J. Vorgang (E.ON-Ruhrgas, D)

* = WG Chairman
Internal Meetings

**General Assembly**
1. Wien 14/05/04
2. Berlin 13/05/05

**Executive Board**
1. Brussels 27/02/04
2. Brussels 05/04/04
3. Wien 13/05/04
4. Brussels 15/10/04
5. Brussels 11/03/05
6. Berlin 12/05/05
7. Brussels 25/10/05

**SCG Infrastructure**
1. Prague 18/03/04
2. Stratford 07/10/04
3. Budapest 31/03/05
4. Barcelona 05/10/05

**WG Energy measurement**
1. Dorsten 15-16/03/04
2. Warwick 06-07/07/04
3. Brussels 10/11/04
4. Milan 23/03/05
5. Paris 14/06/05
6. Brussels 26/10/05

**WG Gas Meters**
1. Brussels 21/10/04
2. Brussels

**WG PE pipes**
1. Brussels 22/01/04
2. Brussels 24/06/04
3. Brussels 20/10/04
4. Brussels 22/03/04
5. Brussels 30/06/04
6. Nice 8-9/06/04

**WG Third party interference**
1. Budapest 30/03/05
2. Brussels 08/09/05
3. Barcelona 04/10/05

**WG ETPS**
1. Brussels 25/05/05
2. Brussels 23/11/05

**SCG Utilization**
1. Hoersholm 22-23/04/04
2. Athens 23-24/09/04
3. Milan 07-08/04/05
4. Barcelona 06-07/10/05

**WG Energy efficiency**
1. Brussels 09/09/04
2. Brussels 15/12/04
3. Milan 07/04/05
4. Barcelona 06/10/05

**WG Gas Quality**
1. Oostende 26-27/01/04
2. Saint Denis 07/05/04
3. Amsterdam 14/09/04
4. Warwick 17/12/04
5. Remscheid 10/02/05
6. Paris 19/04/05
7. Brussels 23/05/05
8. Brussels 08/07/05
9. Brussels 23/09/05
10. Amsterdam 28/11/05
11. Saint Denis 13/12/05

**WG Gas Installers**
1. Brussels 20/01/04
2. Turin 28/05/04
3. Bonn 21/01/05
4. Madrid 27/05/05
5. Groeningen 30/11/05

**WG Biogas**
1. Bonn 13/02/04
2. Malmo 03-04/05/04
3. Wien 07/09/04
4. Paris 03/12/04
5. Groeningen 28/04/05
6. Brussels 19/07/05
7. Warwick 04/10/05
8. Saint Denis 14/12/05

**JG ENV H&S**
1. Brussels 03/02/04
2. Helsinki 21-22/06/04
3. Brussels 27/10/04
4. Brussels 10/03/05
5. Prague 22-23/06/05
6. Brussels 12/10/05
### Main figures for the European gas Market year 2004 (16Members)

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of connected customers to gas networks</td>
<td>89,470,685</td>
</tr>
<tr>
<td>Gas sales [TWH/y]</td>
<td>4.658</td>
</tr>
<tr>
<td>Transmission network length [Km]</td>
<td>205,842</td>
</tr>
<tr>
<td>Distribution network length [Km]</td>
<td>1,389,925</td>
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<tr>
<td>Transmission compressor plants[number]</td>
<td>145</td>
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<tr>
<td>Transmission network reducing stations[number]</td>
<td>9,142</td>
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<tr>
<td>City gate reducing stations[number]</td>
<td>22,381</td>
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<tr>
<td>LNG Terminals[number]</td>
<td>11</td>
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<tr>
<td>LNG Storage installed [m3 LNG]</td>
<td>2,168,000</td>
</tr>
<tr>
<td>Total underground storage capacity [Gm3]</td>
<td>58</td>
</tr>
<tr>
<td>NGV Vehicles</td>
<td>440,998</td>
</tr>
</tbody>
</table>

*Table 1: general figures for the European gas market year 2004*
<table>
<thead>
<tr>
<th>Commercial Data</th>
<th>Pipeline Lenght</th>
<th>Service pipes</th>
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<tbody>
<tr>
<td>Austria</td>
<td>1.305.964</td>
<td>94.00</td>
</tr>
<tr>
<td>Belgium</td>
<td>2.718.613</td>
<td>85.50</td>
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<tr>
<td>Czech Republic</td>
<td>2.690.000</td>
<td>102.00</td>
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<tr>
<td>Denmark</td>
<td>301.004</td>
<td>45.10</td>
</tr>
<tr>
<td>France</td>
<td>11.343.250</td>
<td>516.00</td>
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<tr>
<td>Germany</td>
<td>15.216.770</td>
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<tr>
<td>Greece</td>
<td>53.710</td>
<td>28,38</td>
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<tr>
<td>Hungary</td>
<td>3.219.959</td>
<td>126.50</td>
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<tr>
<td>Ireland</td>
<td>502.000</td>
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<tr>
<td>Italy</td>
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<tr>
<td>Netherlands</td>
<td>6.638.000</td>
<td>517,24</td>
</tr>
<tr>
<td>Norway</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>Slovak Republic</td>
<td>1.425.296</td>
<td>64,20</td>
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<tr>
<td>Spain</td>
<td>5.305.297</td>
<td>275,40</td>
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<tr>
<td>Switzerland</td>
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<tr>
<td>United Kingdom</td>
<td>21.260.007</td>
<td>978,00</td>
</tr>
<tr>
<td>Total (16 members)</td>
<td>89.470.685</td>
<td>4.658</td>
</tr>
</tbody>
</table>

Table 2: European countries gas sales & customers – pipelines length + number of service pipes
<table>
<thead>
<tr>
<th></th>
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<td>3</td>
<td>4</td>
<td>7</td>
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<tr>
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<td>1</td>
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<tr>
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<td>3</td>
<td>8</td>
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</tr>
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<td>France</td>
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<td>510.000</td>
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<td>15</td>
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<td>0</td>
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<td>3</td>
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<tr>
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<td>10</td>
<td>8</td>
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<tr>
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<td>125.000</td>
<td>9</td>
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<td>3</td>
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<tr>
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</tr>
<tr>
<td>Slovak Republic</td>
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<td>4</td>
<td>2</td>
<td>2</td>
<td>5</td>
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<td>0</td>
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<tr>
<td>United Kingdom</td>
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<td>200.000</td>
<td>25</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total (16 members)</strong></td>
<td><strong>11</strong></td>
<td><strong>2.168.000</strong></td>
<td><strong>145</strong></td>
<td><strong>58</strong></td>
<td><strong>100</strong></td>
<td><strong>99</strong></td>
</tr>
</tbody>
</table>

Table 3: European countries LNG facilities - Underground storages - Cross border points