Countdown to IGRC 2008

By Rob Aptroot

Final preparations are underway for the IGU Research Conference, IGRC 2008, which is being hosted by the Association Française du Gaz (AFG) in Paris, October 8-10.

The organising committees of IGRC 2008 have worked hard to present you with a very interesting programme focusing on the gas industry's major challenges in terms of research and development, today as well as tomorrow.

In our programme we welcome Mrs Vlada Rusakova, a member of the Management Committee of Gazprom, Mr Nobuo Tanaka, Executive Director of the International Energy Agency, and Mr Olivier Appert, Chairman and CEO of the Institut Français du Pétrole, who will give keynote speeches. Mr Marcel Kramer, CEO of Gasunie, will speak to delegates during the conference dinner.

IGRC 2008 will be held in Paris at the Cité des sciences et de l'industrie.

In all, more than 40 invited speakers will share their in-depth views on subjects of great importance for our business. The contributions come from Asia, Europe, Russia, North America and Latin America, and the topics to be presented include:

- Financial benefits from R&D;
- A boiler manufacturer's views on R&D;
- The implementation of new technologies for the gas market;
- Cost and safety issues of LNG;
- Intelligent underground storage of natural gas;
- Security against third party interference;
- Gas quality and gas interchangeability;
- The development of cogeneration systems for residential applications;
- The reduction of greenhouse gas emissions;
- Symbiosis of natural gas and renewable energy production;
- Gas to liquids;
- Energy management of the consumer, meeting national energy savings standards; and
- Gas transport and distribution efficiency.

The oral presentations will be given in parallel sessions with 30 minutes allocated to each topic.

They will be complemented by the presentation of as many as 300 posters on technical and research issues related to the whole gas chain. Among the topics selected by the IGRC Programme Committee for the poster sessions are:

- Multi-resolution graph-based clustering;
- Pipeline integrity;
- LNG project feasibility;
- Stress corrosion cracking;
- Optimal maintenance frequency;
- Gas hydrate production;
- Energy demand; and
- Green gas.

These and many more will be presented in three sessions each of 2.5 hours. Indeed, the poster sessions form the centrepiece of the conference, providing delegates with the opportunity of having in-depth discussions with the authors.

Three workshops will also be held during the conference, including one on the results of a research project about the potential for mixing hydrogen in the natural gas stream.

Support

IGRC 2008 is hosted by AFG and the conference fee has been kept at the modest level of €950 excluding VAT thanks to the contributions of the sponsors:

Platinum

- Gaz de France, France
- Gasunie Engineering and Technology B.V., The Netherlands

Gold

- E.ON Ruhrgas, Germany
- ENI, Italy
- Sonatrach, Algeria
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- The Japan Gas Association

Bronze

- Advantica, UK
- Tecpetrol, Argentina
- GERG, the European Gas Research Group

General

- Petronas, Malaysia
- KiwaGastec, The Netherlands

See you in Paris

The venue in Paris will be the La Villette Conference Centre in the Cité des sciences et de l'industrie (www.cite-sciences.fr). This is an excellent surrounding for a scientific conference, offering delegates attending IGRC 2008 the opportunity of enjoying the facilities and exhibitions of the Cité as well.

The whole team involved in organising IGRC 2008 looks forward to seeing you in Paris in October.

Rob Aptroot is the Secretary of the IGRC Technical Programme Committee. To register for the conference and for more information please visit www.igrc2008.com.

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Lloyd's Register – working with LNG

As a key decision-maker within the LNG transportation industry, you need to have confidence in the choices that you make. When a shipbuilding contract is signed, the specification has to be right and there has to be confidence that the contracting parties can deliver what is needed.

Successful LNG ventures often arise from the creation and application of commercial trading models, which are managed simultaneously with the development of contract specifications and the securing of gas supplies and charter rates. Success does not come without experience, nor is it simple to achieve.

Current trading models may involve contractors whose capabilities are unproven and technology which is not yet fully validated by the industry. Therefore queries, such as the following, may arise:

- What kind of LNG vessels do I need for my trade?
- How can I better understand the technologies involved?
- Are the technologies well-understood and is the engineering within the capabilities of the contractors or suppliers involved?

Lloyd's Register understands these issues in the context of both the pre- and post-contract phases. We have years of experience helping ship builder and operator clients with these challenges.

We were the first to help our clients develop a practical approach to using safety cases for technology qualification, for cutting edge technologies such as reliquefaction plants, dual-fuel diesel-electric propulsion systems (for the larger Qatargas and BP vessels), and novel LNG delivery systems, such as the Excelerate Energy regasification technology, which has liberalised the LNG import market.

These services, usually delivered jointly to the contracting parties, have provided our clients with a fuller understanding of the designs of these systems, adding clarity and confidence as the design process has moved forward. Our experience is extensive, and includes the delivery of the first ever 209,000 m^3 Q-Flex LNG ship from Korea's Daewoo Shipbuilding & Marine Engineering in November 2007.

Transporting LNG by sea requires dedicated engineering techniques and contingency measures to minimise the risk inherent in the carrying of this specialised cargo. Building and maintaining a liquefied gas ship to the classification requirements of Lloyd's Register allows our clients to place a high level of confidence in the safety of their ships and cargo. It gives owners the assurance that every practical step has been taken to protect the operator and the environment.

There are currently 375* LNG ships in operation and on order, with a market-leading 121 of these being Lloyd's Register classed. However, the breadth of a classification society's LNG knowledge cannot be judged purely on the numbers of ships it has classed. There is no substitute for experience, whether that applies to innovation, risk-based services or relationships with the LNG sector's key players.

Lloyd's Register can answer your LNG questions.

* the existing LNG fleet categorised by classification society (June 2007)

Timely delivery

Reputation

Security of supply

Safety

Public perception

Efficiency

Reliability matters

Environment

Maintenance

Local support

Containment

Regulations

Life is fulfilling with a trusted friend. Our friendly specialists are on hand worldwide to give you experience-based solutions to the design, construction and safe operation of your LNG ships. Trust us to help you see your cargo safely to its destination on time – we can be your watchdog when reliability **matters**.

LIFE MATTERS

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Lloyd's Register

On Track for the 24th World Gas Conference

By Eduardo Ojea Quintana

Eduardo Ojea Quintana.

Vibrant Buenos Aires will be the host city.

Preparations are well in hand for the 24th World Gas Conference to be held in Buenos Aires in October 2009. This article gives an update on the arrangements being made by the National Organising Committee (NOC) and also some tourist information to encourage delegates to spend more time in Argentina before or after the Conference.

Status report

We have reserved accommodation in the Hilton hotel for members of the Council, the Executive Committee and the Coordination Committee. The Hilton is in Puerto Madero, a modern and recently developed area of Buenos Aires.

In terms of promotion, we will continue to participate in the main energy events with a WGC 2009 stand, assisted by staff from the organising company and, in some cases, with the presence of members of the NOC. On the stand, brochures and information about IGU and the WGC will be available.

The 2nd Announcement Brochure was recently distributed and *Petroleum Economist* has been chosen as the official media partner.

Our website, www.wgc2009.com, has been completed with information on the Argentine Triennium, Strategic Guidelines and Triennial Work Programme, as well as on the Conference itself. The website is the place to find all the latest information in the run-up to WGC 2009, most particularly as regards the Call for Papers. It also contains a plan of the exhibition and a list of all the companies that have reserved space. The site has links to the IGU Secretariat and the Argentine Institute of Petroleum and Gas (IAPG).

In relation to the Exhibition, sales have been progressing extremely well with over 14,500 m^2 of exhibition space taken up. Companies have contracted just over 11,000 m^2, a further 2,750 m^2 are on option and 800 m^2 have been reserved for global associations and press partners. Of the confirmed exhibitors to date, 35% are from Argentina and 65% from 30 different countries around the world.

With 18 months to go until the event, demand for space is expected to intensify. There are some excellent locations still available and any company wishing to participate is encouraged to contact the exhibition team as early as possible.

The first official site visit to the WGC 2009 venue will take place on April 7-8. It will be a great opportunity for exhibitors to inspect the La Rural Congress and Exhibition Centre, to obtain information on the services offered and to make contact with local suppliers.

Visiting Argentina

Buenos Aires

The most elegant city in South America, Buenos Aires combines contemporary flair with a rich heritage and represents the essence of Argentina. Indeed, over a quarter of the country's inhabitants – some 11 million people – live in the city and its surroundings.

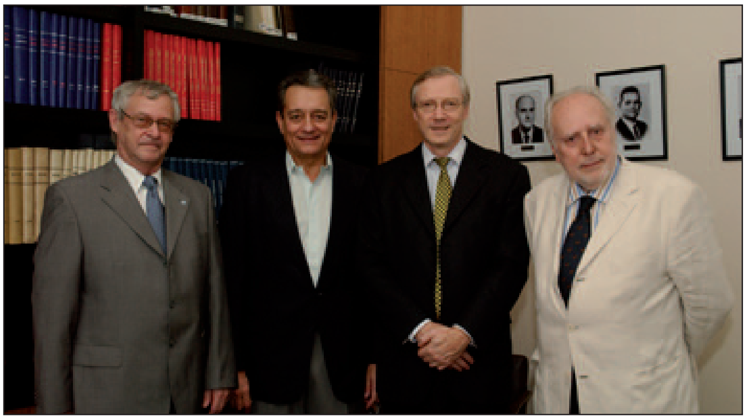
Buenos Aires is the home of tango, which originated towards the end of the 19th century as a mix of various rhythms danced in the poorest quarters.

Initially it was danced by pairs of men to the music of the flute, violin and guitar, but the flute was subsequently replaced by the distinctive bandoneón (a type of accordion). Immigrants added their nostalgia and melancholy, and so the tango developed into what it is today.

In the district of San Telmo, Sundays are devoted to tango on the streets and antiques trading in the bazaars around Dorrego Square.

Central region

The fertile Pampas plains are the land of the gauchos, traditional Argentine country men. Estancias (ranches) in the Pampas are remarkable because of their varied architecture and many have been transformed into tourist accommodation.



IGU's Secretary General, Torstein Indrebø, and Peter Storm, former and now Honorary Secretary General, visited IAPG headquarters in Buenos Aires in November 2007 for a series of meetings. Pictured during the visit are (from left to right) Peter Storm, Ernesto López Anadón, IGU President, Torstein Indrebø and Roberto Cunningham, Managing Director of IAPG. Also involved in the meetings were Roberto D. Brandt and Andrés Kidd, respectively Chairman and of Secretary of IGU's Coordination Committee, NOC Chairman Eduardo Ojea Quintana and Graciela Ortolá, NOC Secretary.

To the northwest of these plains are the Sierras of Córdoba, where fertile valleys contrast with deserts and salt pans, and to the north, scattered chapels and estancias begin to appear.

The stunning Iguazú Falls.

Litoral

This is a region of large rivers, humid tropics, red earth and magnificent forests with extraordinary flora and fauna. The best-known river is the Iguazú ("Great Waters" in the Guaraní language) with one of the world's wonders and a UNESCO World Heritage Site: the Iguazú Falls.

Also on the UNESCO list are the ruins of San Ignacio Miní, Santa Ana, Nuestra Señora de Loreto and Santa María la Mayor, which lie at the heart of a tropical forest. They are the impressive remains of five Jesuit missions, built in the land of the Guaranis during the 17th and 18th centuries.

The North

Northern provinces feature traces of pre-Columbian cultures, mingled with ruins of native villages, as well as forts and constructions dating back to the time of the Spanish conquest and colonisation.

Time seems to stand still in the high plateau of the Puna, a land full of mountain ranges, steep mountain paths and gorges. This region offers landscapes full of contrasts, from the high peaks to the plains, salt pans and subtropical rain forests.

TOP AND ABOVE Patagonia is famous for its natural beauty and wildlife

Cuyo

Cuyo is a region of high peaks, snow-covered volcanoes and a large wilderness spreading from the Andes mountain range and foothills to the steppes. At 6959 metres Aconcagua is the highest peak in the Western Hemisphere, while in the valleys of La Rioja, Mendoza and San Juan, visitors can follow the "Wine Road" and sample Argentina's internationally-renowned wines.

Patagonia

The Patagonian provinces are famous for their outstanding natural beauty with rugged mountains, dramatic glaciers, lakes and forests, and also for a wide variety of wildlife. Indeed, Península Valdés is a site of global significance for the conservation of marine mammals. It is home to an important breeding population of the endangered southern right whale as well as to breeding populations of southern elephant seals and southern sea lions.

In the south, Tierra del Fuego and the world's southern-most city, Ushuaia, are the gateway to the vast and mysterious Antarctica.

As you can see, Argentina has much to offer visitors and all of us on the NOC look forward to welcoming guests from around the world to our country.

Eduardo Ojea Quintana is the Chairman of the National Organising Committee for WGC 2009.

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Pan American ENERGY

A successful story of continuous growth in Argentina.

(*) In the period 1999 through 2006, without having acquired reserves, Pan American Energy succeeded in doubling its hydrocarbon output in Argentina from 40 million BOE per year to 80 million BOE per year.

COORDINATION COMMITTEE PROGRESS REPORT

Introduction and Key Developments

By Roberto Brandt and Andrés Kidd

This third Progress Report of the 2006-2009 Triennium aims to provide a helpful update on the current status of the projects embarked upon by IGU's five Working Committees (WOC), four Progress Committees (PGC) and two Task Forces (TF).

We are now in the mid-term of the Argentine Presidency of IGU, and although – as can be expected – these projects are in different stages of development, they have all clearly passed milestones on the route to successful completion.

The report also aims to inform readers about progress on the special projects engaged in for this Triennium, which involve both internal resources – namely through the Technical Committees mentioned above – as well as external organisations with which IGU has established solid relationships.

CC Chairman Roberto Brandt (RIGHT) and Andrés Kidd, CC Secretary.

The third CC meeting of the Triennium was held in St Petersburg in October 2007.

TECHNICAL COMMITTEE MEMBERS
as at December 2007

WOC 1 – Exploration and Production	50
WOC 2 – Underground Gas Storage	63
WOC 3 – Transmission	99
WOC 4 – Distribution	89
WOC 5 – Utilisation	101
PGC A – Sustainable Development	53
PGC B – Strategy, Economics and Regulation	115
PGC C – Developing Gas Markets	45
PGC D – LNG	100
Task Force Research and Development	23
Task Force Gas Market Integration	10
Total	**748**

● Technical Committees: Main highlights

In *Figure 1* one may observe that with regards to the inflow of members to the Technical Committees, the plateau in the curve reached by mid-2007 was maintained throughout the rest of that year. However, the last newcomers by December brought us to a grand total of 748 members, an absolute record of which IGU may feel rightfully proud.

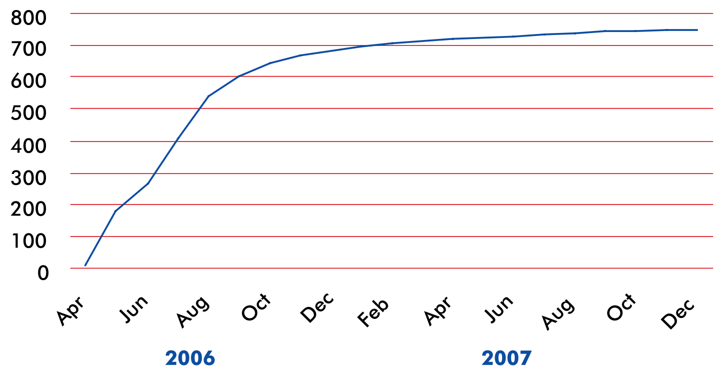
Furthermore, the satisfactory global coverage already achieved provides the Technical Committees with the necessary resources for a comprehensive worldwide analysis. *Table 1* gives the number of members in each Committee, while *Figure 2* illustrates the overall participation by region.

As background information, *Table 2* (over) details the Study Groups in which the Technical Committees have been divided, and their respective topics, following the plan established in the 2006-2009 Triennial Work Programme (TWP).

On October 23, 2007, we held our third Coordination Committee (CC) meeting in St Petersburg, Russia. Here the representatives from each Committee provided an update on the status of their technical work, which is detailed in the sections that follow in this magazine. Also, several productive discussions were held regarding ways to increase "horizontal" cooperation between the groups for both individual assignments and special projects.

As decided at the start of the Triennium, IGU Gas Marketing (IGM) also participated in the CC meeting. IGM provides additional members

EVOLUTION OF COMMITTEE MEMBERSHIP



ABOVE LEFT
Table 1.

ABOVE RIGHT
Figure 1.

BELOW
Figure 2.

GLOBAL COVERAGE

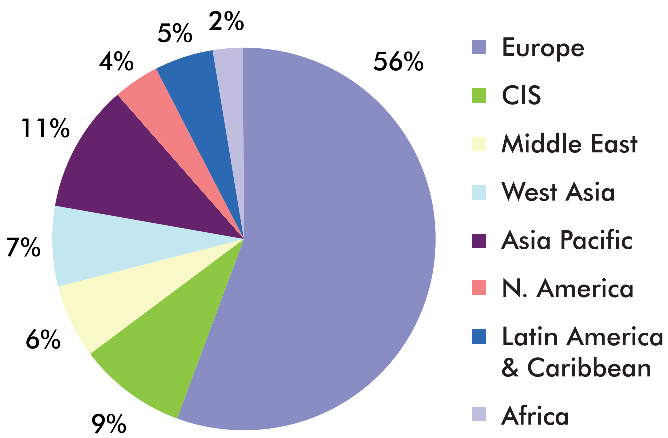


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Table 2.

STUDY GROUPS AND TOPICS FOR THE 2006-2009 TRIENNIUM

Committee	*Study Group*	*Topic*
WOC 1	SG 1.1	Remaining conventional world gas resources and technological challenges for their development.
WOC 1	SG 1.2	Difficult reservoirs and unconventional natural gas resources.
WOC 2	SG 2.1	UGS database.
WOC 2	SG 2.2	UGS technology improvements.
WOC 2	SG 2.3	Intelligent UGS (iUGS).
WOC 3	SG 3.1	Impact of regulation on gas transmission, safety and security of supply.
WOC 3	SG 3.2	Review of new technologies in pipeline and construction monitoring.
WOC 3	SG 3.3	Contribution of gas transmission to climate protection and sustainable development.
WOC 4	SG 4.1	Review of asset management strategies and practices.
WOC 4	SG 4.2	Review of leakage reduction strategies and practices.
WOC 4	SG 4.3	Development of best practices for the prevention of third party interference damage to distribution assets.
WOC 5	SG 5.1	Industrial utilisation: distributed energy and other specific issues (fuel switching, technical research, regulatory aspects, H2). Efficiency indicators.
WOC 5	SG 5.2	Domestic and commercial utilisation: distributed energy and other specific issues (new appliances, home fuelling, air cooling, combination with renewables, tariff/regulation). Efficiency indicators.
WOC 5	SG 5.3	Natural gas vehicles (NGVs): continuation of current project.
PGC A	SG A.1	Evolution, expansion and promotion of IGU's Guiding Principles on Sustainable Development and Climate Change.
PGC A	SG A.2	Gas industry response to climate change: studies on the reduction of greenhouse gases will include cooperation between Algeria and Nigeria to reduce gas flaring and new power generation plants in Norway. Other studies will be added.
PGC B	SG B.1	Supply and demand to 2030.*
PGC B	SG B.2	Gas price formations and trends.*
PGC B	SG B.3	Regulation and future industry structure.
PGC C	SG C.1	Developing gas markets in South West and Central Asia: India, Pakistan, Iran, Turkmenistan and Azerbaijan.
PGC C	SG C.2	Developing gas markets in South America.
PGC C	SG C.3	Developing gas markets in south-eastern Europe.
PGC D	SG D.1	LNG quality and interchangeability.
PGC D	SG D.2	LNG contract clauses for more flexible global LNG markets.
PGC D	SG D.3	Creative solutions for new LNG facilities.
TF R&D	Objective 1	Role and structure of R&D within the gas industry.
TF R&D	Objective 2	Focal point of IGRC.
TF GMI	Objective 1	Harmonising the structures of the energy and gas business for regional integration.
TF GMI	Objective 2	Governmental and corporate players, partners for success.

* Study Group outputs will be used as partial inputs for a 2030 Natural Gas Industry Outlook study, which will be coordinated by PGC B (and the CC Chairmanship) with support from all other Committees.

to IGU's working team, and contributes with its particular expertise to discussion of the marketing issues related to natural gas. In future, information from IGM will be added to this Progress Report.

Finally, the IGU Research Conference (IGRC) Organising Committee provided the CC with a report on preparations – both in general terms and as regards technical aspects – for IGRC 2008, which will be held October 8-10 in Paris, France.

● Progress on Special Projects

As detailed in previous issues of this magazine, the *2030 Natural Gas Industry Outlook* (2030 NGIO) study is already well on track, given the lead-time an ambitious and encompassing project of this calibre is expected to demand.

The main input of this comprehensive strategic analysis of the global natural gas industry for the next 25 years will come from the expertise of IGU's Technical Committees. A specific questionnaire has been distributed to each Committee for this purpose, based on the Terms of Reference defined for the project. Both these terms as well as the questionnaires were developed by the 2030 NGIO Management Team (comprising the leaders of the CC and PGC B), and with the contribution of Cambridge Energy Research Associates (CERA), represented by Sylvie D'Apote.

Following the closure of the activities in St Petersburg, the first meeting of the Steering Committee of the 2030 NGIO was held. As explained in our last report, this Committee includes a number of relevant external experts in the fields of energy, natural gas and sustainable development. The meeting was highly productive, and on that occasion – with the addition of some fine tuning – the general direction and scope of the study were endorsed. The next meeting will review the first input from IGU's Technical Committees, and will be held around the middle of this year.

Regarding the CO_2 sequestration project, which resulted from the first Joint Committee Meeting held in May 2007 (covered in an article by PGC A in the last issue of the magazine), the Terms of Reference and work plan were defined. The project will count with the support of external experts from Norway, who will coordinate the input from the Committees involved, and eventually contribute where necessary so as to obtain a meaningful deliverable on this sensitive issue, in time for the 24th World Gas Conference.

Other initiatives that have experienced progress during the last six months include *Best Practices Ideas and Proposals*, for which the working plan submitted by its leader, Task Force R&D was endorsed by the CC in St Petersburg, and *Efficiency Indicators*, led by WOC 5 (Utilisation), in cooperation with IEA and with the support of other organisations such as Marcogaz. We will keep you informed about the progress of these exciting projects in future issues of this magazine.

● "Roadmap" towards WGC 2009: Technical paper selection process

IGU's 2006-2009 Triennium will end at the 24th World Gas Conference, to be held in Buenos Aires, October 5-9, 2009.

The key milestones for the 24th WGC technical paper selection process are the following:

- June 1 — Call for Papers
- February 1, 2009 — Abstract Submission
- April 15, 2009 — Author Notification
- July 15, 2009 — Full Paper Submission

Roberto Brandt is the Chairman of the Coordination Committee and Andrés Kidd is the Committee's Secretary. Readers requiring further information are invited to contact Andrés Kidd at andrew@ifisa.com or to visit IGU's website at www.igu.org.

The EDF Group is an integrated energy supplier operating in a wide range of electricity and gas related businesses: power generation, transmission and distribution; gas production, transportation, storage; energy sale and trading. It is the main operator in the French electricity market and holds strong positions in the other three principal European markets (Germany, United Kingdom, Italy) making it one of the leading electricity groups in Europe, and a recognized player in the gas market.

In the electricity sector, it has the premier generation fleet in the world (more than 128,000 MW) and customer portfolio in Europe (more than 37 million customers).With 58 nuclear power plants in operation for a total of 68,000 MW, it is the clear world leader in nuclear generation. The Group is also the leading electricity network operator in Europe, giving it a sound business model, equally balanced between regulated activities and those open to competition.

In the gas sector the EDF Group is present mainly through EDF Energy (United Kingdom), EnBW (Germany), Edison (Italy), EDF SA (France and Belgium) and EDF Trading (pan-European trader). In 2006 it handled a volume of approximately 27 bcm in Europe (EDF-Trading not included).

The Group is preparing for an increase of its gas needs to 40-45 bcm/y in the medium term, both to deliver combined gas/electricity offers to its Customers and to supply its own gas-fired power plants. The EDF Group is building a portfolio to supply and optimize its sourcing via a pan-European approach in long-term gas procurement (purchase and throughput contracts and equity gas) and investments in logistic assets (LNG, pipes, storages). It is pursuing a complementary approach based on historical Edison's projects in South-East Europe (SEE) and on new projects in North-West Europe (NWE).

In NWE, EDF is developing the LNG Terminal project in Dunkirk, France (at least 6 bcm/y in the first phase that should take place in 2012). EDF and EnBW signed an agreement with the German company IVG for the storage of natural gas in underground salt caverns under construction at Etzel from 2010 onward (400 mcm). EDF Trading and RasGas have signed a medium-term (4.5 years) LNG supply agreement for deliveries in Zeebrugge of up to 4.5 bcm.

In SEE, Edison co-sponsors the Rovigo offshore LNG Terminal in the Adriatic Sea due to start in 2008 and has secured LNG sourcing from Qatar for 6.4 bcm/y. Edison is also involved in the development of two leading pipeline projects: IGI (8 bcm/y) between Greece and Italy and Galsi (8 bcm/y) between Algeria and Italy.

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Progress Reports from the Committees

This chapter contains news and information from IGU's five Working Committees and four Programme Committees.

Working Committee 1 – Exploration and Production

The activity of WOC 1 in the 2006-2009 Triennium is focused on the development of the upstream gas sector. Studies cover the gas reserves of mature areas, arctic potential and natural gas in deep waters, the options for remote natural gas and oil-associated gas reserves. WOC 1 is also investigating unconventional gas sources (methane hydrates, coal-bed methane and aquifer gas) and difficult gas reservoirs (tight, deep [more than 4500 metres], deep-water [a water depth of more than 2000 metres], shallow [less than 500 metres], high pressure/high temperature [HP/HT] and those containing sour gas).

Besides the gathering and analysis of information, the Committee is also identifying the potential for further development in these areas around the world.

There have been no significant changes in membership structure since the last progress report apart from a change in the Malaysian representative from Petronas and the entry of a new Polish member from PGNIG. WOC 1 now has 50 members, with representatives from every continent.

The third meeting of the Triennium was hosted by the National Iranian Gas Company in Tehran, Iran, October 17-20, 2007, and 13 delegates attended. The progress is detailed below by Study Group.

The National Iranian Gas Company hosted WOC 1's meeting in October 2007.

SG 1.1 Remaining conventional world gas resources and technological challenges for their development

Leader: Dominique Copin, Total (France)

After reviewing overall work progress, the preparation of questionnaires for the different topics was discussed: Mature areas (preparation of a draft questionnaire);

- Deep offshore (case study);
- Arctic;
- CO_2 sequestration (materials gathering); and
- Gas monetisation (Chevron will prepare a review).

There was a recommendation to concentrate on case studies, and the attraction to operators of short questionnaires was pointed out. Dominique Copin suggested that Wood McKenzie be contacted for some review materials.

SG 1.2 Difficult reservoirs and unconventional natural gas resources

Leader: Kamel Eddine Chikhi, Sonatrach (Algeria)

The following questions were discussed:

- Issues of final report format (case studies, dedicated chapters per subtopic);
- Questionnaire to address the industry (review); and
- Questionnaire "2030 study management team" (preliminary results).

Committee members also discussed the problems related to data gathering and processing, and worked out a recommendation to concentrate on case studies.

Other issues

In terms of internal relations, WOC 1 interacts with WOC 2, WOC 3, WOC 5 and PGC A concerning CO_2 mitigation. WOC 1 collects information on best practices and is also gathering information by means of a questionnaire for the Committee's input to the *2030 Natural Gas Industry Outlook* study.

As regards external relations, Naum Schneidermann (USA) and Stanislav Rychlicky (Poland) are responsible for collaboration with the World Petroleum Council, while Dominique Copin, Total (France) and Kamel Eddine Chikhi, Sonatrach (Algeria) are responsible for contacts with operators and consultants in order to get answers for the prepared questionnaires.

Future plans

At presstime the next meeting of WOC 1 was due to be hosted by E.ON Ruhrgas in Essen, Germany, March 4-6.

Working Committee 2 – Underground Gas Storage

Underground storage (UGS) plays an important role in the gas chain in balancing supply and demand. It is thus important to address its functionality, technology and cost. WOC 2 is focused on the development, operation and technology of UGS, including the regulatory and legal aspects. The aim is to update and enlarge the existing UGS database, to map UGS technology and to provide information about intelligent UGS. These topics are being worked on in three Study Groups.

WOC 2 Chairman Vladimír Onderka (LEFT) and Peter Storm confer during the Committee's third meeting of the Triennium.

WOC 2 now has 63 members from 26 countries, there being two new members and one more country represented since the last progress report.

The third WOC 2 meeting took place in Rome, Italy, October 2-4, 2007. Apart from the normal discussion of the Committee's activities, each meeting includes a workshop on a special topic, and at Rome a second workshop on UGS safety was held with the following presentations:

- Industrial safety in UGS – Dmitry Pavlenkov, OAO Gazprom;
- Safety policy for GdF storages – Pierre Marion, Gaz de France;
- Safety in the storages – Tomáš Diósi, RWE Gas Storage;
- Injecting above initial pressure in depleted gas reservoirs – Francesca Verga, Politecnico Torino;
- Learning from history – Vladimír Onderka, RWE Transgas Net, s.r.o.;
- Self-healing cement – novel technology to achieve leak-free UGS wells – Emillia Bellegia, Schlumberger;
- Advanced monitoring approach – Francesco Gasparoni, Tecnomare;
- Ecological component of safety – Nadezda Vlasenko, Vniigaz; and
- Movie from Yaggi incident – Frederick Metzger, KinderMorgan.

WOC 2 members take a technical tour of the UGS facility at Fiume Treste.

The first part of the meeting was dedicated to the *2030 Natural Gas Industry Outlook* study. The Committee's Vice Chair, Hélène Giouse, introduced the aim of this study and outlined the questions that WOC 2 is responsible for answering. Committee members discussed this topic, and described their experiences and best practices from each country. Their information was used as a base for a draft set of answers.

Then Peter Storm (who at the time was Secretary General and is now Honorary Secretary General) gave a presentation on the structure of IGU, the goals for the 2006-2009 Triennium, the Knowledge Centre and improvements to the IGU website.

The third part of the meeting was dedicated to the Study Groups and covered the following points:

SG 2.1 UGS database
Leader: Joachim Wallbrecht, BEB GmbH (Germany)

- The database system has been further refined to simplify the sending out of questionnaires and data handling;
- The questionnaire sent out covers approximately 170 UGS facilities;
- So far the questionnaire feedback has been limited;
- Contact with IEA and Gas Storage Europe (GSE) for cooperation;
- Database should be extended to include digital pipeline maps and existing gas demand prognosis;
- Expected results: database update, visualisation of UGS data – world map, glossary of relevant terminology, trends in the UGS industry.

SG 2.2 UGS technology improvements
Leader: Hélène Giouse, Gaz de France

- The questionnaire and available responses were presented;
- The first analysis will be done to assess how to go forward in analysis;
- Contributions to the 2030 study were discussed.

SG 2.3 Intelligent UGS
Leader: Georg Zangl, Services Petroliers Schlumberger (France)

- Available responses to questionnaire have been discussed – it was decided to send an appendix with some explanations up to the end of October 2007;
- The questionnaire will be extended to cover salt caverns.

WOC 3 held its third meeting of the Triennium in the Hotel Golf in Bled, Slovenia.

As a part of this WOC 2 meeting there was a technical tour hosted by ENI of the UGS facility at Fiume Treste.

Future plans

The next meetings are planned for:

- April Salzburg, Austria
- September France
- March 2009 Russia

In each case the precise date and venue have yet to be decided.

● Working Committee 3 – Transmission

WOC 3 held its third meeting of the current Triennium in the picturesque venue of Bled in Slovenia on September 26, 2007. The previous day the three Study Groups held their meetings in parallel. There were 40 delegates to the plenary meeting, but including those Study Group members who did not attend the plenary and accompanying persons, the total attendance at the event was 52.

As the following reports of the three Study Groups show, all three of them are on schedule and have made considerable progress.

WOC 3's technical visit was to the Kidricevo compressor station operated by Geoplin plinovodi.

SG 3.1 Impact of regulation on gas transmission, safety and security of supply
Leader: Marinus Kornalijnslijper, The Netherlands
The Study Group carried out a survey amongst its members in June and July 2007. Some 90 respondents provided 29 answers from 22 member countries. An initial evaluation of the answers was presented. Already some conclusions can be drawn. There is apparently the general notion in regulated gas transport environments that regulation, especially cost of service regulation, might jeopardise safety and continuity of supply within a decade, or, as one member expressed it: "Who is going to regulate the regulatory community?" The CC Secretary, Andrés Kidd, who attended the meeting, pointed out that this Study Group should seek contact with SG B.2.

SG 3.2 Review of new technologies in pipeline and construction monitoring
Leader: Jorge Bonetto, Argentina
This Study Group is also on track to meet its objectives for WGC 2009. How important its area of work remains became apparent with two presentations given, one by the Study Group leader, Jorge Bonetto, the other by the Chairman of WOC 3, Helge Wolf. Both recently had to experience the total failure of a pipeline in their countries, Argentina and Germany, fortunately without any personal injuries in either case.

SG 3.3 Contribution of gas transmission to climate protection and sustainable development
Leader: Sigve Apeland, Norway

The pipeline of Camisea in Peru is a project that seeks to bring development to the population respecting the nature.
After 730 kilometers of immeasurable efforts displayed in the jungle, peaks and deserts, our aim has been achieved in the construction of the pipeline as well as in its maintenance. That was the idea, wasn't it?

TgP Transportadora de Gas del Perú

The work of SG 3.3 is of the utmost topicality, as the Climate Change Summit of the world's political leaders in Bali in December 2007 shows. The Study Group has identified the main environmental impacts a gas transmission system could cause – release of CO_2, CH_4, NO_x and noise – and will define in its final report the best practices to minimise those impacts.

Other business

The Vice Chairman of WOC 3, Eric Dam, introduced IGU's *2030 Natural Gas Industry Outlook* study and the possible involvement of WOC 3. The study was extremely well perceived by the members of the Committee, resulting in some spontaneous volunteering for participation on behalf of WOC 3 for three of the eight defined IGU world regions.

Overall, it can be stated that WOC 3 so far is on schedule to meet the objectives set for the next World Gas Conference in 2009.

WOC 3 tries to combine each of its meetings with a technical visit. Therefore, despite the cold and rainy weather, delegates visited the compressor station of Kidricevo in the east of Slovenia.

Promgaz hosted the meetings of WOCs 4 and 5 in September 2007.

Future plans

At presstime the fourth meeting of the Committee was due to be held in Buenos Aires, Argentina, March 10-12. The fifth meeting will take place in Graz, Austria, September 9-11.

● Working Committee 4 – Distribution

WOC 4 has 89 members from 36 countries and its third meeting for 2006-2009 was hosted by Promgaz in Moscow, Russia, September 27-28, 2007. WOC 4 Vice Chairman Alessandro Soresina of AEM Gas S.p.A. welcomed 35 members from 20 countries. Members' partners and guests from Gazprom joined the social programme which included a river trip through Moscow and past the Kremlin, followed by a night of dinner and dancing to "Jazzprom". The Committee is very thankful to Professor Karasevich and Svetlana Skvortskova for their work in arranging this meeting.

The WOC 4 meeting was planned to coincide with meetings of WOC 5 (Utilisation) and the R&D Task Force. A meeting was held between representatives of all three groups to identify common areas of interest. Members were also invited to attend Distribution & Utilisation Efficiency Conferences hosted by Promgaz in Moscow. The WOC 4 meeting also included a technical visit to the Mostransgaz system control facility.

Good progress is being made by all three Study Groups against their terms of reference:

SG 4.1 Asset management

Leader: Andreas Hennig, Germany

The Study Group is reviewing the strategies for operating, maintaining and replacing gas distribution networks. The study is examining the influence of different regulatory frameworks in defining local good practice and assessing the applicability of best international practices.

SG 4.2 Leakage reduction

Leader: Fergal Geoghegan, Ireland

Methane leakage is believed to contribute to dep-

letion of the ozone layer and presents safety, economic and operational challenges to distribution operators. This Study Group is investigating leading practices for the management of gas leakage from distribution systems. Analysis of these leading practices will be based on commonly defined performance metrics.

SG 4.3 Precautions to reduce third party damage
Leader: Svend Bomholt, Denmark
This is a study to evaluate how each of the IGU member countries approaches the reduction of third party interference damage to gas distribution systems. This emerged as a major integrity issue from the 2003-2006 Triennium study.

In May 2007, WOC 4 issued a single questionnaire combining data requests to gather information for all the Study Group topics. This data collection exercise has been significantly assisted by GHD Consulting, who have formatted and hosted the questionnaire on their website in order to allow members to provide their responses via the internet. This makes use of GHD's expertise in providing asset management assessment capability via their web-based Gap-Ex tool.

Over 50 responses were received to the questionnaire, providing a substantial source of information for the Study Groups. This will enable analysis of data and further information to be prepared during the year from class-leading companies to inform WOC 4's report to the World Gas Conference in 2009.

Future plans

The dates and locations for future WOC 4 meetings are confirmed as:

- April 14-17 — Paris, France
- October 6-10 — Prague, Czech Republic
- March 11-13, 2009 — Sarajevo, Bosnia & Herzegovina
- October 5-9, 2009 — WGC 2009, Buenos Aires, Argentina.

● Working Committee 5 – Utilisation

The overall objective of WOC 5 is to describe the situation in the different areas of gas utilisation, identifying the trends, tendencies, technologies and practices, and to evaluate and propose actions for further market development.

The Committee has just over 100 members with 32 countries participating through full membership and a further four countries through corresponding membership. It is organised into three Study Groups. The work of WOC 5 aims to:

- Describe the situation in the domestic and commercial gas utilisation sectors (state of the art);
- Identify tendencies, trends and technologies; and
- Recommend and evaluate actions for further market development/introduction.

In addition to the work of the Study Groups, WOC 5 has been active in contributing to the *2030 Natural Gas Industry Outlook* study and work on best practices with the R&D Task Force.

WOC 5's third meeting was held in Moscow, September 27-28, 2007, with some 35 participants. The progress of work in each Study Group is detailed below.

SG 5.1 Industrial utilisation
Chairman: Guy Verkest, Belgium
Vice Chairman: Tatsuo Kume, Japan
The Study Group has eight items on its work agenda and good progress has been achieved on "Integration of CHP in the industry", and "Energy savings" in the industrial sector. For both items, questionnaires have been issued and are still being processed. A first simple catalogue of technologies is already available. A questionnaire has also been issued for "Combination of gas and renewables" and we have created a platform between SG 5.1 and SG 5.2 to treat this important subject. In addition to a report dealing with gas and renewables, we are considering organising a roundtable during the World Gas Conference.


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we had a dream
and today more than 10 million customers
choose to make it come true every day
Thanks to Gas Natural, something is changing in the life of millions of people. Because they trust in the support of a company that has more than 150 years of experience, a company that is always growing and whose presence abroad is ever greater. An institution in which thousands of people share a dream and work together towards a single aim: quality of life. And this dream, to improve the life of millions of people, is becoming a reality. Thank you all.
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www.gasnatural.com

WOC 5 held its third meeting of the Triennium in Moscow (TOP) and delegates included Daniel Hec, Secretary General of Marcogaz (ABOVE).

For the "Gas quality variation impact on utilisations", we are in contact with the consortium in charge of a study that is expected to start later this year.

Meetings are fruitful and during the latest one technical presentations were given on various subjects such as regulation, RUE (rational use of energy) improvement within Russia, the combination of CHP and process integration of technologies, etc.

SG 5.2 Domestic and commercial utilisation
Chairman: Martin Wilmsmann, Germany
Vice Chairman: Bernd Utesch, Germany
The Study Group has 10 items on its work agenda and one of the most important is "Micro combined heat and power (μ-CHP), distributed generation". We are now planning a workshop for 2008 (in collaboration with GERG and Marcogaz) and expect 50 to 100 people to attend. The aim is to clarify the need of the market to accelerate the integration of this technology.

"Natural gas and renewables, case studies/ success stories": As mentioned above, work on this item is being coordinated with SG 5.1 A small expert group will meet in mid-December to visit a bio-methane-generating plant in Germany

"Efficiency indicators": We have established collaboration with IEA. Data are now implemented in the database and we are going to develop an interface that will make use of a demo in 2008.

"Gas quality variation impact on utilisations": We are in the same position as for SG 5.1.

For the following items, we can also report some activity, based mainly on questionnaires or internal discussions at the meetings:

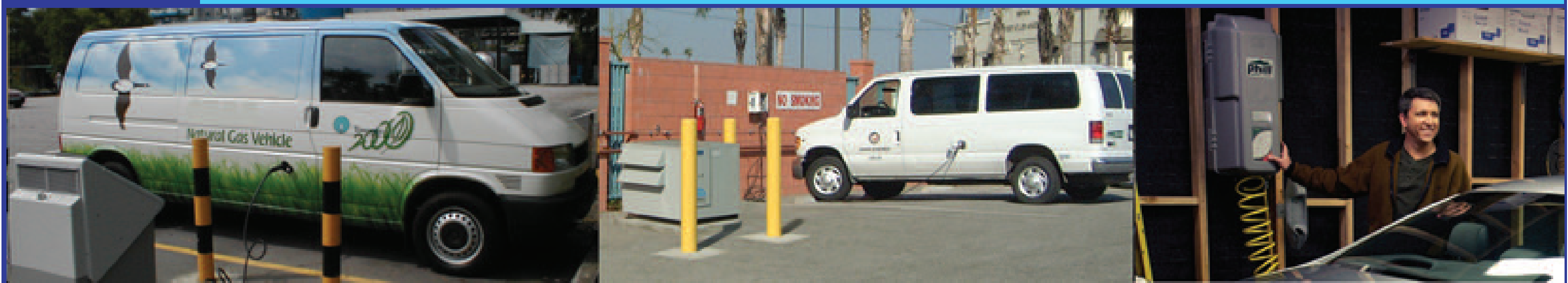
- Appliances database;
- Labelling;
- NGV fuelling survey;
- Energy services: A way to keep gas in the domestic sector?;
- Cooling and gas heat pumps; and
- Garden applications (grill, patio heater, gas light).

SG 5.3 Natural gas vehicles
Chairman: Davor Matic, Croatia
Vice Chairman: Eugene Pronin, Russia
Model for regional prognosis: In terms of preparing scenarios of NGV market development, good progress has been achieved on the modelling part for European countries and the work has now been extended to other regions. Models have also been developed for consumers to calculate basic economic parameters. Those will be made available on the IGU website.

Support of standardisation: A survey was organised and the experts are still working on identifying national standards that could cover the gap between technology and existing international standards.

ON-SITE REFUELING FOR NATURAL GAS VEHICLES

FuelMaker Refueling Appliances Offer Benefits For Gas Utilities, End Users and the Environment.



FuelMaker Corporation has been in partnership with Gas Utilities in providing ON-SITE refueling solutions to their customers for over 17 years. FuelMaker is the world leader in designing, manufacturing and installing **Vehicle Refueling Appliances** (VRA) for fleets of up to 40 Natural Gas Vehicles (NGV). These fleets can include both traditional NGVs as well as industrial applications such as forklifts. FuelMaker systems include time-fill, fast-fill, and combination-fill applications that are **reliable, affordable, and expandable** to fit specific site needs.

In 2005 FuelMaker released the **Home Refueling Appliance** "Phill" to the world. With Phill, users can now enjoy the benefits of refueling their NGVs from the comfort and convenience of their own homes. Owners can feel secure in the knowledge that Phill comes from FuelMaker's extensive experience in refueling appliance technology and committment to service.

* **All FuelMaker products are commercially available to Gas Utilities throughout the world.**
* **Gas Utilities can increase gas sales by promoting NGVs - the load from one vehicle equals an entire house.**
* **FuelMaker refueling appliances can save both fleets and individual end users money on vehicle energy costs.**
* **All parties using NGVs contribute to a cleaner environment and combat global warming.**

For more information please contact FuelMaker at: sales@fuelmaker.com

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FuelMaker

A part of the work was carried out on the basis of a questionnaire to which 18 countries responded.

An open letter to the gas industry was prepared by the Study Group in the name of IGU, IANGV and Marcogaz. After a wide discussion with different stakeholders it was officially signed at the meeting of the Executive Committee in St Petersburg on October 23, 2007. (For details of the letter and a similar one addressed to national and local governments see pages 60-61.)

Internal/external relations

WOC 5 has established collaboration with the IGU Gas Marketing Committee's Study Group M.1 on renewables. A similar approach is under discussion with SG M.2.

As outlined above, SG 5.2 collaborates with IEA and SG 5.3 works in close cooperation with IANGV.

● Programme Committee A – Sustainable Development

Programme Committee A held its third meeting in Arnhem, The Netherlands, September 18-20, 2007. The host was Elbert Huijzer of Nuon Technology, and the work sessions were held at the Nuon Technology offices.

A total of 18 delegates out of 53 nominated members attended the meeting, which concentrated on the work to be done within the established Study Groups.

PGC A has a core group of very active members. The members that are not able to join the Committee meetings will in future be more actively contacted and asked to participate via net-meetings, and they will also be important in quality assurance of the work that has been prepared in the meetings.

Progress in the three Study Groups

SG A.1 Updating IGU's Guiding Principles for Sustainable Development

Leader: Juan Puertas, Gas Natural, Spain

The Study Group has prepared a questionnaire to measure accordance with the Sustainable Development Guidelines and to what extent the Guidelines are beneficial for IGU members. The deadline for the questionnaire was January 15 and an initial summary of the answers is being prepared for the next meeting.

Delegates to PGC A's meeting in September 2007 pose for a group photo.

SG A.2 Case studies on the reduction of greenhouse gases
Leader: Elbert Huijzer, Nuon Technology, The Netherlands
Points of action in the Study Group's report are:

- Start preparing our case studies;
- Check if our projects are coherent with the PGC A report of the previous Triennium;
- Prepare an answer on the question from the *2030 Gas Industry Outlook* study; and
- Send the guidelines on content and preparation of case studies to the other IGU Technical Committees.

The joint committee project on natural gas and CO_2 mitigation has made a start. SG A.2 leader Elbert Huijzer will be the contact person on the steering committee.

SG A.3 Post-Kyoto concept
Leader: Klaus-Robert Kabelitz, E.ON Ruhrgas, Germany
Study Group A.3 is actively involved in the Global Roundtable of Climate Change (GROCC) and one representative attended the UN COP/MOP meeting in Bali in December 2007.

In addition to the contact with other organisations, we are working on a position document on how IGU could address the Post-Kyoto regulatory framework preparations.

Contribution of the natural gas industry to CO_2 mitigation

PGC A is in charge of a study on how the natural gas industry can contribute to CO_2 mitigation. A steering committee has been formed with members from WOC 1, WOC 2, WOC 3 and WOC 5 in addition to PGC A and the IGU Secretariat.

Depending on results, the steering committee hopes to be able to present new and valuable information on this important topic at WGC 2009.

Future plans

At presstime the next meeting was due to be held in Yamburg, Russia, February 26-28, and hosted by Oleg Andreev, Director General of Yamburggazdobycha Ltd, Gazprom.

Programme Committee B – Strategy, Economics and Regulation

Two new members have joined PGC B since the last progress report, but otherwise the general membership structure and the composition of the three Study Groups is similar. There are 115 delegates of which 84 are from Charter Members, 23 from Associate Members and eight are invited delegates not included in these categories. European gas associations and companies account for the largest number of delegates, but all gas regions have a relevant representation on the Committee *(see Figure 1)*.

The distribution of delegates among the Study Groups by number is quite even:

- SG B.1 Supply and demand to 2030: 32 delegates
- SG B.2 Gas price formations and trends: 28 delegates
- SG B.3 Regulation and future industry structure: 31 delegates

Other than the members of the management team, 22 delegates have not yet defined their interest in a specific Study Group.

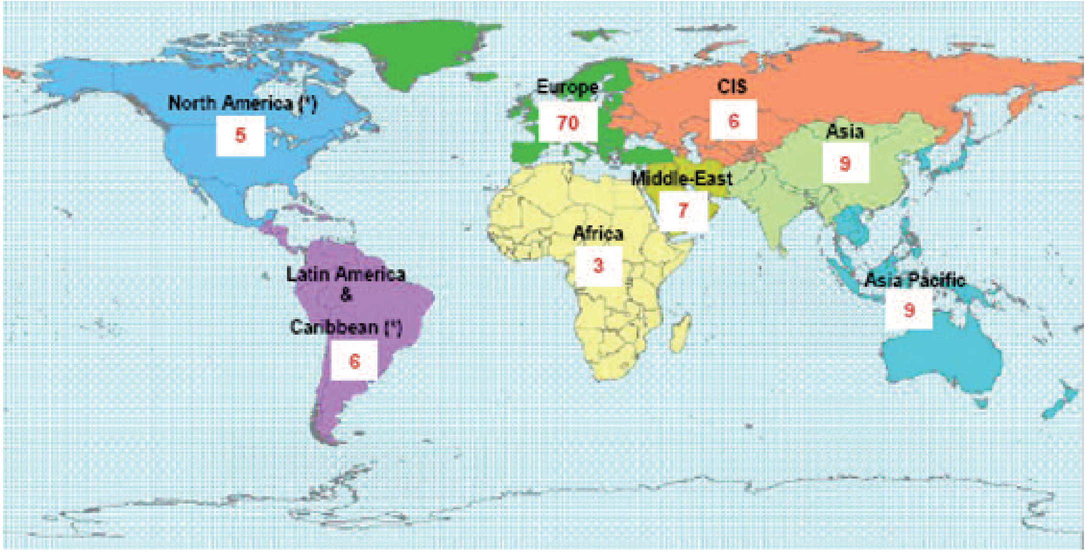
Meetings

PGC B held its second plenary meeting in Washington DC, USA, September 25-27, 2007. The meeting was very well organised and gave delegates an excellent opportunity to meet high representatives of the North American gas industry, energy authorities and regulators, continuing their work within the Committee (*see the agenda in Table 1*). The main messages coming from the Study Groups are detailed below.

SG B.1 Supply and demand to 2030:

- The steps to be covered by the next meeting (in April) were defined;

REGIONAL BREAKDOWN OF PGC B MEMBERSHIP



Note: Mexico is included in North America.

LEFT
Figure 1.

AGENDA FOR PGC B'S SECOND 2006-2009 PLENARY MEETING, WASHINGTON DC, USA, SEPTEMBER 25-27, 2007.

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Table 1.

Date	*From*	*Activity*	*Venue*
Tuesday 25th	18:30	Welcome Cocktail	University Club
Wednesday 26th	08:30	Opening of the meeting	FERC
	09:00	Welcome by FERC Chairman	
	09:30	Stream sessions and FERC Market Monitoring Centre	
	12:00	Transfer to AGA premises	
	12:30	Lunch	AGA
	14:30	Guest speakers' presentations	
	15:30	Stream sessions Study Groups B.1, B.2, B.3 (cont.)	
	16:30	Supply and demand issues	
	17:00	Price formation and trends	
	17:30	Regulation and future industry structure	
	18:00	Wrap up and adjourn for dinner	
	20:00	Dinner	University Club
Thursday 27th	08:00	Conclusions of stream sessions	University Club
	08:30	Natural Gas Industry Outlook study	
	09:30	Organisational issues	
	10:00	Overview of work progress	
	11:00	Open debate	
	11:30	Closing remarks	
	12:00	Shared lunch with American gas industry leaders	


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IT IS EARNED.
Companies are not only admired for what they do. They are also admired for their philosophy, and Petrobras' belief has always been to perform its activities in a responsible manner, in tune with society's needs and with the environment. This form of operation results in a positive experience for any corporation. We are not the ones saying this, the world is: Petrobras has recently been classified by Reputation Institute as the eighth most admired company in the world according to a survey carried out in 29 countries. In this ranking, we are the best placed company of the Americas, and we hold the number one position in the world among energy companies. This recognition shows that investing in development is essential to the planet and to those who invest.
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- The importance of taking into account the impact of gas demand from power generation was discussed; it is expected to be a key issue at the next World Gas Congress.

SG B.2 Gas price formations and trends:
- A draft table of contents of the Study Group's report was agreed;
- An action list towards the next meeting (in April) was defined.

SG B.3 Regulation and future industry structure:
- A precise action plan was agreed;
- Specific responsibilities were assigned in line with the storyboard.

More information about this meeting is given in a separate article "Adding Value to IGU Membership: PGC B Disembarks in Washington DC" on pages 124-125.

Future plans

The Committee agreed to hold two meetings in 2008. Firstly, the three Study Groups will meet in Amsterdam, The Netherlands, April 10-11. This meeting will be organised under a stream sessions structure with the objective of giving time to delegates to gather and progress with their specific tasks.

Then the third plenary meeting of PGC B will take place September 17-19 in Kyoto, Japan, a venue aimed to facilitate the attendance of the largest number of Asian delegates. The meeting structure proposed is similar to the one held in Washington, with the Committee's work sessions being complemented by visits to Japanese gas and energy institutions. In this way delegates will be offered the opportunity to get to know the Japanese gas industry, the way it operates and the individuals who run it.

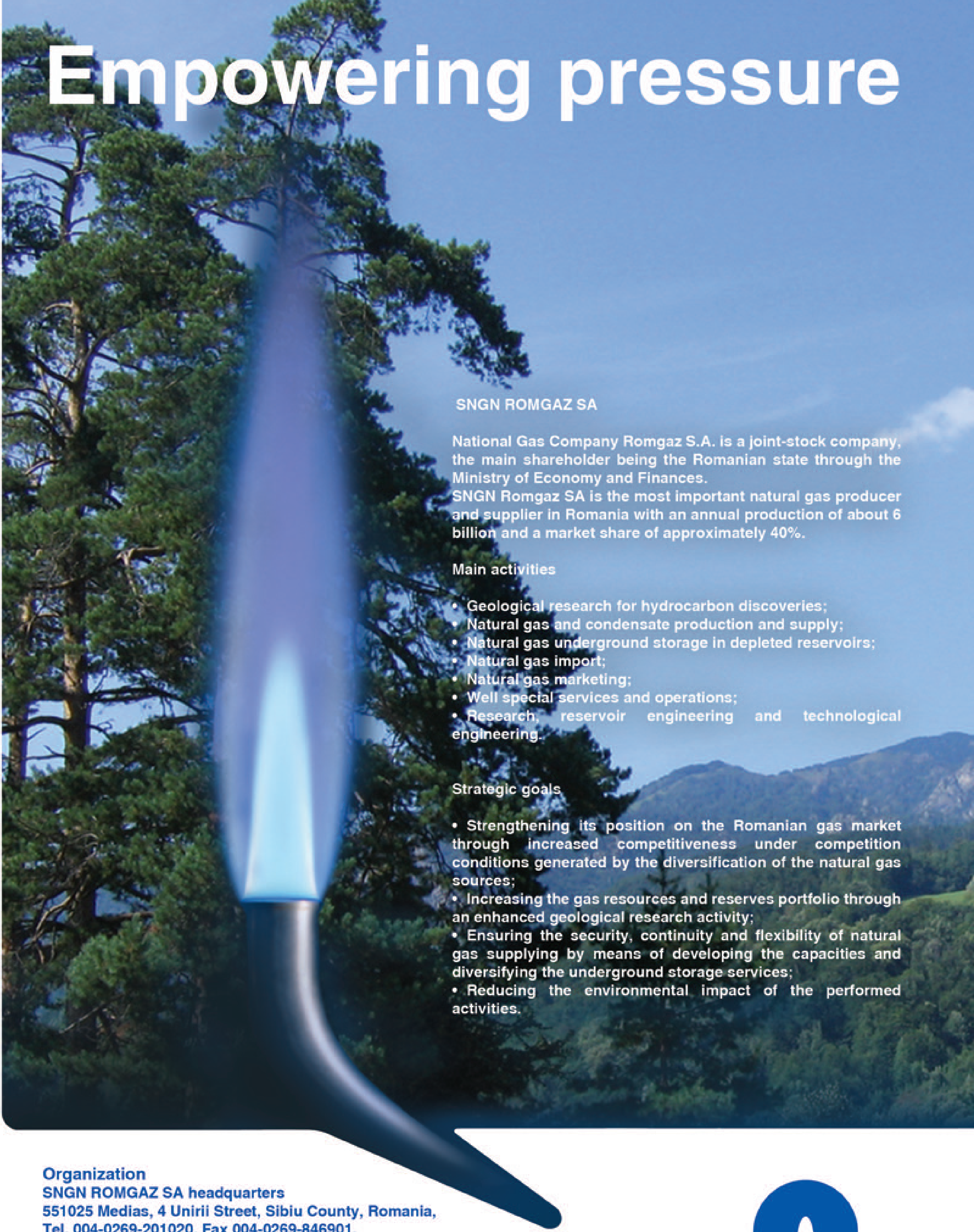
Programme Committee C – Developing Gas Markets

Since the last progress report PGC C's membership has increased to 45, with further nominations from Iran, Poland and the United States. Nevertheless, participation from countries covered by the Study Groups that are not currently represented would be most welcome to further strengthen access to more authoritative sources of data and information. This is especially so in the cases of gas producing countries in Central Asia and South America, which would provide much needed support to the work of Study Groups C.1 (Developing gas markets in South West and Central Asia) and C.2 (Developing gas markets in South America) respectively.

A significant milestone for PGC C on the road towards WGC 2009 was the organisation of a Roundtable Meeting on September 18, 2007, in Rio de Janeiro, Brazil, with the theme "Enhancing Energy Security via Integrating Natural Gas and Infrastructure Markets in South America". The objective of the Roundtable Meeting was to discuss and share views from different perspectives with regard to possible ways forward for the integration of gas markets in South America.

The event was graced by the presence of Dr José Sergio Gabrielli de Azevedo (President and CEO of Petrobras), who delivered the Keynote Address, and by Torstein Indrebø (at the time candidate for Secretary General), who shared European experiences in gas market integration. Frank Look Kin, President of the National Gas Company of Trinidad and Tobago presented a paper on "LNG's Contribution to Integrating Natural Gas Markets and Systems in South America." Roberto Brandt, CC Chairman gave a presentation on "IGU: Organisation and Technical Programme for 2006-2009" and chaired the 1st Session on "An International Perspective". Andrés Kidd, CC Secretary chaired the 2nd Session on "The South American Perspective".

Jorge Doumanian, Chairman of the Task Force for Gas Market Integration, described the work of the Task Force, which aims at identifying key success factors facilitating regional energy and gas market integration. PGC C Chairman Dr Mohd. Farid Amin presented the experiences



Empowering pressure

SNGN ROMGAZ SA

National Gas Company Romgaz S.A. is a joint-stock company, the main shareholder being the Romanian state through the Ministry of Economy and Finances.
SNGN Romgaz SA is the most important natural gas producer and supplier in Romania with an annual production of about 6 billion and a market share of approximately 40%.

Main activities

- Geological research for hydrocarbon discoveries;
- Natural gas and condensate production and supply;
- Natural gas underground storage in depleted reservoirs;
- Natural gas import;
- Natural gas marketing;
- Well special services and operations;
- Research, reservoir engineering and technological engineering.

Strategic goals

- Strengthening its position on the Romanian gas market through increased competitiveness under competition conditions generated by the diversification of the natural gas sources;
- Increasing the gas resources and reserves portfolio through an enhanced geological research activity;
- Ensuring the security, continuity and flexibility of natural gas supplying by means of developing the capacities and diversifying the underground storage services;
- Reducing the environmental impact of the performed activities.

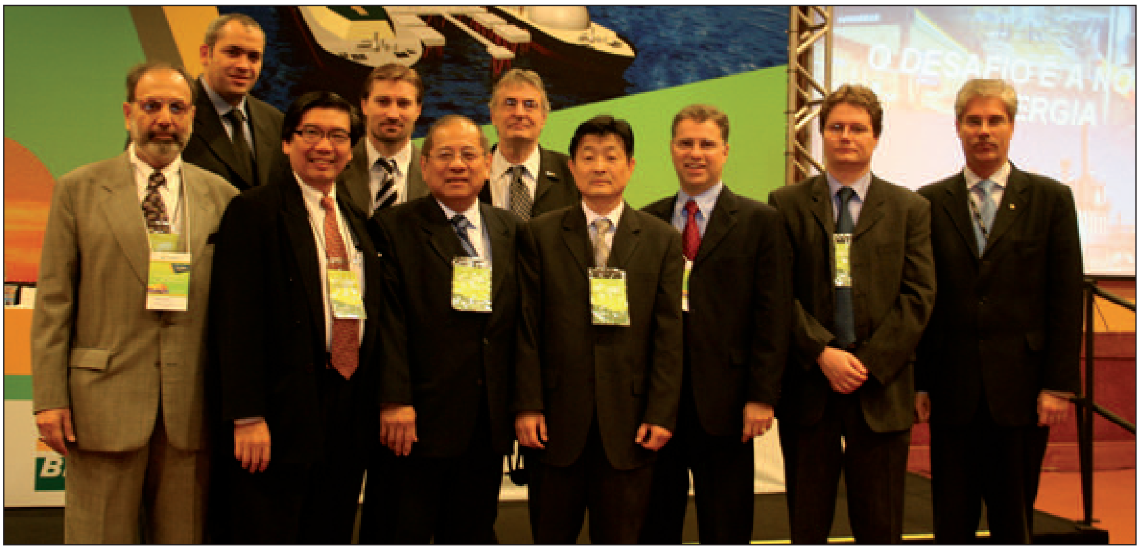
Organization

SNGN ROMGAZ SA headquarters
551025 Medias, 4 Unirii Street, Sibiu County, Romania,
Tel. 004-0269-201020, Fax 004-0269-846901,
E-mail secretariat@romgaz.ro, www.romgaz.ro

and 5 subsidiaries:

- MEDIAS Production Subsidiary
- MURES Production Subsidiary
- PLOIESTI Natural Gas Storage Subsidiary
- SIRCOSS - Well Interventions, Workover and Special Operations Subsidiary
- STTM - Maintenance and Technological Transport Subsidiary

ROMGAZ



PGC C members met in Rio de Janeiro in September 2007 and were also invited to the Petrobras international LNG seminar.

of the ASEAN Council on Petroleum (ASCOPE) in promoting gas market integration in the Association of Southeast Asian Nations (ASEAN).

A very significant conclusion that emerged from the Roundtable Meeting was that it takes more than just physical capital or cross-border gas pipeline inter-connections to build an integrated gas market. Equally important are programmes that promote regional energy cooperation and investment in social and human capital in order to create a more sustainable and enduring framework upon which to build an integrated regional gas market. Study Group C.2 has agreed to explore this idea further in the context of South America.

After the Roundtable, parallel Study Group meetings were held on September 19 followed by the third PGC C plenary. All the meetings were kindly hosted by Petrobras at the Copacabana JW Marriott Hotel in Rio de Janeiro.

PGC C members, at the kind invitation of Petrobras, were also invited to attend the opening session of the first Petrobras International LNG Seminar, which was held at the Hotel Windsor in Rio de Janeiro, September 19-21.

At presstime the next PGC C meeting was due to be hosted by the Malaysian Gas Association and Petronas in Penang, Malaysia, February 20-22.

Other business

PGC C participated in the 2nd International Conference on Development of the Gas Industry of South and East European Countries, which was held in Belgrade, Serbia, June 12-14, 2007. The Committee's work on gas market development challenges and opportunities in the South East European (SEE) Energy Community countries was presented by Robert Bošnjak to a positive reception.

● Programme Committee D – LNG

PGC D now has 100 members from 31 countries. The Committee held its second plenary meeting along with the third set of meetings of the Study Groups in Marlow, UK, October 2-4, 2007. The event was hosted by BP and included a site visit to the Heatric printed circuit heat exchanger manufacturers in Poole, Dorset.

The PGC D Chairman, Vice Chairman, Secretary, Study Group leaders and Study Group secretaries were in attendance, in addition to Study Group members, and there were 33 delegates in total.