



**marcogaz**

TECHNICAL ASSOCIATION OF THE EUROPEAN NATURAL GAS INDUSTRY

activities 2008-2009



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## Message from the President



Speed is a phenomenon of our times. The sequence of developments, which a few decades ago was more of a gradual process, has gathered pace so much in comparison with the past that the old wisecrack “there’s nothing older than yesterday’s newspapers” is very topical today. This is why writing an introduction to our Association’s activities in 2008&2009 is not an easy exercise at all; a number of major events have already taken place during this exercise. At the beginning of 2009, the January gas crisis broke out, weighing heavily on Eastern European Countries, which are extremely dependent on Russian natural gas supplies. It is no exaggeration to say that the European gas market will never be the same after this crisis as it was before the crisis. Similarly, the deepest economic crisis of the last few decades, although its beginnings date back to as early as 2007, broke out in full as late as 2009 and we will continue to feel its consequences for many years to come. And because economy and technology are interconnected, finding a compromise between the economic criteria on the one hand, and security of gas supplies on the other hand can be expected to be perhaps even more complicated.

For MARCOGAZ, 2008 was marked by modifications to its Statutes, to make them more open and attractive for new and potential members, and I think it was a step in the right direction. Although only the coming years will show how successful we have been in pursuing our intention to expand our membership base, we already can see the first results. We have added 2 successful editions of the European Forum Gas in Bratislava and Madrid to our track record and by now we have completed another edition of this Conference in Madrid. This is, also thanks to the extreme efforts made by all the stakeholders and the members of the Organising Committee, a major step towards building a high profile for our Association and for presenting serious technical topics to the expert circles.

Every year that passes brings further progress in the process of harmonising technical legislation, in our support of the activities of CEN, ISO, and other bodies in the standardisation process. We will continue to seek closer co-operation with organisations pursuing similar objectives, with a view to identifying the synergic potential for achieving more effective results at lower costs. Co-operation with GERG, which we are planning for the nearest future, is the best example of this.

The Annual Report for 2008-2009 shows the whole range of our activities, in which we will continue for the benefit of the whole natural gas sector.

**Milos Kebrdle**  
President of MARCOGAZ

## Message from the Secretary General

The preparation of the 3rd Energy Regulatory Package was a very important topic in 2008 for many Gas Industry Members. New organizations such as a European Agency for co-operation of Energy Regulators or a European Network for Transmission Systems Operators are now expected to be set up. In a situation where energy prices raised rapidly and the security of supply was becoming a subject of concern, safety, reliability and efficiency of gas infrastructure were seen as even more fundamental aspects. In this context, MARCOGAZ continued to provide its independent technical expertise to all actors of the gas supply chain.

Demonstrating that gas systems are the safest way to provide energy to the society was a continuous activity for MARCOGAZ following its strategy of self regulation especially through the production by the Industry itself of high level updated technical specifications and standards for gas systems.

MARCOGAZ technical expertise was recognised at European level for many issues such as the harmonisation of gas quality in Europe where MARCOGAZ was at the origin of the studies which led to the contract provided by the Commission to CEN in December 2008 for working at a standard on gas quality for Europe.

The rational and efficient use of energy was another important area of activity in 2008 and 2009, with a strong participation in the discussions regarding the implementation of Directive 2005/32/EC establishing Eco-design requirement for Energy Using Products for boilers and water heaters which are appliances for the domestic market. MARCOGAZ produced a Position Paper on this issue in October 2008 and participated in the Consultation Forum discussions.

In order to stimulate the development of modern and high efficiency gas appliances such as micro cogeneration units producing heat, hot water and electricity, MARCOGAZ organized two very successful Micro-cogeneration Workshops in Paris in May 2008 and Alpedoorn-Ameland in June 2009 where all those concerned were present. One of the results was the creation of the mCHP Platform aiming at exchanging and defining positions.



Besides the finalization of the first Life Cycle Analysis produced by the Gas Industry, a collection of case studies to show the real measures put in place by the Gas Industry to reduce gas emissions was prepared and a position paper listing key factors for a successful sustainable energy future were issued.

Another important decision in 2008, was the opening of the MARCOGAZ membership to 3 new categories of Members (Charter Members, Corporate Members and Associated Members) which will give MARCOGAZ access to all interested Gas Industry Organizations.

A handwritten signature in black ink, appearing to read 'Daniel Hec'. The signature is stylized and written over a horizontal line.

**Daniel Hec**  
Secretary General

## Introduction



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Created in 1968, for technical harmonisation, 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 a 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, rational use of energy and environmental issues.

Promotion of modern and efficient gas utilisation is an important part of MARCOGAZ activities.

Environment, health and safety issues related to natural gas systems and utilisation are especially of great importance for MARCOGAZ.

MARCOGAZ is collecting and analysing incident data regarding gas distribution and internal installations.

MARCOGAZ also collects many technical data regarding gas infrastructure.

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## Mission and tasks of MARCOGAZ

### Chief mission

**To serve its Members as the European window on technical legislation and standardisation and to promote technical conditions required for the market success of natural gas**

Achievement of the mentioned aims is sought by means of:

- Defining views and common positions on technical issues of common interest and representing these to European and International bodies, in particular to the European Authorities, the United Nations, the European Committee for Standardization (CEN), the International Organisation for Standardization (ISO) and other Industry Organisations;
- 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.

## Membership in MARCOGAZ

To match the most recent developments of the European Gas Industry, the General Assembly has approved on 31st October 2008 a new membership scheme which gives more opportunities to Companies or Associations involved in the Gas Market to become a MARCOGAZ Member.

The different membership categories in MARCOGAZ are the following:

- **Charter Members :**

Open to National Gas Associations or to a representative Gas Company. Only one Charter Member can represent one Country.

Each Charter Member is represented at Executive Board level.

- **Corporate Members :**

Open to Companies having an interest in the Natural Gas business.

Corporate Members can apply for Standing Committee Chairmanship and therefore for possible Executive Board seats.

- **Associate Members :**

For European & International Associations which have an interest in the Natural Gas business.

Associate Members can send representatives in Standing Committees and Working Groups

All the Members have access to the technical work of MARCOGAZ.

### Main advantages of becoming a MARCOGAZ Member

The most important benefits to become a MARCOGAZ Members are:

- to be informed in real time about Regulatory developments at EU level;
- to express views and position at European level;
- to have a direct link with the EU Authorities (EU Commission, Parliament, Regulatory Bodies ...);
- to have access to a very wide network of technical knowledge and expertise;
- to be in contact with other Industry Associations (EASEE-gas, EUROGAS, NGVA Europe, EHI, GIE, GERG, EGIG ...);
- to have a direct access to European / International standardization activities (CEN, CENELEC, ISO ...);
- to have access to many International Organizations such as United Nations or IGU.

Marcogaz membership at June 2009 covers 20 Countries

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## Organisation



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MARCOGAZ was registered on 23rd May 2005 as an International Association under Belgian law on 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 with 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. They are disbanded when not anymore necessary.

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 and one full time Assistant.

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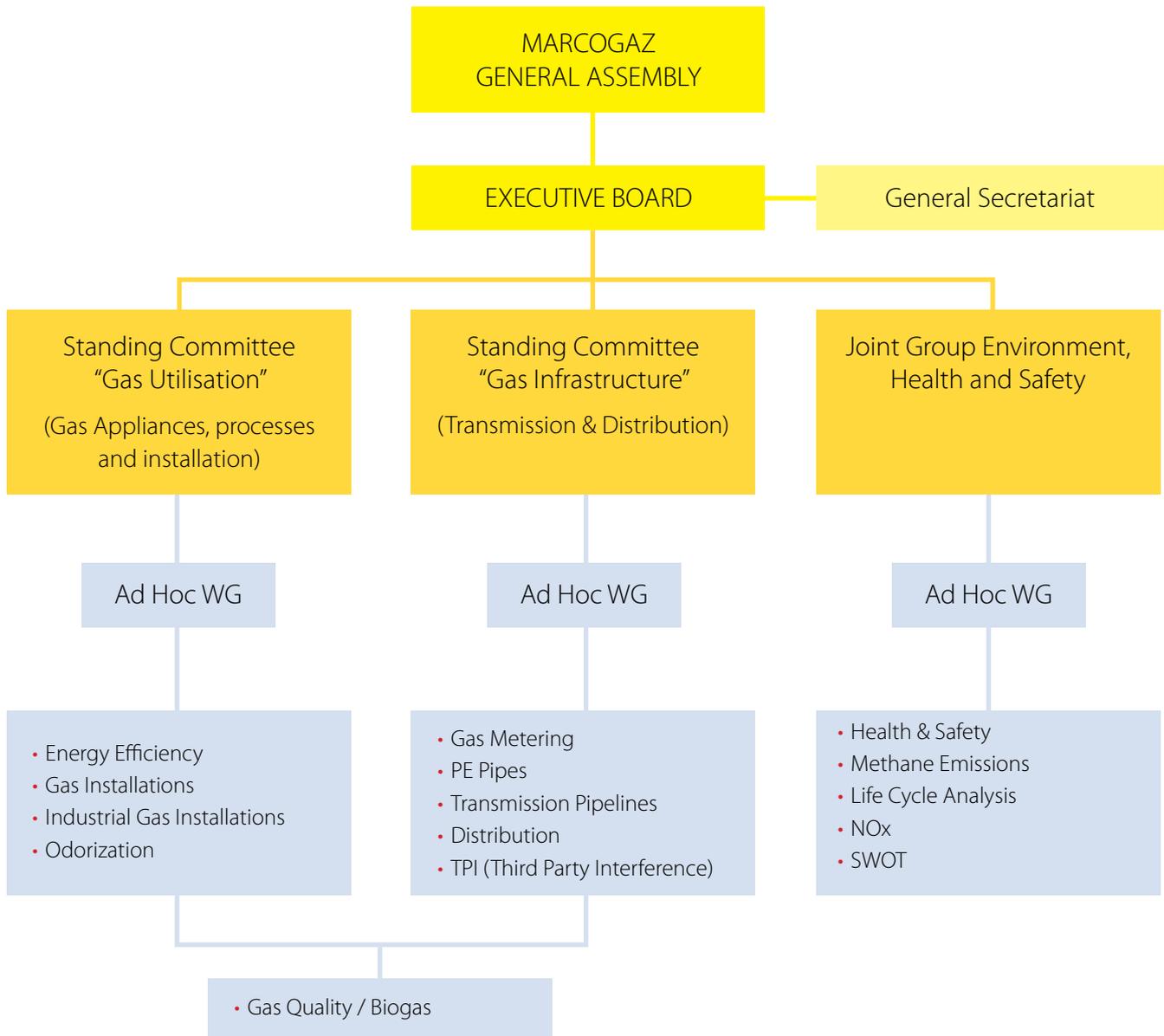
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# Internal Organisation Chart



## MARCOGAZ Website

MARCOGAZ has its own homepage on the Internet at <http://www.marco gaz.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.

For the Members the site 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).

Specific information regarding MARCOGAZ events, such as European Forum Gas or Workshops, including downloadable presentations and documentation can be found on the MARCOGAZ website.

The screenshot shows the MARCOGAZ website homepage. At the top left, it says "Welcome we hope you enjoy your visit". Below this are navigation tabs: "Organisation", "Objectives", "Activities", and "Events". On the right, there is a logo for "marco gaz" with the text "TECHNICAL ASSOCIATION OF THE EUROPEAN NATURAL GAS INDUSTRY" underneath. Further right are links for "Publications", "Members' Area", and "News".

The main content area features a large banner for the "7<sup>TH</sup> EUROPEAN FORUM GAS 2009 In Madrid" held on "18<sup>TH</sup> and 19<sup>TH</sup> June 2009". To the right of the banner is an image of a building and the "sedigas" logo.

Below the banner, there are two red boxes:
 

- Left: "European Forum Gas 2008 Brisbane, 18th - 19th September"
- Right: "European Forum Gas 2009 Madrid, 18th-19th June" with a yellow box below it stating "Presented Materials now available" and the text "Matching quality, efficiency and safety: a true challenge!"

A "News headlines" section lists:
 

- 12/10/2009: MARCOGAZ presents 5 communications during the WGC 2009 - Buenos Aires
- 17/6/2009: MARCOGAZ welcomes 3 new Members: EPA Attikó, REN Gasodutos and OGP Gas System
- 26/5/2009: Gas Smart Metering System Position Paper

On the right side, there is a "Welcome to Marco gaz" section with the text: "We are the representative body of the European Natural Gas Industry on all technical issues. We aim to monitor and take influence when needed on European technical regulation, standardisation and certification with respect to integrity and safety of pipeline systems, equipment, and the rational use of energy." Below this is the text "Enjoy your visit!".

At the bottom right, there are links for "Contact", "Find Us", and "Sitemap".

## General Assembly



The General Assembly held its 2008 annual session on 16th May 2008 in Prague. An extraordinary session took place on 31st October 2008.

On this occasion, review of the activities of the Standing Committees and Joint Group Environment Health and Safety was carried out, new work plans were approved and liaison with other bodies examined. In addition, very important strategic views for the future of the Association were discussed. A new membership scheme was approved, with the view of increasing the possibilities for companies / associations for becoming MARCOGAZ Member. The External organisations collaborating with MARCOGAZ were invited to present their activities (EUROGAS, IGU, GIE, and GERG).

A new Member joined MARCOGAZ in 2008:

**Gazbir, the Turkish Association of Distribution Companies.**

The General Assembly welcomed the application of Gazbir which enlarged the representativeness of the Association, opening the membership of MARCOGAZ towards new boundaries.

During the 2009 meeting of the General Assembly which took place in Madrid on 17th June 2009, the Members revised the MARCOGAZ strategic view to tackle the future challenges and the Assembly welcomed 3 new Members who applied following the new membership scheme as Corporate Members.

The new Members who joined MARCOGAZ were:

- **REN Gasoductos (Portugal)**
- **OGP Gaz Systems (Poland)**
- **EPA Attiki (Greece)**

The Assembly welcomed the new Members highlighting the growing representativeness of MARCOGAZ before the stakeholders.

## European Forum Gas 2008 in Bratislava

One of the most important tasks of Marcogaz is to form the engineers and technicians who are working for the gas industry. For this reasons, beside ad hoc workshops and seminars organized on different issues such as gas quality or micro CHP, Marcogaz organizes each year the **European Forum Gas** which has the aim to present and exchange on the most actual technical questions interesting Gas Companies. In September 2008, the EFG was organized in the Eastern part of Europe, in Bratislava, the capital of the Slovak Republic.

This edition was highly successful gathering many participants from the Gas World and proving the interest of people for such technical conference. People from more than 20 European Countries attended the Conference.

The issues dealt with during the Conference were spread into 5 different sessions:

- **International - Cross border transmission systems**
- **Training and Competences in the natural gas chain**
- **Research & Development**
- **NGV for a sustainable transport policy**
- **Metering for gas systems**

The Conference was opened by the Marcogaz president, Milos Kebrdle who underlined the changes which were occurring in the Natural Gas Industry and the technical challenges imposed by the liberalization process.

The first session focused on the importance of keeping the European transmission grid in a safe and reliable condition, so as to ensure not only the safety of people but also the security of supply of the entire Europe. In the ambit of these sessions several interesting methods of maintenance were presented, also for submarine pipelines. In addition, the important issue of emission trading was dealt with by a specific presentation which explained the experience of the German Gas Industry in this respect since the year of his entry into force.

The following session insisted on training and

competences which are of paramount importance to ensure the safe operation of the assets, particularly in this changing environment, so this session presented both gas industry requirements and opportunities available from training centres.

The research session, organized by GERG, focused on specific elements to illustrate the way in which R&D contributes to the strategic objectives of the European Gas Companies and to reinforce the European Gas market.

The climate change asks for more and more stringent caps for carbon emissions for the industry but also for the transport sector which is likely to be included in the future in the Emission Trading Scheme. NGVs are the quickest and most cost effective way to build a very sustainable transport policy thanks to their fulfillment of the constraints posed by the environmental legislation. The session number 4 addressed the relevant issues to be tackled in order to have an effective NGV market offer.

The fifth and final session presented new solutions to take also into account the possible differences in gas quality and composition. In particular the subject of smart metering was addressed with particular regard to the need

of possible standardization in this field. In addition, the Guidance note on energy determination prepared by Marcogaz was explained by a specific communication. Last but not least, the very important issue of biogas was addressed by a presentation focused on the Swedish experience in this field.



## European Forum Gas 2009 in Madrid



After the successful edition held in Bratislava, Marcogaz decided to organize the edition 2009 in Spain where the gas market is brilliantly developing at a very high pace since several years now.

In spite of the difficult environment created by the credit crunch and financial crisis the conference was successfully attended by people from 20 countries.

The participants to the EFG2009 could also enjoy the visit of the NGVs exposition which was taking place at the same time in the same premises.

The Conference was opened by a very interesting and comprehensive presentation done by J.Pons, ENAGAS Strategy&Regulation General Manager, who gave a complete overview of the Spanish gas market and its future perspectives.

The Conference was divided into 4 sessions:

- **Quality and safety of gas installations**
- **High efficiency gas appliances for a sustainable energy use**
- **Best materials for a safe and reliable gas grid**
- **Technical challenges due to liberalization**

The first session aimed at showing the different qualification schemes in force in different member states with the final aim to understand if a future common European certification scheme could be achieved.

It's clear that if we want to keep the gas in the house of the future it's essential to propose to the market new appliances which should fill in the gap in gas consumption caused by improved insulation and the use of renewable energies. Therefore session 3 wanted to show which kind of appliances would be available soon or are already available on the market to guarantee to natural gas a place in the house of the future.

Session 3 aimed at showing how the new materials can help the gas industry to satisfy the necessary level of safety taking into account also budget consideration imposed by the liberalization of the gas market. A specific presentation explained how standardization can help in ensuring the optimum ratio between quality and cost of materials used in the construction of gas grids.

The last session focused on the impact of liberalization in the investment policies of the gas companies and to the way to optimize their development in a changing scenario.

Emphasis on the grid safety was put by a presentation on the effects of the addition of hydrogen to the gas grid and another one focused on the use of safety indicators for gas distribution grid.

The Marcogaz view on the issue of smart metering was then developed by a specific presentation which presented the position paper of Marcogaz on this very actual subject.



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.

Specific scopes and activities in 2008&2009 are reported in the following sections.

Members of the Standing Committees, the Joint Group Environment Health & Safety and the Working Groups can be found on the Marcogaz website.

## Standing Committee Gas Utilisation

Scope of activity:

**Gas appliances, in-house installation, ducting systems and related equipment, industrial installations**

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



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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 efficient attractive high performance products and systems for consumers;
- 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, including industrial installations, 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;
- Develop and promote the use of Natural Gas for Vehicles.
- Develop and promote the use of innovative gas appliances like micro CHP, heat pumps....

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

## Recommendation on safety of domestic gas installations

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This group has now put the finishing touches to its guide "Recommendation on safety of domestic gas installations" and was looking to a further stage set to tackle the difficult matter of mutual recognition of installers across the Europe, especially important for the free circulation of services; the document "Competency Framework" gives a useful picture of the rules and practices gas installers have to observe at the national level to get the needed qualification.

The group is also collecting figures related to incident in the domestic installations and is now analysing the results of the latest figures.

## Eco-Design requirements for Energy Using Products (2005/32/EC) and Labelling (92/75/EEC) Directives revision

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These Directives constitute the centrepiece of the SCGU activities, through its WG "Energy Efficiency", given the huge impact they are going to have in the future on the utilisation of gas in the domestic and commercial sectors.

The labelling system (A to G labels) will cause step by step the elimination of appliances not complying with the highest efficiency requirements. Even the condensing boilers, up to now ranking at the top, will be pushed to the bottom classes if not associated with a solar or renewable device.

The use of micro-CHPs has therefore become a priority and the first products, mostly based on Stirling engines, are in the market while the promising fuel cells are under still under development.

Their inclusion in the scope of Eco-design, that MARCOGAZ strongly supports, seems to be accepted and the first technical sheets have been circulated.

The difficulty for the SCGU members lays in the follow-up of the studies performed for the European Commission by the Consultant VHK in charge of elaborating the measurement methods and calculation procedures for the relevant products: water heaters and boilers for the Gas Industry. The key points are understandably specific efficiency and emissions.

These documents, destined to be the basis for the determination of the efficiency requirements, require a high specialized expertise for an in-depth analysis. MARCOGAZ resorts to its testing engineers from the laboratories in order to work out credible position papers, some of them in co-operation with other federations (e.g. EHI, AEGPL). Despite successful achievements, more involvement from experts is needed to master the extent of such an exercise.

Part of this technical framework is a mathematical calculation model, SCGU experts have tested. They subsequently proposed to simplify it and came up with a more accessible version, an initiative which has come down well ahead of the June 2009 Consultation Forum.

The evaluation of this calculation model through a GERG project is a very good example of high level competence used in the interest of the whole Industry.

## Micro cogeneration (mCHP)

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On site production of heat and electricity is seen today as one of the few possibilities to keep gas in the house of tomorrow where specific design features, including a very high insulation level and use of renewable energy, will make traditional gas heating and hot water production systems obsolete.

MARCOGAZ, together with IGU and GERG, with the support of other organisations like COGEN Europe, have decided to promote the development of such new applications by bringing together all parties interested in order to define common actions.

The preparation of a Workshop held in May 2008 in Paris started in 2007 with the following goals:

- **To dress the picture/state of the art of the available technology today;**
- **To identify which actions are needed to ease the introduction of such new products on the market;**
- **To organize the co-operation within the Gas Industry on this issue of common interest;**
- **To convince the EU of the interest of such technology which shall be supported**

Then MARCOGAZ created a European Platform on mCHP to formalize actions and seek the support of tall stakeholders including the Commission. More information on the mCHP Platform can be found on the following website: <http://www.micro-chp.org>.

**mCHP platform :**  
Federation of the initiatives to promote mCHP technologies

home | news | public

you are here: home

**Welcome to the mCHP platform**  
Also available in presentation mode.

**WELCOME to the mCHP platform.**  
We are various associations from the industry working at the integration of mCHP technologies on the market.  
**Most of the areas of this site can only be viewed to registered members. Please log in access to the information.**

- You are member of the platform and have not been sent login info?  
Please send a mail to [ijpc@edgc.dk](mailto:ijpc@edgc.dk) and we will send you one!
- You are a relevant stakeholder and want to be allowed to enter the site?  
Please send a mail to [ijpc@edgc.dk](mailto:ijpc@edgc.dk) describing your activities and we will send you login info.

**Next meeting will be in Brussels end of 2009 (data to be defined) following the exciting technical visit we had in the Netherlands in spring!**  
**We are working to have a similar technical visit next year in another country.**

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mCHP at the World Gas Conference in Argentina 2009  
Nov 10, 2009  
Japan ENE-FARM Brand Fuel Cells Selling Strongly  
Nov 10, 2009  
New member, Delta Energy and Environment  
Sep 22, 2009  
Member list updated  
Sep 22, 2009  
KEPA presentation  
Sep 10, 2009  
More news...

### mCHP Platform visit in Apeldoorn and Ameland on 11th-12th June 2009

In order to increase the awareness of the industry on the very important issue of micro CHP and the use of renewable energy the Platform decided to organize a workshop on CHP in Apeldoorn where many issues related to CHP were debated and discussed.

In addition a visit to the island of Ameland was organized showing to the participants a very valuable example of micro CHP installation.

The event was fully booked, proving the interest of the industry towards new forms of gas utilization.

## TOWARDS NEW TECHNOLOGIES FOR THE GAS MARKET: GAS INDUSTRY MICRO CHP WORKSHOP 2008 PARIS (FRANCE) 29 & 30 MAY 2008

Micro cogeneration (mCHP) is an important technology for the Gas Industry as it is seen as one of the main applications for natural gas to remain in the house of tomorrow when traditional boilers are becoming obsolete or too costly in comparison with other heating systems. Especially in the new building sector, the heat demand will become very low due to energy savings regulations, asking for high insulation and system efficiency.

### What is Micro CHP?

CHP is combined heat and power generation through appliances that can be based on different technologies. mCHP is designating such application targeting the domestic residential sector. More information can be found here:

[http://www.gerg.info/publications/brochure\\_asue.pdf](http://www.gerg.info/publications/brochure_asue.pdf)

Therefore, on the initiative of the IGU (WOC5), Marcogaz and GERG - organizations that are fully committed to development of new gas technologies - a workshop was organized in May 2008 the premises of Gaz de France R&D Division in Paris. The goal of the workshop was to gather the main actors from the Gas Industry, manufacturers and European authorities in order to define a Gas Industry strategy to facilitate the development and integration of  $\mu$ CHP technology.

The event was a great success as proven by the attendance, the wide, enthusiastic and animated debates. From the feedback we have received already from the participants it seems that they have been unanimously impressed by:

- the high quality representation (EU representative, Japanese and American experts, COGEN, leading manufacturers, managers, researchers / decision-makers from the main EU gas companies etc.)
- the high quality presentations made by leading experts in the field of mCHP
- the excellent organization by Gaz de France

About 80 invited worldwide experts participated in the event, sponsored by Marcogaz, Gaz de France, Gasterra and GERG. It should be noted that the workshop was reserved to invited participants only. Real appliances were presented in the showrooms during the whole duration of this two-day event.

The workshop has allowed to summarize the state-of-the-art of the technology today worldwide and to make a synthesis of the different on-going projects. One of the aims of the workshop was to set up a dynamic for common action to accelerate the integration of the new technology on the market. This target was reached: together with the manufacturers the Gas Industry agreed and decided to pursue action and the ideas discussed at the workshop will soon turn into collaborative projects within EU and also worldwide.

The workshop was organised in different sessions including a manufacturer session.



### mCHP – State of the Art

The aim of this session chaired by Dr. Formanski (ASUE) was to shed light on the state-of-the-art of the technology and the current market status of mCHP systems. One overview presentation and several presentations given by manufacturers of mCHP units answered many questions and resulted in a harmonized knowledge of the workshop participants.

Dr. Formanski presented the benefits and the state-of-the-art of  $\mu$ CHP, the current market situation and the requirements for mchp units especially of the 1 kWel class. Reliability, reasonable pricing, easy handling and installation in newly-built and existing buildings and for the end-user convenient operation are the key requirements. Honda's 1 kW "Ecowill" system with more than 60.000 sold units in Japan and Senertec's 5 kW "Dachs" with nearly 20.000 sold units in Europe are the current market leader. Apart from that there are several developments based on internal combustion engines, Stirling engines and fuel cell technology under progress,

either being close to the market or being a perspective for the near future. Generally spoken, given the potential for mCHP systems and the interest of the customers, the market needs reliable systems for a reasonable price supported during the market introduction by all involved groups.

Guido Gummert (Baxi Innotech, Germany) presented the whole bandwidth of products with the available "Dachs" system, the Stirling engine based "Ecogen" system and the fuel cell development with the current beta field test unit. Gummert mentioned that a pre-series of the "Ecogen" is expected for 2009. For the fuel cell development the market introduction is scheduled for 2013.

Marco Bijkerk (Remeha, The Netherlands) presented the combi boiler with Stirling engine, whereas the Stirling is also based on the former Microgen development just as the development of Baxi and Viessmann. The commercial availability of the 1kW electrical and with the integrated condensing boiler up to 28 kW thermal output is scheduled to 2009.

Later on - not before 2011 - the Bosch Thermotechnology Stirling system will be introduced after a field test with 500 units from 2008 to 2010 in UK, The Netherlands and Germany, said Gary Mitchell.

WhisperGen, the Stirling engine based system which is closest to the market, will be manufactured in Spain under a Joint Venture of WhisperGen, New Zealand and Mondragon Cooperative Corp., Spain, according to Len Damiano from WhisperGen. After intensive testing and system improvement over several generations the production is starting just now. As well as the other speaker, Len Damiano pointed out that the establishment of fair and collective standards will be a common challenge for the manufacturers and the involved groups.

Bob Flint, CeresPower, UK and Brandon Bilton, CFCL Europe, UK, presented the SOFC fuel cell development of their Companies, the current technical status and the future activities in order to bring their products to the market. They also described the alliances and the partners who will support them during development, field testing, production planning and preparation of manufacturing.

Per Balslev, Danfoss, Denmark, described a common demonstration project by fuel cell manufacturers, energy companies and component manufacturers in order to test low and high temperature fuel cell based mCHP

systems for private homes. Both the operation in a single-family house and the connection respectively the interaction of different  $\mu$ CHP systems are aspects of the project.

The session has shown that more and more mCHP systems will be close to the market so that in the near future mCHP could be an alternative for the customer. In order to be successful the systems must fulfil different requirements regarding the specifications, the installation and the operation. Beside that all manufacturers in that session and during the workshop pointed out that fair standards must be given, with respect to national differences or specifics, and different kinds of support has to be given up to a well done market introduction of  $\mu$ CHP systems within the next years.

### Conclusions and wrap up of the workshop

The main feeling at the workshop was that the whole industry was very motivated to introduce the technology on the market. The fact that gas sales are decreasing on important markets is making the mCHP technology more important than ever. Even though mCHP is still costly compared to alternative technologies, there is a clear potential for improvement and the Japanese model shows that it is economically sustainable. Moreover, there is a new young industry with products that are already available and also with a lot of new products to come.

The mCHP, therefore, seems to have a promising future. Fuel cell technology can also be a technological bridge from natural gas to renewables, when in the long term natural gas may gradually be replaced by hydrogen produced by cheap renewable sources.

The workshop was a first initiative for a global and common action within the Gas Industry associating all partners. This action will now continue with the above joint representation.

## Gas Quality & Biogas

During 2008&2009 the activity of the WG was focused on follow-up activities for both gas quality and biogas. Following Mandate M/400 from DG Enterprise to CEN which was mainly originated from the past activities of the working group (especially the 3 positions papers released from 2003 to 2006), the WG held 2 meetings in 2008 with the main objective to follow up the work conducted by CEN BT/WG 197 in charge of executing the mandate.

The WG "Gas Quality & Biogas" finalised the document "Main effects of gas quality variations on applications" that has been published on the Marcogaz website in November 2008.

It also gave the impetus of creating a new WG "Odourisation" under the umbrella of the Standing Committee Gas Infrastructures with the objective to gather the experience of distribution companies and put forth a proposal in view of the preparation of the "Gas quality" standard to cope with this subject.

The WG is also currently preparing a survey about biogas production to follow the development of the biogas activities in EU and any injection operation in the networks.

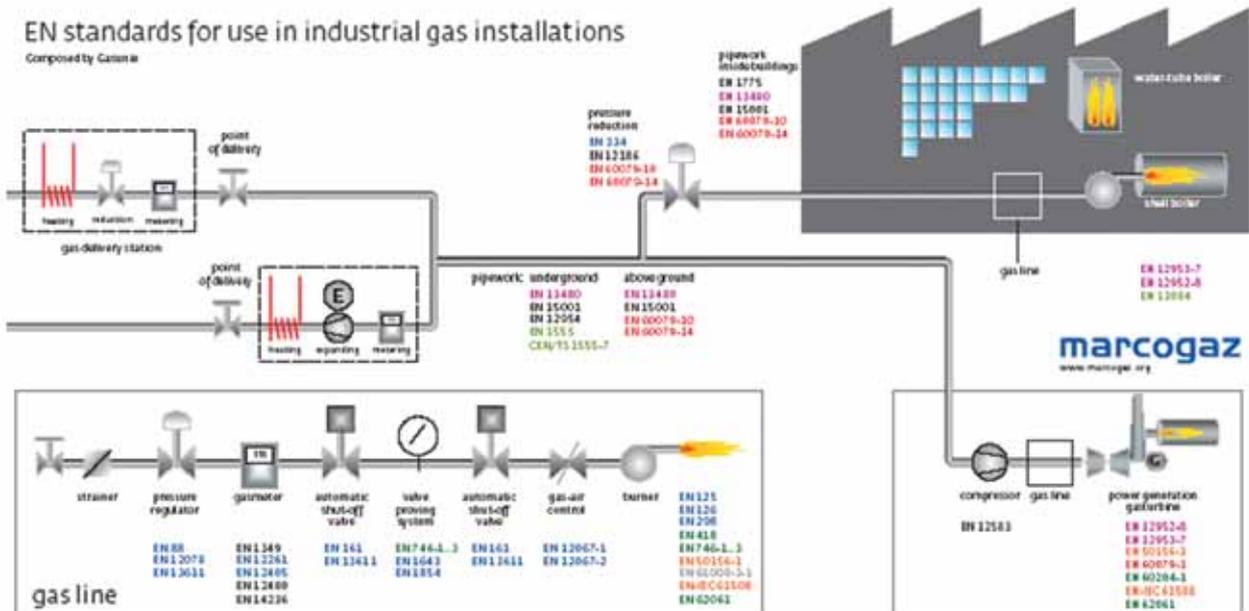
## Industrial Gas Installations

Marcogaz realized the need to help the industrial customers to comply with a complex EU technical regulatory framework, especially to understand how the different legislations/directives/standards apply to their installations. This is currently not an easy task considering the huge number of Directives in force.

The working group first task was to produce a poster explaining in a visual way which standards and Directives are affecting each part of the installation.

After the completion of the poster the group started to work on the preparation of specific guidelines on the same subject. The guidelines will be completed before the end of 2009.

The poster is freely downloadable from the Marcogaz website [www.marcogaz.org](http://www.marcogaz.org)



## Standing Committee Gas Infrastructure

Scope of activity:

### gas networks, associated plants and related equipment

The major issues are the monitoring of EU initiatives regarding safety of gas pipelines systems (transmission and distribution) and the review and clarification of technical issues to be examined in the movement towards liberalisation in Europe.



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### Particular consideration is given to:

- Promoting the understanding that gas infrastructure systems are 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 very 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.

### Pipeline safety (transmission pipelines)

The working group worked intensively continuing to exchange on safety issues for pipelines. In particular relevant incidents happening in Europe were presented by the concerned members and commented, sharing therefore the experience learned from such incidents with the colleagues of other Countries.

Following the finalization of the position paper on pipeline safety expressing the view of the European Gas Companies on the subject the group decided to transpose this important paper in a more attractive shape for better communicating deciding therefore to prepare a brochure on the subject.

Among the most relevant activities, it must be mentioned the development and finalization of a very useful tool for benchmarking the effectiveness of measures put in place by the gas companies to tackle the problem of third party interference.

In addition, collaboration with stakeholders like the UN-ECE continued in the field of pipeline safety.

The group monitored also the possible consequences for the gas industry of the newly approved Third Energy package as some of the 12 areas covered by ACER will concern the pipeline operators.

## Smart metering systems

Considering the growing importance of the concept of smart metering the WG Gas Metering decided to develop a Gas Industry position on the subject in order to clarify several concepts linked with the smart metering systems. The Position Paper on this subject was released in 2009.

In terms of guiding principles, any smart metering system should be based on:

- helping the end user to manage its gas consumption by providing better quality information;
- facilitating the end users to switch energy suppliers;
- offering the right balance between cost and additional functionalities.

### What are the benefits of a Smart Metering System?



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A smart metering system could allow at least the following functions to the customer / supplier/ network operator

- Remote index reading
- Customer information (Energy consumption, tariff, promotion, price to pay)
- Display data to the customer in the household
- Flexible tariffs
- Load profile
- Prepayment
- Remote control or shut off
- Fraud prevention
- Energy determination & temperature compensation

There is the potential that a smart metering system could be integrated into a smart home. This may allow the home hub (a point of interface with the end user) to be used to manage the home security, electrical, gas

usage including monitoring water usage and allow the end user to obtain greater benefit from the system. Such a system could affect customer behaviour resulting in lower energy use and take up of energy efficiency measures.

The introduction of standardized smart metering systems should provide a significant opportunity to improve customer service levels. The ability to have remote communications will positively affect the change of supplier processes and allow more frequent meter reads.

In May 2009 the Smart Meter Coordination Group created at EU level for coordination of the standardization activities in the fields of electricity, gas, water and heat approved the nomination of the Marcogaz secretary as chairman of the group

## Distribution

In view of the full implementation of Directive 2003/55/EC the group prepared a position paper on performance indicators for DSOs. The further step was to gather the values among MARCOGAZ members. The idea was not only to compare the data but to check if the indicators are really clear and applicable for all Countries.

Supervision of construction process by external contractors and gas balancing are also being discussed within WG Distribution which is also in charge of collecting incident/accident data (EGAS B).

## Odourisation of Natural Gas

During 2008 Marcogaz decided to set up a working group within its Standing Committee "Infrastructure". Its objective is to address the issues identified as needing a better knowledge when odourised gas is delivered to a Distribution system.

These issues would at least be those identified by GERG as clearly relevant to Distribution System Operators:

- The compatibility between different odorants and odorant mixtures in term of smell, control, etc.;
- Adaptation of local odourisation station to take into account the odorant coming with the gas (if need be).

This working group should take into account the previous work being done and focus its activities as sharing the knowledge already present within the European Industry. It could also make proposal for developing new knowledge if necessary.

This work should be achieved with position papers and / or report in time to be taken into account at the start of phase 2 of the mandate M 400 (end of 2010).

## Joint Group Environment, Health and Safety

Scope of activity:

**covers the collection of industry data and preparation of views relating to environmental studies and policy proposals by the European Union and other International Bodies, which may affect Gas Industry interests and operations of gas supply and utilisation.**

Particular consideration 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;
- Collecting different environmental statistics including health and safety indicators.

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 Supply and Markets Development Committee (SMDC).

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

- Questions and answers on methane emissions, guidelines for choosing emission factors, Methodology for estimation of methane emissions in the Gas Industry and collection of case studies for methane emissions reduction;



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- Health and Safety report for employees and contractors
- Health and Safety statistics;
- Launch of a Life Cycle Analysis of the gas chain study extended to the utilisation field;
- A SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis of the gas activity.

### Methane Emissions

A report with a collection of case studies on practices and technologies was finalized and published in 2008. Based on this report cooperation with International Gas Union started to bring the knowhow of Marcogaz into two working groups of this international organisation. Proving the high value of this work a paper summarizing the results of the working group was submitted to the IGU for being presented at the world gas conference in October 2009.

The high interest and awareness on this issue resulted in Marcogaz being contacted by the representatives of the INOGATE project, sponsored by the EU under the ENPI program, to bring its expert views in some workshops organized to cooperate with gas companies in the Caspian and Eastern European region on the subject of methane emission reduction.

The working group is now revising the emission factors with the aim of updating the guidelines for choosing emission factors.

## Health and Safety

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One of the regular tasks of the WG Health & Safety is to collect the annual health and safety data. The group produces an annual overview with safety statistical data from the year 2000. This includes not only the data of own employees, but also the data of the contractors working for the gas companies

Besides the frequency rates of accidents, it also includes data on the hazards at the time of accidents and the direct causes of the accidents. Based on the data performance indicators were also given.

The WG made a comparison of the Marcogaz data with the data of the American Gas Association (AGA). Also new developments of contractor safety were discussed and exchanged.

In each of the meeting of the WG an interesting accident was presented by one of the members in order to learn from the causes of the accident.

The topic of health was also discussed, in order to find out how the different companies deal with this subject. It seems that this subject is difficult to handle, because the legislation differs very much all around Europe. However, approaches of occupational health improvements were presented by several members.

A subject that was on the agenda several times was safe driving. From risk analysis and from the safety data, it is clear that road traffic is one of the highest risks in the gas industry.

One of the latest activities of the working group is the process safety. Until now most of the attention was given to occupational safety (high frequency, low impact), but for the large accidents more attention is needed for the typical accidents related to process safety (low frequency, high impact).

## Life Cycle Analysis

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Initially, Life Cycle Assessment (LCA) was developed by and for Industry in order to make strategic decisions concerning the environment and was broadly used in the 90's to manage global environmental problems. The ISO 14040 and 14044 standards define life cycle assessment as a global environmental assessment method to evaluate the environmental burdens (global warming, resource depletion, etc.) associated with a product or activity over its life cycle. Considering the whole life cycle helps to ensure that no environmental burdens are shifted to other phases or among different impacts.

In a context of development of life cycle oriented regulations and the launching of the "European Reference Life Cycle Data System" (ELCD) project supporting business and policy making in Europe with reference data and recommended methods on LCA, the Eurogas – Marcogaz Joint Group "Environment, Health & Safety" has decided to set up a working group on this topic and to establish an LCA of the European natural gas chain in order to determine the environmental footprint of the whole natural gas chain, utilization included.

Eurogas – Marcogaz LCA covers all steps of the natural gas chain for the year 2004: from production to utilization, including transport by pipelines and tankers, liquefaction, gasification and distribution of natural gas. Three different utilizations based on the best available technologies (BAT) are considered.

1. **Electricity production with a natural gas combined cycle;**
2. **Heating with condensing boilers (domestic & commercial use);**
3. **Combined heat and power production (domestic & commercial use).**

It was decided to focus on the main environmental impacts of the systems studied, for which Marcogaz can provide a real added value regarding the data quality. The following substances have therefore been considered:

- √ **Atmospheric emissions: greenhouse gases (CO<sub>2</sub>, CH<sub>4</sub>, CO, N<sub>2</sub>O), acidifying emissions (NO<sub>x</sub>, SO<sub>2</sub>), particulate matters, non methane volatile organic compounds;**
- √ **Energetic consumptions: natural gas, oil, coal, uranium, hydropower.**

The associated impacts used in Eurogas - Marcogaz LCA are the following:

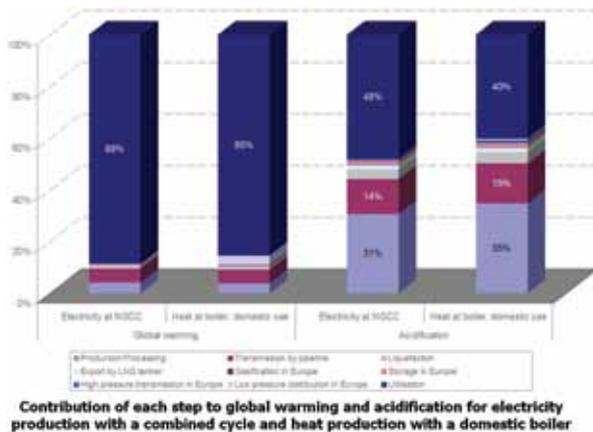
- √ **Global warming (GWP);**
- √ **Acidification (AP);**
- √ **Non-renewable energy demand.**

The results of Eurogas – Marcogaz LCA confirm the good performances of natural gas as a fuel. One kWh of useful heat produced from natural gas with a best available technology generates about 230 g CO<sub>2</sub>-eq. on its whole life cycle; the kWh of electricity produced with a natural gas combined cycle emits 393 g CO<sub>2</sub>-eq. Generally the results support the figures used in existing

generic LCA databases for global warming and non-renewable energy resources depletion although both impacts are slightly lower in this study.

A low contribution of the natural gas upstream chain to the total GWP of heat and electricity supply

The utilization phase (combustion at power plant or boiler) is predominant in terms of greenhouse gas emissions: its contribution exceeds 85% of the total GHG emissions. CO<sub>2</sub> is by far the main substance contributing to climate change, accounting for about 95% of the GHG emissions, while methane emissions account for the remaining 5%.



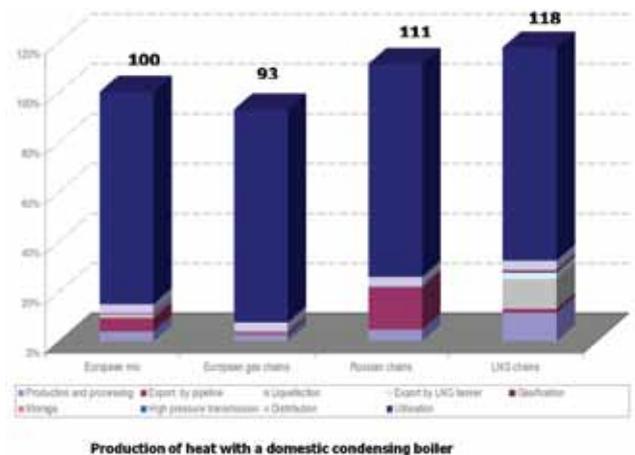
In terms of acidification, utilization (40 to 53%), production/processing (27 to 35%) and international pipeline transmission (12 to 15%) are the main steps contributing to this impact. NO<sub>x</sub> emissions occurring during natural gas combustion in power plants and boilers and in compressor drivers (for liquefaction and pipeline transmission) account for about 80% of the acidifying emissions, SO<sub>x</sub> emissions representing the 20% left. Those are mainly emitted during production/sweetening of the sour natural gas produced in Russia and Germany, as well as during LNG transport through the use of heavy fuel oil as propulsion energy.

### A possibility to identify differences between the supply chains

This LCA also allows assessing the environmental performances of the different supply chains of natural gas arriving to Europe as it is illustrated in the following examples:

- The production of heat with a condensing boiler from natural gas coming to Europe as LNG emits about 27% more GHG than heat production with natural

gas coming from European countries through conventional pipelines. This is mostly due to the high energetic consumption of existing liquefaction units and shows the strategic importance of investing in highly efficient liquefaction plant projects, such as Snøhvit liquefaction plant in Norway, which should be two times less energy-consuming than the existing liquefaction plants.



- Heat production from Russian natural gas emits about 20% more GHG than heat production with natural gas coming from European countries. This is mainly due to the distance covered from the Siberian fields to EU-25 (about 5000 km); in comparison, the distance covered from the European production fields is 1000 km in average. The choice of a specific leakage rate on the Russian export pipeline systems has a low impact on the final results: a sensitivity analysis showed that the use of the highest value found in the literature (0.43%/1000 km against 0.18%/1000 km for the baseline case) resulted in an increase of barely 2% of the total GWP.

### A need for more specific and up-to-date data

Important differences with existing generic LCA databases have been noticed particularly for CH<sub>4</sub> and SO<sub>x</sub> emissions, which are generally overestimated in the upstream chain.

- Indeed methane emissions on the transmission and distribution grids are much higher in existing database than the rates measured on the networks of different European companies (8 and 2 times higher on the transmission and respectively the distribution grids). This result in a reduction by a

third of total methane emissions associated with the domestic systems assessed in this study.

- Moreover the Ecoinvent model for the European natural gas supply was based on a share of sour gas of 10.2%, representing the average European supply in 2000. However, in 2004, the estimated part of sour gas only reached 3.4%. This explains that the domestic systems assessed in this study emit less

SO<sub>x</sub> on their whole life cycle than the corresponding systems in the Ecoinvent database.

These differences show the importance of not basing environmental decisions on generic databases without first assessing their relevance and applicability.

## Work in relation with the European Committee for Standardisation (CEN) and the International Standardisation Organisation (ISO)

European Standardisation work is of the foremost interest for MARCOGAZ, which has a liaison status with CEN and many technical Committees involved in harmonization of gas systems and products (CEN/TC 234 "Gas Infrastructure", CEN/TC235 "Gas pressure regulators and associated safety shut-off devices for use in gas transmission and distribution", CEN/TC236 "Non industrial manually operated shut-off valves for gas and particular combinations valves-other products", CEN/TC237 "Gas Meters", CEN/TC238 "Test Gases", CEN/TC109 "Central Heating Boilers", CEN/TC 180 "Gas Fired air heaters and radiant heaters"; CEN/TC181 "LPG", ISO/TC193 "Natural Gas".

General positions of the European Gas Industry relative to CEN or ISO activities are co-ordinated and expressed by MARCOGAZ which is also involved in discussions and preparation of Commission mandates to CEN related to gas issues. At 2008 end, the proposal of a new standardization mandate to CEN/CENELEC/ETSI was released by DG Enterprise on smart meters. MARCOGAZ will of course be involved in any future discussions regarding the development of smart metering systems in Europe.

MARCOGAZ participates in various Sector Fora such as Sector Forum Gas or Sector Forum Energy Management.

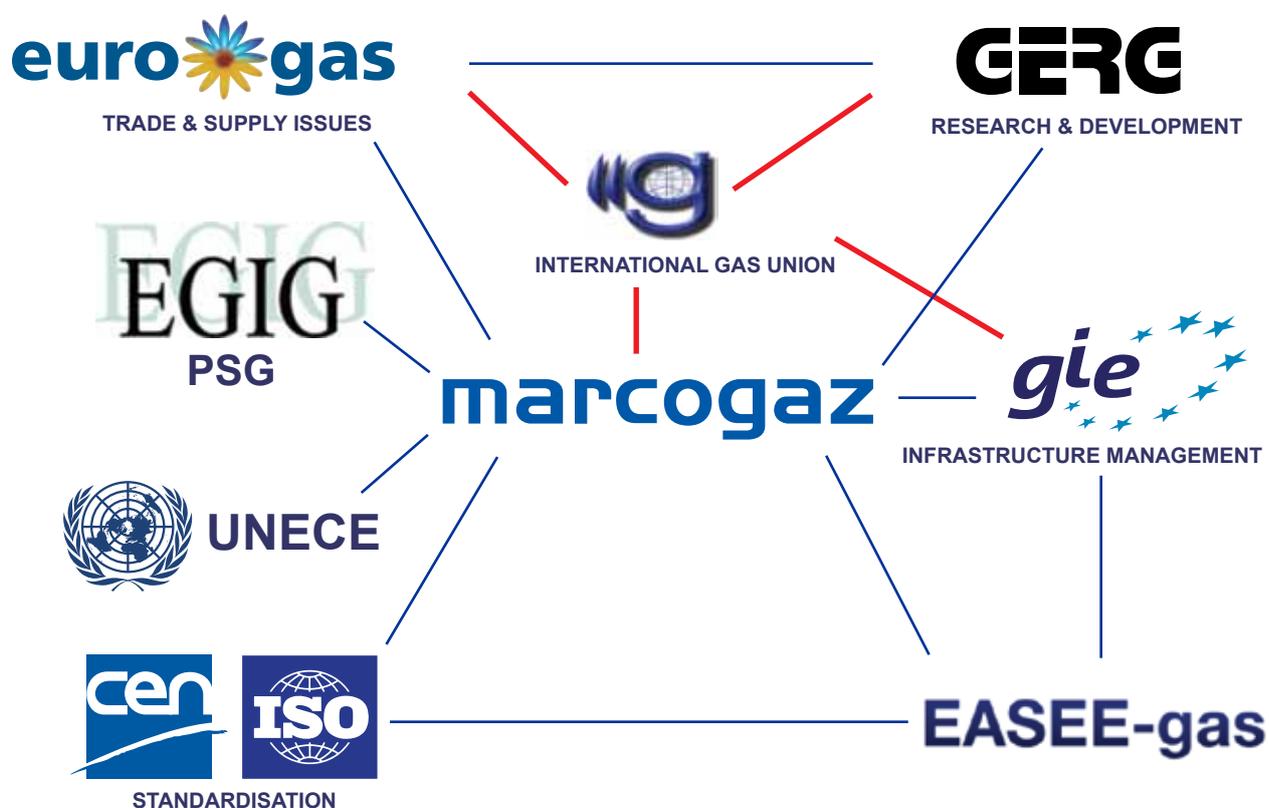
In the standardisation field, MARCOGAZ co-operated with CEN, especially through direct contacts with Technical Committee CEN/TC234 in charge of functional standardisation for the gas supply chain.

MARCOGAZ participated in the CEN/TC 234 Plenary Meeting in Sofia on 4th June 2008 where the Secretary General presented the main aspects of the 3rd Energy Regulatory Package in preparation and its possible influence on the standardisation process. He especially indicated the 12 areas for which network codes should be drafted by ENTSOG in the future.

During the CEN/TC234 Plenary meeting on 13th May 2009, Marcogaz explained the process of network code elaboration and informed about the development of intelligent metering systems (smart meters) in Europe following the request from the EU Environment. It was mentioned the Standardization Mandate M/441 and the creation of a Smart Meters Coordination Group for electricity, gas, water and heat applications. MARCOGAZ also supported the terminology technical harmonisation exercise carried out by CEN/TC 234, which should help all stakeholders to speak the same technical language.

## Collaboration with other associations - stakeholders

MARCOGAZ co-ordinates closely with **EUROGAS** (European Union of the Natural Gas Industry), **GERG** (The European Gas Research Group), and **GIE** (Gas Infrastructure Europe) through selected joint programmes. Marcogaz links with other organisations are shown in the scheme below:



EUROGAS

The European Union of the Natural Gas Industry



GERG

The European Gas Research Group



GIE

Gas Infrastructure Europe



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

**IGU** International Gas Union



**EASEE-gas** European Association for the Streamlining of Energy Exchange-gas



Since 2006 MARCOGAZ is co-operating with the United Nations Economic Commission for Europe (**UNECE**) in the field of sustainable energy and safety regulation.

**UNECE** United Nations Economic Commission for Europe



MARCOGAZ also co-operates with other **major Gas Industry or consumer organisations** such as:

**AEGPL** European LPG Association



**AFECOR** European Control Manufacturer's Association



**ANEC** European Association for the Co-ordination of Consumer Representation in Standardisation



**CECED** European Committee of Domestic Equipment Manufacturers



**CEFACD** European Cooker and Space Heater Manufacturers Association



**CEFIC** European Chemical Industry Council



**COGEN Europe** The European Association for the promotion of cogeneration



<b>CONCAWE</b>	Oil Industry European Association for Environment, Health and Safety in Refining and Distribution	
<b>EFMA</b>	European Fertilizer Manufacturers Association	
<b>EHI</b>	Association of the European Heating Industry	
<b>EIGA</b>	European Industrial Gases Association	
<b>NGVA Europe</b>	Natural Gas Vehicles Association Europe	
<b>EURELECTRIC</b>	Union of the Electricity Industry	
<b>EURO AIR</b>	European Association of Air Heater Manufacturers	
<b>EUROHEAT&amp;POWER</b>	The International Association for District Heating, District Cooling and Combined Heat and Power	
<b>FACOGAZ</b>	Chambre Syndicale des Fabricants de Compteurs à Gaz	
<b>FAREGAZ</b>	Union of European Manufacturers of Gas Pressure Controllers	
<b>GCI-UICP</b>	International Union of the Associations of Heating Ventilating and Air Conditioning Contractors	
<b>IPLOCA</b>	International Pipe Line and Offshore Contractors Association	

OGP

Oil and Gas Producers Association



PE100+

Industry Organisation of Polyethylene (PE) Manufacturers



TEPPFA

The European Plastics Pipe and Fitting Association



It consults and co-operates with other Industry and business Organisations involved in the issues at hand.

### Madrid Forum (European Gas Regulatory Forum)

The European Gas Regulatory Forum (Madrid Forum) was set up to discuss issues regarding the creation of a true internal gas market. The participants are National Regulatory Authorities, Member States, the European Commission, Transmission System Operators, gas suppliers and traders, consumers, network users, and other stakeholders.

The Forum convenes usually twice a year in Madrid co-hosted by the **Comision Nacional de la Energia** (the Spanish Energy Regulator).

The Forum addresses currently cross border trade of gas, in particular the tariffs of cross border gas exchanges, the allocation and management of scarce interconnection capacity and other technical and commercial barriers to the creation of a fully operational internal gas market.

MARCOGAZ is now full Member of this important group, bringing its expertise when required on specific technical issues such as gas quality harmonization.

In 2008 the Secretary General participated in the 2 Madrid Forum sessions on 22nd and 23rd May and 6th and 7th November and in 2009 to the 18th and 19th May meeting.

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## Executive Board Members at 31 October 2009

<b>M. Kebrdle</b> , President	<b>Czech Gas Association</b>	Czech Republic
<b>C. Villalonga</b> , Vice president	<b>SEDIGAS</b>	Spain
<b>G. de Hemptinne</b>	<b>Fluxys S.A.</b>	Belgium
<b>B. Arnaud</b>	<b>S.C. Distrigaz Sud S.A.</b>	Romania
<b>P. Shuddebeurs</b>	<b>N.V. Nederlandse Gasunie</b>	The Netherlands
<b>M. Florette</b>	<b>GDFSUEZ</b>	France
<b>W. Girsberger</b>	<b>Swiss Gas &amp; Water Industry Association</b>	Switzerland
<b>V. Gourioti</b>	<b>DESFA</b>	Greece
<b>H. Heidinger</b> (JG EHS chairman)	<b>OMV</b>	Austria
<b>P. I. Hinstrup</b>	<b>Danish Gas Technology Centre</b>	Denmark
<b>K. Homann</b>	<b>RWE Transportnetz Gas GmbH</b>	Germany
<b>T. Jannemann</b> (SCGU Chairman)	<b>DVGW</b>	Germany
<b>G.J. Trovag Amundsen</b>	<b>Statoil Hydro ASA</b>	Norway
<b>L. Nolan</b>	<b>Bord Gais Eireann</b>	Ireland
<b>R. Nukovic</b>	<b>Slovak Gas and Oil Association</b>	Slovakia
<b>N. Pericacho</b> (SCGI chairman)	<b>Enagas</b>	Spain
<b>M. Ronchi</b>	<b>CIG</b>	Italy
<b>S. Sayner</b>	<b>Gazbir</b>	Turkey
<b>D. Salisbury</b>	<b>National Grid</b>	United Kingdom
<b>A. Schwanzer</b>	<b>Austrian Association of Gas &amp; Water</b>	Austria
<b>Z. Zana</b>	<b>FGSZ</b>	Hungary

## Statistics year 2007 (18 MARCOGAZ Members)

<b>Main figures for the European Gas Market year 2007 (18 Members)</b>	
Number of connected customers to gas networks [number]	<b>108.264.346</b>
Gas sales [TWH/y]	<b>5.185,58</b>
Transmission network length [km]	<b>217.178</b>
Distribution network length [km]	<b>1.614.354</b>
Transmission compressor plants [number]	<b>152</b>
Transmission network reducing stations [number]	<b>10.315</b>
City gate reducing stations [number]	<b>30.703</b>
LNG Terminals [number]	<b>16</b>
LNG Storage installed [m <sup>3</sup> LNG]	<b>3.786.500</b>
Total underground storage capacity [Gm <sup>3</sup> ]	<b>71</b>
NGV Vehicles	<b>513.719</b>

Table 1: general figures for the European gas activity year 2007

	Commercial Data		Pipeline Length		Total [km]
	Gas Customers	Gas Sales [TWh/y]	Transmission [km]	Distribution [km]	
Austria	1.343.053	86,64	2.886	36.832	<b>39.718</b>
Belgium	2.696.610	189,10	3.796	62.042	<b>65.838</b>
Czech Republic	2.845.429	89,00	3.647	71.778	<b>75.425</b>
Denmark	367.226	47,49	3.389	17.896	<b>21.285</b>
France	11.500.000	506,00	36.617	193.700	<b>230.317</b>
Germany	16.032.871	942,40	61.230	341.320	<b>402.550</b>
Greece	192.529	13,85	1.193	4.853	<b>6.046</b>
Hungary	3.477.024	138,33	5.278	81.335	<b>86.613</b>
Ireland	605.730	54,80	2.164	4.248	<b>6.412</b>
Italy	20.511.612	916,89	32.930	195.700	<b>228.630</b>
Netherlands	7.119.090	266,35	11.600	122.293	<b>133.893</b>
Norway	na	3,60	na	0	<b>0</b>
Romania	2.438.012	na	11.757	32.981	<b>44.738</b>
Slovak Rep.	1.466.484	59,80	8.598	28.225	<b>36.823</b>
Spain	6.782.579	408,00	9.344	53.541	<b>62.885</b>
Turkey	7.833.000	372,60	8.400	73.500	<b>81.900</b>
Switzerland	478.000	32,37	2.220	17.475	<b>19.695</b>
United Kingdom	22.575.097	1.058,36	12.129	276.635	<b>288.764</b>
<b>Total (21members)</b>	<b>108.264.346</b>	<b>5.186</b>	<b>217.178</b>	<b>1.614.354</b>	<b>1.831.532</b>

Table 2: year 2007, European Countries gas sales &amp; customers – pipelines length + number of service pipes

	LNG		Storages			Cross Border Points
	LNG Plants	Storage [m3 LNG]	Compression Stations	Underground storages [Gm3]	N° Undergr. Storages	
Austria	0	0	4	4	5	7
Belgium	1	240.000	4	1	1	18
Czech Republic	0	0	6	3	8	2
Denmark	0	0	0	1	2	2
France	2	510.000	39	12	15	7
Germany	0	0	26	20	43	17
Greece	1	130.000	0	0	0	2
Hungary	0	0	5	4	5	3
Ireland	0	0	3	1	1	3
Italy	1	100.000	10	14	10	8
Netherlands	1	75.000	9	2	3	10
Norway	na	na	na	na	na	na
Romania	0	0	6	3	10	3
Slovak Rep.	0	0	4	3	2	5
Spain	4	2.196.500	12	2	2	10
Turkey	2	535.000	6	2	1	7
Switzerland	0	0	1	0	0	17
Un.Kingdom	1	200,00	26	0	0	3
<b>Total (21members)</b>	<b>13</b>	<b>3.786.500</b>	<b>161</b>	<b>71</b>	<b>108</b>	<b>124</b>

Table 3: year 2007, European Countries LNG facilities – Underground storages – Cross border points



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