



Gearing up for the 24th World Gas Conference

By Eduardo Ojea Quintana

The National Organising Committee (NOC) of the 24th World Gas Conference continues working to fulfil the expectations of the more than 3,000 delegates that it looks forward to welcoming to Buenos Aires in October 2009. Moreover, WGC 2009 has been declared a matter of national interest by the Presidency of the Argentine Republic and the City Council of Buenos Aires.

● Call for Papers

We are welcoming abstracts from across the spectrum of the Global Gas Industry in relation to the topics identified by the IGU Technical Committees. Detailed information and instructions for submitting your abstract can be found on the WGC 2009 website www.wgc2009.com by clicking the "Call for Papers" tab. For further information,

please contact: cfp@wgc2009.com. The key dates are:

- Submission deadline February 1, 2009
- Author notification April 15, 2009
- Full paper submission July 15, 2009

● 24th World Gas Exhibition

The 24th World Gas Exhibition continues to be in heavy demand with the current space already sold out to exhibitors from all over the world (see *Table 1*). So the NOC has added a further 5,500 m² of exhibition space to allow even more companies to join this outstanding event.

An impressive temporary structure will be placed by the expert sessions hall increasing the flow between the rooms for the luncheons and the technical sessions, and making WGC 2009 the largest event of its kind.

Now is the time to secure one of these stands for your company. For priority assistance, please contact Rob Percival on telephone: +44 20 7978 0078 or email: rpercival@wgc2009.com.



Eduardo Ojea Quintana.

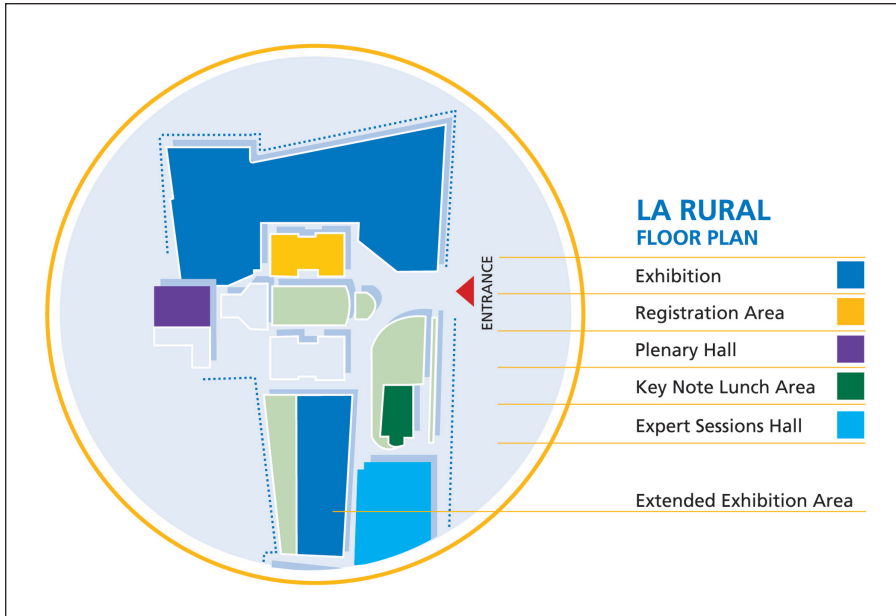


La Rural Congress & Exhibition Centre (ABOVE) will be the venue for WGC 2009. The floor plan is shown on page 56.

THE 24TH WORLD GAS EXHIBITORS FROM AROUND THE WORLD

LEFT
Table 1.

25th World Gas Conference	Gazprom	Pietro Fiorentini SpA
Ackron	GE	PIRA
Actaris	Geco System SpA	Plasson Ltd
AFG	GeoFields, Inc.	Plast Italia SpA
Apator Metrix S.A.	Global Thermolectric	Pluspetrol S.A.
Applus	Gortel Controls	Polytec Co. Ltd
Argus	Government of Alberta	Promigas
Atmos International Ltd	HAK	PSI AG
Beijing DongFang RuiJin	Heath Consultants Inc.	Qatar Petroleum
BG Group	Heren	Rafael G. Albanesi S.A.
Blue Jetty	Hermann Sewerin GmbH	Ravesta SAIC
Bluewater	IAPG	Repsol YPF
BNF Engineering Pte Ltd	IBP	RMA Pipeline Equipment
BP Plc	IGRC	Romet
Brass LNG	IHS	Rosen Europe B.V.
Bruno Schillig S.A.	iMeter	RWE
BW Technologies by Honeywell	Industrias 9 de Julio	Salzgitter Mannesmann Line Pipe GmbH
Canusa – CPS	Industrias Arcat SA	Samtech Gas
Capstone Turbine Corporation	Industrias Delgado S.A.	SBM Offshore N.V.
CGC	Industrias EPTA Srl	Shell Gas & Power International
Chart Energy & Chemicals, Inc	Inelectra	SIAM-Arcon
Cheniere Energy, Inc.	Institution of Gas Engineers & Managers	SICK Maihak GmbH
Chevron Global Gas	Instrument Flow Technology	Siemens
China National Offshore Oil Corporation	International Gas Union	Skanska
China National Petroleum Corporation	J And N Enterprises Inc.	Society of British Gas Industries
Chuchu Decayeux	Klinger	Sonatrach
Common S.A.	Linde AG	StatoilHydro
DMG	LNG 16	Suez Energy International
DONG Energy	LNG Journal	Technolog
Dresser Natural Gas Solutions	LNG Unlimited	Tecna Estudios y Proyectos de Ingeniería S.A.
Ecogas	McElroy Manufacturing, Inc.	Tecnicas Reunidas
EconGas GmbH	Mercury Instruments	Tecpetrol S.A.
Elgas	Metrogas	Tenaris
Elster – Instromet Production GmbH	Mokveld	Tex Argentina
Emerson Argentina	Nacap	Tormene Americana S.A.
Energia & Soluciones S.A.	National Iranian Gas Company (NIGC)	Total Austral S.A.
ENI	Nirmal Industrial Controls Pvt	Transportadora de Gas del Norte S.A.
ENOD SRL	NMI	Transportadora de Gas del Sur S.A.
Estrella Servicios Petroleros	Nord Stream AG	Turbodina SAIC
Estudio Tecnico Doma S.A.	Novatek JSC	Tyco Flow Control Argentina
Eustream A.S.	Odebrecht S.A.	Valvulas Worcester de Argentina S.A.
Favra	Oman LNG	Veolia Water Solutions
Flargent	OMV AG	Vetek S.A.
Gas Natural Ban S.A.	Pan American Energy	Vopak
Gas Technology Institute	Patagonia Bioenergia S.A.	Wärtsilä Finland Oy
Gascat	Petrobras Energía S.A.	Wellstream International Ltd
GasTerra	Petrogreen	Wingas
Gasunie	Petroleum Economist	World Energy Council
Gaz de France	Petronas	Yemen LNG
Gaz System	PGNIG	World Petroleum Council



dedicated to individual meetings with suppliers

The first official exhibitor site visit took place in April and was well attended by participants from around the world. We received positive feedback and strongly advise that exhibitors take advantage of this final site visit before the event. Kindly note that exhibitors who participated in the first site visit are more than welcome to join us again this November. Registration for the official exhibitor site visit is available online through the website www.wgc2009.com.

Please do not hesitate to contact your World Gas Conference organising team if you have any questions. The contact details are given in Table 2. All of us on the NOC look forward to welcoming you to Argentina.

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

RIGHT
Table 2.

● 2nd Official Exhibitor Site Visit

The site visit is a great opportunity to get a flavour of the venue and the splendid hospitality of Buenos Aires. Exhibitors will be given a presentation on the progress of organising WGC 2009, tour the conference and exhibition facilities, and also have the opportunity of arranging an individual meeting with one of the major suppliers who will help to make this event such a success.

The site visit will take place at La Rural Congress & Exhibition Centre in Buenos Aires on November 20-21. The event will start with a presentation of the following topics:

- WGC 2009 general schedule;
- An update on the Conference Programme;
- Buenos Aires – city and hotels;
- La Rural floor plan and extension;
- Room sessions;
- Advertising your participation;
- Sponsorship and catalogue advertising;
- Where we will be promoting WGC 2009;
- Online exhibition manual; and
- Invoices and payment schedules.

There will then be a guided tour of the conference and exhibition venue. The second day will be

CONTACTS

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COORDINATION COMMITTEE PROGRESS REPORT

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Introduction and Key Developments

By Roberto Brandt and Andrés Kidd

The following Progress Report provides an outlook of the situation of the projects embarked upon by IGU's five Working Committees (WOC), four Programme Committees (PGC) and two Task Forces (TF), while entering the last year of the 2006-2009 Triennium.

As on previous occasions, the report includes the status of the special projects engaged in for this Triennium, developed by means of additional efforts from the Technical Committees mentioned above, supported by experts specialised in specific topics, and enriched by a productive exchange with external organisations which have a close relationship with IGU.



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

● Technical Committees: Main highlights

Figure 1 shows the membership evolution of the Technical Committees during the first two-thirds of the Triennium, ending with a new record of 751



The fourth Coordination Committee meeting was held in Port of Spain, Trinidad & Tobago.

TECHNICAL COMMITTEE MEMBERS as at January 2008

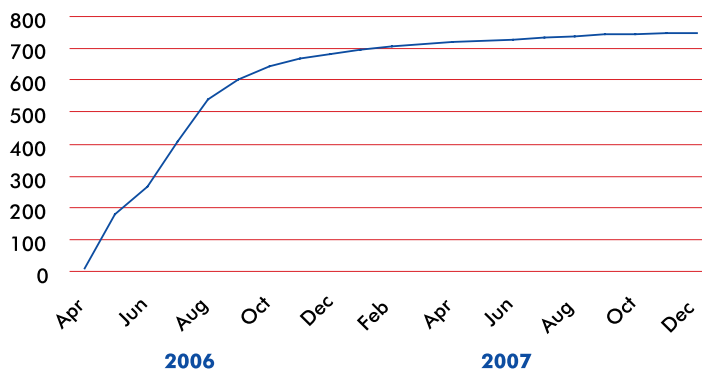
WOC 1 – Exploration and Production	50
WOC 2 – Underground Gas Storage	61
WOC 3 – Transmission	95
WOC 4 – Distribution	89
WOC 5 – Utilisation	104
PGC A – Sustainable Development	57
PGC B – Strategy, Economics and Regulation	114
PGC C – Developing Gas Markets	46
PGC D – LNG	102
Task Force Research & Development	23
Task Force Gas Market Integration	10
Total	751

experts from all over the world. Though as expected the latest inflow has been small – which at this stage of the work progress is preferable – it should be remarked that the latest newcomers are providing a very valuable contribution due both to their expertise and their regional reporting perspective.

The adequate global coverage achieved is shown in Figure 2, while Table 1 gives the number of members in each Committee. For quick reference, we have detailed in Table 2 (over) the Study Groups in which the Technical Committees have been divided, listing the respective topics which are being developed, as established in the 2006-2009 Triennial Work Programme (TWP). The full version of this document is available on the IGU website.

Our fourth Coordination Committee (CC) meeting was held on March 27 in Port of Spain, Trinidad & Tobago, where the representatives from each Technical Committee, together with the IGU Gas Marketing Committee (IGM), provided a report on the progress of their

EVOLUTION OF COMMITTEE MEMBERSHIP



technical work, which is summed up in the sections that follow.

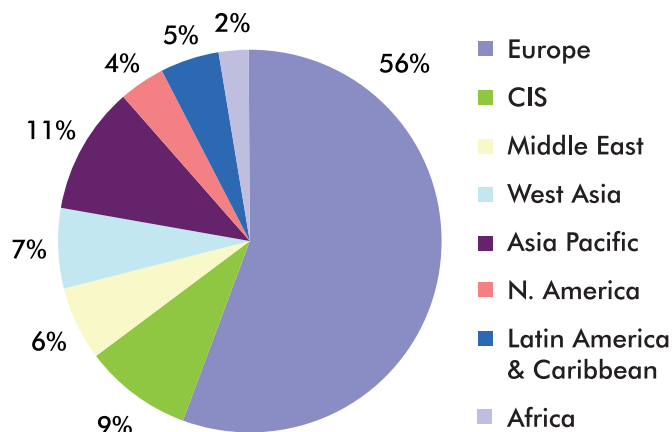
During this meeting there was also a very productive discussion on several key issues related to the World Gas Conference to be held October 5-9, 2009, in Buenos Aires (WGC 2009), including the programme content, the physical layout, and particularly the topics of the Call for Papers, which was launched on June 1 as planned. Regarding the latter, we look forward to your submissions

ABOVE LEFT
Table 1.

ABOVE RIGHT
Figure 1.

BELOW
Figure 2.

GLOBAL COVERAGE





RIGHT
Table 2.

STUDY GROUPS AND TOPICS FOR THE 2006-2009 TRIENNIUM

<i>Committee</i>	<i>Study Group</i>	<i>Topic</i>
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.

Pan American ENERGY

Exploration and Production in the Southern Cone



The main objective pursued by the **Czech Gas Association** is to provide high-quality technical and managerial support for the reliable and effective development of the gas industry in the Czech Republic



To achieve this objective,

1. CGA supports activities enhancing the image of natural gas as an energy-efficient and environmentally-friendly fuel;
2. CGA supports the transfer of latest information from all over the world to the Czech Republic;
3. CGA has represented the Czech Republic in the IGU since 1932, and takes an active part in its activities; it also co-operates with other European and global non-governmental organisations;
4. CGA represents the Czech gas industry in respect of the development of legal and technical regulations, particularly their alignment with the relevant EU legislation;
5. CGA is a publisher of the „PLYN“ (Gas) journal, the only gas industry periodical in the Czech Republic (published since 1921, circulation 3,000) monitored by worldwide Chemical Abstracts.



before the deadline of February 1, 2009, as well as to the fruitful exchanges these will generate at WGC 2009.

● **Progress on special projects**

The 2030 Natural Gas Industry Outlook (2030 NGIO) study has reached a critical point, following the input from the Technical Committees which has addressed the key issues for a strategic analysis of the global natural gas industry for the next 25 years.

By the closing of the edition of this magazine, the information was being processed by the Management Team of the study (comprising by the leaders of the CC and PGC B and an external consultant), and the initial findings were being submitted for review and challenge to the Steering Committee, composed of well-known industry experts. During the second half of 2008 we will be reverting to the Technical Committees – and possibly other sources – to work on possible gaps and consistency issues.

The CO₂ mitigation project, launched as from the May 2007 Joint Committee Meeting involving WOC 1 (Exploration and Production), WOC 2 (Storage), WOC 3 (Transmission), WOC 5 (Utilisation) and PGC A (Sustainable Development) is underway, with the support of experts on the topic to coordinate the input from the Committees and prepare the deliverables for WGC 2009.

In line with IGU's Mission, an initiative on Best Practices Ideas and Proposals was launched, led by Task Force R&D, both through direct invitation to all the membership of the Technical Committees, and through a special feature in the Call for Papers. The objective is to identify a representative set of best practices that encompasses the whole chain of the gas industry, in time for WGC 2009, with a view to continuing this initiative in future Triennia.

Following a fruitful exchange with a number of external organisations with whom IGU is in close collaboration, WOC 5 has developed the first model of the IGU Energy Efficiency Indicators (IEEI). The model is a reference tool for immediate application, with the possibility of expanding its scope in the future. The prototype will possibly be introduced to delegates attending the IGU Council meeting in Korea in September, and will be officially presented during WGC 2009.

Finally, in line with one of the strategic guidelines of the TWP, the Task Force on Gas Market Integration (TF GMI) – a small group of professionals with a highly strategic perspective, from all major world gas regions – is conducting an extensive research of several case studies around the globe, with the objective of developing the first set of IGU's "Guiding Principles for Gas Market Integration" by the end of 2009.

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

IGU's 2006-2009 Triennium will end at the 24th WGC, 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 (launched) |
| ● 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.



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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, and 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 4,500 metres], shallow [less than 500 metres], high pressure/high temperature and those containing sour gas.

Exploration and production in all these areas is expected to become increasingly significant for the global gas resource base. Moreover, with environmental issues high on the industry's agenda, WOC 1 is participating in the Joint Committee Project on CO₂ mitigation to provide input from the upstream sector.

There have been a few changes in membership since the last progress report. Nikola Sechkariov has joined from Overgas in Bulgaria, IGU's latest Charter Member, while the Czech Gas Association has nominated Jirí Buchta to substitute for Ivan Pagáč, and the Serbian representative, Branislav Tomović, has left the Committee.



ABOVE AND OPPOSITE WOC 1's fourth meeting of the Triennium was hosted by E.ON Ruhrgas in Essen.

WOC 1 now has 50 members from 23 countries in Africa (three), Asia-Pacific (seven), West Asia (four), the CIS (seven), Europe (19), Latin America and the Caribbean (four), North America (three) and the Middle East (three). Two of them (from China and Hong Kong) are corresponding members.

The fourth meeting of the Triennium was hosted by E.ON Ruhrgas in Essen, Germany, March 4-6, and 16 delegates attended.

After the formal opening and greetings, business started with a presentation on E.ON Ruhrgas by Dr Jürgen Lenz, Member of the Board. The presentation looked at current conditions and future prospects for the one of the largest European gas suppliers and transmitters, dealing with topics such as gas procurement, sales, storage and distribution. Dr Lenz also covered the main directions of the company's R&D work (biogas, energy efficiency and CO₂).

This was followed by two presentations. WOC 1's Secretary, Sergey Leonov, briefed delegates on the October 2007 meetings of the Council, Executive Committee and Coordination Committee, while the Chairman, Vladimir Yakushev, gave information on the Joint Committee Project on CO₂ mitigation and WOC 1's involvement. So far, three meetings have been held relating to this project – in May and October 2007 and January this year.

The third part of the meeting was dedicated to reports from the Study Groups. The leaders reported that their work since the last meeting had concentrated on case studies and questionnaires, and that members of both Study Groups had sent answers for the WOC 1 input to the *2030 Natural Gas Industry Outlook* study to Kamel Chikhi who is coordinating this work.

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

Leader: Dominique Copin, Total, France

For mature areas and the deep offshore sector, the



members present supported proposed collaboration with Wood Mackenzie and the type of presentation: three graphs for each country.

As regards Arctic areas, the intention is to identify the fields and describe the challenges. It was agreed that the Yamal Peninsula should be included along with the Barents Sea, Alaska and Canada.

As regards gas monetisation, it was shown that there had been little progress for the last two years, mainly due to cost increases. Careful consideration of the future of these projects is needed because of the great uncertainties on costs.

The issues of contacts with Wood MacKenzie (which Dominique Copin had contacted for some review materials) and data processing were also discussed.

SG 1.2 Difficult reservoirs and unconventional natural gas resources

Leader: Kamel Eddine Chikhi, Sonatrach, Algeria
Work is underway on the report, which is divided into the following topics:

- Resources base – endowment;
- Importance of technology progress;
- Unconventional gas supply – present status;
- Economics – resource costs, market prices, operators' margins;



- Environment; and
- Outlook.

Members were encouraged to identify their area of contribution according to the topics.

Both presentations were followed by intensive discussions. The presentations of the Study Group leaders and other materials are available from the WOC 1 section of the IGU website.

Apart from the usual discussion in Committee, the two Study Groups held their separate meetings.

During the SG 1.1 session, Dominique Copin summarised the progress of work and allocated responsibilities for the countries/regions (Argentina, Brazil, the Gulf of Mexico, Indonesia, Malaysia, The Netherlands, Norway and the UK) and for gas monetisation and Arctic areas. Russia was added, but it was felt that several areas should be defined. Those members who had not able to attend the previous WOC 1 meeting were welcomed to join the active members' list, especially for the Gulf of Mexico and Russia.

During the SG 1.2 session, Kamel Chikhi presented his vision for further work on the Study Group's report and allocated responsibilities for the various sections.

Kamel Chikhi is also the Vice Chairman of WOC 1 and he started proceedings of the fourth part of the meeting by updating delegates on the progress made so far on the Committee's contribution to the 2030 Natural Gas Industry Outlook study.

Next on the agenda was the Call for Papers for WGC 2009 with the following topics:

- Gas geology;
- Searching of gas fields;
- Exploration and appraisal of gas fields;
- Reservoir management;
- Production and processing;
- Unconventional resources and technologies for their exploration and production; and
- CO₂ injection for enhanced oil (gas) recovery.

It was decided to add themes such as stranded reserves and ecological solutions in the upstream

sector. In respect of suggestions about invited papers for WOC 1 sessions at WGC 2009, it was decided that two main Study Group sessions will be organised with three or four papers from the most active contributors to the Study Groups and one or two external papers from well-known experts in the particular area of study.

Internal/external relations

In terms of internal relations, WOC 1 interacts with WOC 2, WOC 3, WOC 5 and PGC A concerning CO₂ mitigation. WOC 1 collects information on best practices and all members are encouraged to make electronic submissions of examples of best practices in their companies and organisations. WOC 1 is also gathering information by means of a questionnaire for the Committee's input to the 2030 Natural Gas Industry Outlook study.

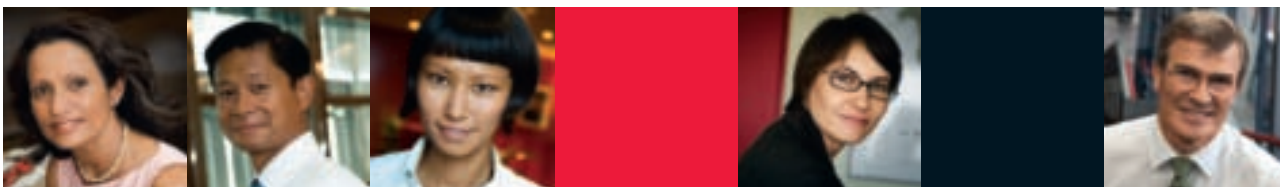
As regards external relations, WOC 1 members participated in the J. Fleming International Conference on Unconventional Oil and Gas Resources (which was held in The Netherlands in January) and the International Institute for Applied Systems Analysis (IIASA) Workshop on the Vulnerability and Opportunity of Methane Hydrates (which was held in Laxenburg, Austria, in March. WOC 1 members also helped prepare the programme for the 19th World Petroleum Congress in Madrid, Spain, June 29-July 3.

Future plans

At presstime the next meeting of WOC 1 was due to take place in Kuching, Malaysia, September 16-19. The sixth meeting is planned to be held in Vienna, Austria, in the first quarter of 2009.

● **Working Committee 2 – Underground Gas Storage**

WOC 2's work in the current Triennium is focused on gathering new information to update the underground gas storage (UGS) database, to map and analyse the development of UGS technology and to provide information about intelligent UGS as we



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Egypt



Egyptian LNG
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Train 2 USD 880 Million

LNG Export Facility

Financial Advisor & Mandated Lead Arranger

United States




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A technical tour for WOC 2 members was hosted by RAG at the Haidach UGS facility.

know that the future belongs to the latest IT technology, efficiency and remote control.

Since the last progress report WOC 2 has gained a new member from Bulgaria but lost representatives from Italy and Norway.

The fourth meeting took place in Salzburg, Austria, April 16-18, and 23 delegates attended. As usual a workshop was organised to precede the main meeting. The topic of the workshop was “New Technologies for Old Wells”. Many interesting contributions were presented by our members and also experts from consulting companies. All contributions are available via the WOC 2 section of the IGU website.

Prior to this the three Study groups had held their meetings. The SG leaders reported in the main part of the meeting on the status and progress of their groups.

SG 2.1 UGS database

Leader: Joachim Wallbrecht, BEB GmbH, Germany

- Questionnaire feedback – limited;
- Contact with IEA and GSE for cooperation;

- The database should be extended to include digital pipeline maps and existing gas demand prognosis;
- Expected results: database up-date, visualisation of UGS data – world map, glossary of relevant terminology, trends in the UGS sector.

SG 2.2 UGS technology improvements

Leader: H  l  ne Giouse, Gaz de France

- The questionnaire and available responses were presented;
- Work will be done to assess how to proceed with analysis;
- Contributions to the 2030 Natural Gas Industry Outlook study were discussed.

SG 2.3 Intelligent UGS

Leader: Georg Zangl, Schlumberger Information Solutions, Austria

- Available responses to the questionnaire have been discussed;
- The questionnaire will be extended to salt caverns.



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During the meeting many topics were discussed. As our members work together with experts from other WOCs and PGCs on the CO₂ sequestration project, Jacques Grappe spoke about WOC 2's contribution to this. The second project WOC 2 is involved in is the 2030 Natural Gas Industry Outlook study. Helene Giose gave a presentation on the latest status and progress of this study.

Finally, there was a broad discussion of issues relating to the forthcoming World Gas Conference. Members discussed the Expert Forums, Technical Sessions and the format of WOC 2 contributions to WGC 2009, while Andrés Kidd, CC Secretary, gave valuable information about the organisation of the Conference and the options for rooms and presentations.

As a part of this meeting a technical tour was organised and hosted by Rohöl-Aufsuchungs Aktiengesellschaft (RAG) at the Haidach UGS facility, which is Austria's largest.

Future meetings

The next meeting will take place in Paris, France, October 6-7, and the topic for the workshop will be "Numerical Applications for UGS – from E&P to Dispatcher". The meeting has been scheduled just before the IGU Research Conference (IGRC 2008) to allow WOC 2 delegates the opportunity of attending the IGRC Congress to learn about the latest developments in terms of research and new technologies in the gas industry.

The sixth and last meeting in this Triennium will be hosted by our Russian colleagues from Gazprom and will be held in St Petersburg in May 2009.

● **Working Committee 3 – Transmission**

WOC 3 held its fourth meeting of the current Triennium in Buenos Aires, the vibrant capital of Argentina, on March 11. The previous day the three Study Groups held their meetings in parallel. Transportadora de Gas del Sur SA (TGS) was an excellent host and there were 36 participants out of 64 nominated members.

Beside the progress reports of the Study Groups, the preparation of the Call for Papers for WGC 2009 was a main item on the agenda. After defining the content of the Call for Papers, WOC 3 also set up a papers selection committee which has 10 members.

SG 3.1 Impact of regulation on gas transmission, safety and security of supply

Leader: Marinus Kornalijslijper, The Netherlands
Based on the results of a questionnaire distributed amongst the WOC 3 members in June and July 2007, a draft Study Group report has been prepared. SG 3.1 concludes that from the gas industry's point of view there will be a big threat to safety and continuity of supply within a decade as a result of inappropriate or excessive regulation. To increase the acceptance of these results by people



The venue for WOC 3's fourth meeting was the Hotel Emperador in Buenos Aires.



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outside the gas industry such as regulators and governmental bodies, the Study Group recommends the employment of an independent consultant to review the report and to present the results at WGC 2009.

SG 3.2 Review of new technologies in pipeline and construction monitoring

Leader: Jorge Bonetto, Argentina

SG 3.2's objective is to develop a consensus on the technical needs and challenges of future R&D and to support the exchange of information among gas industry experts. To this end the main threats in the different geographical areas have been identified, and Study Group members have discussed the evaluation of new tools and methodologies available in the gas transmission sector to manage these threats. The further work of SG 3.2 and the report for WGC 2009 will focus on the threats coming from third party damage and all types of corrosion. New technologies to react to these challenges include the so-called threat scan method, remote-controlled aircraft for pipeline patrolling and upgrades to the susceptibility of detection methods for stress corrosion cracking (SCC).

SG 3.3 Contribution of gas transmission to climate protection and sustainable development

Leader: Sigve Apeland, Norway

SG 3.3's work and its report for WGC 2009 will focus on noise and the release of CO₂, CH₄, and NO_x as the main environmental impacts of a gas transmission system. In the remaining time of the Triennium the Study Group will identify best practices to minimise the environmental impacts of the chosen factors. The identification process will also be accompanied by another questionnaire among the WOC 3 members.

Approximately a year before the 24th World Gas Conference, it can be stated that WOC 3 so far is fully on schedule to meet the objectives set.

WOC 3 likes to include a technical visit as part of its meetings and TGS hosted a visit to the

Gutierrez maintenance base. TGS staff provided a very interesting insight into the techniques they use in pipeline maintenance and how they run their test and training facilities.

Future meetings

At presstime the next meeting was due to take place in Graz, Austria, September 9-11. The sixth WOC 3 meeting will be held in Kuantan, Malaysia, April 20-22, 2009.

● **Working Committee 4 – Distribution**

WOC 4 has 91 members from 34 countries and its fourth meeting of the 2006-2009 Triennium was hosted by Gaz reseau Distribution France (GrDF) in Paris, France, April 15-17. WOC 4 Chairman Jeremy Bending (UK) welcomed 41 members from 25 countries.

The meeting was attended by Roberto Brandt, CC Chairman, who addressed members on the work of IGU and preparations for WGC 2009. Participants and guests also enjoyed a social programme which included wine tasting and dinner at the Eiffel Tower. The Committee would like to thank Jean-Yves Pollard, Samir Akel and Marie-Hélène Maisonneuve for their excellent organisation of all the events.

The next WOC 4 meeting will be hosted by the Czech Gas Association in Prague, Czech Republic, October 6-8. This has been scheduled so members planning to attend the IGU Research Conference (IGRC) in Paris, October 8-10, should be able to attend both events in the same week.

By analysing the information provided from the web-based questionnaire hosted by GHD Consulting, good progress is being made by all three Study Groups against their original terms of reference.

SG 4.1 Asset management

Leader: Andreas Hennig, Germany

The Study Group has identified a number of best practices in asset management and risk priori-



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WOC 4's web-based questionnaire is hosted by GHD Consulting.

sation for the management of gas distribution networks. These address the safety and economic challenges of maintaining and replacing iron and steel pipe systems and distribution control and storage equipment.

SG 4.2 Leakage reduction

Leader: Steve Vick, UK

Findings to date indicate that the replacement of iron and unprotected steel mains is the key contributor to leakage reduction, and that the rate of reduction is directly related to the replacement rate. There appears to be an increasing occurrence of intervention by national regulators to enforce replacement and/or leakage reduction programmes. The use of pressure management as a means to address leakage seems to be limited to a small number of operators.

SG 4.3 Precautions to reduce third party damage

Leader: Kevin Knapp, USA

Operators' procedures for third party damage control are significantly driven by local legislation and historic practice or incidents. The effectiveness and potential costs of the various measures

adopted by respondents are being examined by the Study Group. It appears that education and publicity within the construction industries is an effective means of reducing the risks of pipeline damage, together with enforcement of regulations that require excavators to take reasonable care to protect buried plant.

Reports from all three Study Groups will be provided to WGC 2009.

Future meetings

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

- October 6-10 Prague, Czech Republic;
- March 11-13, 2009 Sarajevo, Bosnia & Herzegovina; and
- 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.



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IGU's Vice President, Datuk Abdul Rahim Haji Hashim, addresses the WOC 5 meeting in Penang.

The Committee has just over 100 members with 32 countries participating through full membership and a further four 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.

Following gatherings in Copenhagen, Tokyo and Moscow, WOC 5's fourth meeting of the Triennium was held in Penang, Malaysia, February 20-22, with some 35 participants. It was held in

parallel with PGC C's meeting and the whole event was hosted by the Malaysian Gas Association.

In the three Study Groups work has consisted of continuing the action already undertaken and reported on in previous magazines; what is really new is that we have now actively started to prepare for the 24th World Gas Conference. We will therefore focus here on the trends identified for WGC 2009.

SG 5.1 Industrial utilisation

Chairman: Guy Verkest, Belgium

Vice Chairman: Tatsuo Kume, Japan

- Rational use of energy. Analysis of barriers to increasing efficiency and reducing natural gas demand. Due to the very important saving potential in countries such as Russia this might be one of the main topics.
- Integration of CHP in the industry.
- Natural gas and renewable energy. For this topic a platform was created between SGs 5.1 and 5.2.
- Gas quality and impact on utilisation.

SG 5.2 Domestic and commercial utilisation

Chairman: Martin Wilmsmann, Germany

Vice Chairman: Bernd Utesch, Germany

- Micro combined heat and power (μ -CHP).
- Natural gas and renewables.
- IGU Energy Efficiency Indicators (IEEI) with IEA. We now have a demo version of the software that will be demonstrated at WGC 2009 (see *Figure 1* over). The IEEI can for example be used as a policy instrument to determine the impact of gas technologies on reducing CO₂ emissions country by country.
- Gas quality and impact on utilisation

SG 5.3 Natural gas vehicles

Chairman: Davor Matic, Croatia

Vice Chairman: Eugene Pronin, Russia

The Study Group will focus on the items that were developed during the Triennium and will liaise with IANGV to ensure that each other's work is comple-

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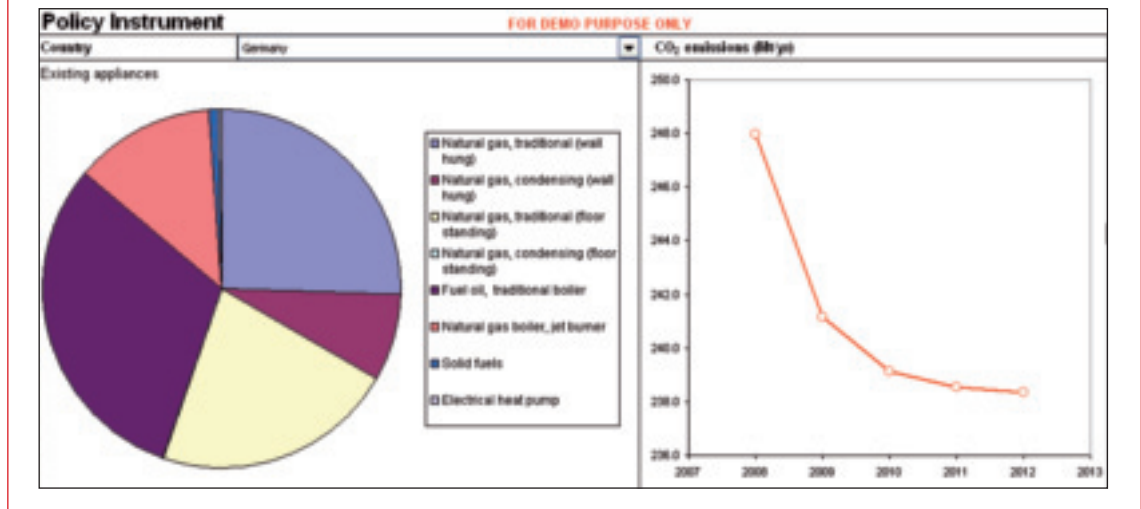
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Figure 1.

mentary. So far the following topics can be envisaged:

- Scenarios of NGV market development by countries supported by models/methane corridors;
- Support of standardisation;
- NGV technology breakthrough; and
- State of the art of the technologies and real life experiences.

Workshop on μ -CHP

Together with Marcogaz and GERG, WOC 5 organised a workshop in Paris in May. It was hosted by

Gaz de France and attended by 80 people with several WOC 5 speakers. There has been a lot of positive feedback including this comment from the Managing Director of the European Association for the Promotion of Cogeneration (COGEN Europe), Dr Fiona Riddoch, in a recent letter to members:

“The successful meeting of May 28-30, which brought together representatives of the gas industry and micro CHP industry and where COGEN Europe participated along with the European Commission, showed the common strategic interest of the gas and micro CHP industry to promote the sector’s growth. It sets a basis for ongoing wider cooperation between micro CHP manufacturers and the gas industry.”

Full details of the workshop are given in a separate article on pages 154-165. We are discussing a follow-up Round Table at WGC 2009.

● Programme Committee A – Sustainable Development

PGC A held its fourth meeting in Yamburg and Novy Urengoi in Western Siberia, Russia, February 26-29. A total of 18 delegates out of 57 nominated members attended. The host was Oleg Andreev, Director General of Gazprom Dobycha Yamburg, who had prepared an impressive programme. The plenary



Taking a break during the micro CHP workshop FROM LEFT TO RIGHT are Marc Florette (GdF/GERG/IGU), Guido de Wilt (EC/DG TREN) and Daniel Hec (Marcogaz/WOC 5).



PGC held its fourth meeting in Western Siberia. (ABOVE) Delegates pose for a group photo at -30°C . (BELOW) The Chairman (left) and Secretary (right) at the comprehensive gas treatment unit (UKPG-3S) near the Zapolyarnoye field.

meeting and Study Group sessions took place at the Gazprom offices in Novy Urengoi, while technical visits were made to the giant gas fields and installations in the area, and an excursion was arranged to visit the indigenous people.

The Committee has a core group of active members. The members attending the meetings are very dedicated in their work to make a meaningful contribution to WGC 2009. However, it is a challenge to get input from the nominated members not attending the meetings. Sustainable development and climate change are the important issues covered by PGC A, and greater involvement from more of our members is strongly wanted.

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 sent out questionnaires to measure accordance with the Guiding Principles for Sustainable Development and to what extent the guidelines are beneficial for IGU members. The responses were of high quality covering important

areas and companies, but fewer in number than expected. A report based on the responses has been drafted and Study Group members are now in the processing of commenting on the draft.

SG A.2 Case studies on the reduction of greenhouse gases

Leader: Elbert Huijzer, Nuon Technology, The Netherlands

Work is underway on the Joint Committee Project looking at the contribution of the natural gas



Full value chain policy studies and decision support to the gas sector



► **Background**

Natural gas in the Netherlands is of the highest strategic and economic importance. The approach to national resource base optimisation, to investment decision support and to regulatory policy-making by TNO, as a main advisor to the national gas sector, is to study and model the full gas value chain. This includes not only the geological and infrastructural conditions, but also the interactions between the various actors/competitors, state monopolists and regulatory authorities. Rather than making projections based on a limited scope of the relevant environment, it is believed that modelling the full system is a better approach for studying changes in part of the system.

In complex systems, such as the liberalised gas sector, it is generally non-trivial to assess the impact of individual measures. The reason is that the complex interactions, with short-term and long-term feedback loops, are difficult to model and therefore render traditional, limited-scope model projections questionable. Everything seems to influence each other under different response times, and decision-makers have to face a lot of uncertainty in their quantitative projections as a result of poorly understood system dynamics.

Below we discuss a few examples that illustrate the complexity of the system and the difficulties in understanding the potential benefits and risks of individual measures.

► **National gas resource base optimisation**

Through its advisory function to the Dutch Ministry of Economic Affairs, TNO maintains the national subsurface data repository. With some 160 gas fields producing into the national grid and a similar amount of small, undeveloped prospects, it is important to understand the relationship between ageing infrastructure, pipeline/facility ullage, and timely field exploration & development. Because of the marketing considerations for these small accumulations, this requires a total-system approach.

► **Gas compositional considerations for exploration in a mature basin**

Any new gas has to be accommodated in the total system. In The Netherlands, the gas compositions from the different gas fields producing into the national grid have to be carefully balanced. Therefore, the gas composition of exploration prospects, including their production streams, needs to be

predicted to test their impact on the total system. This is even more important as the future flexibility of the system diminishes because of ongoing gas field depletion.

► **Underground Gas Storage: arbitrage vs. rental contracts**

Understanding how a new UGS fits in the local or regional market and which opportunities and risks exist, can only be achieved using a holistic approach. Exploiting price differentials by arbitrage can be more beneficial than fixed rental contracts. Combinations of both strategies can also be considered.

► **Gas exchange development**

Understanding how to stimulate the trade on the gas exchange, at the expense of the OTC market (Over The Counter) and/or long-term contracts, depends on the interactions in the total system. The reliability of the price information generated at a super-critical trade on the gas exchange may be beneficial to all and outweigh the additional transaction costs.

► **Third Party Access**

The various TPA regimes influence the investments made by companies. Predicting the company behaviours and their impact on Security of Supply again requires a total-system approach.

TNO is currently developing new methods to research questions such as described above. Prototype models, EXPLOSIM and ENETSIM, are operational and ready to simulate the complex gas market. While doing so, it is fully realised how unverifiable modelling assumptions can influence model output. Indeed, this sensitivity of model output to model detail is often heard as the main scepticism towards complex models. But when done comprehensively and correctly, such modelling studies can be insightful and help decision and policy makers to test the robustness of alternative courses of action in a much more rigorous way. The models can also serve as a communication platform for the various stakeholders.

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industry to CO₂ mitigation. SG A.2 is focusing on finding case studies on the reduction of greenhouse gases to support the report, and Elbert Huijzer is the contact person with the project steering committee (see below).

SG A.3 Post-Kyoto concept

Leader: Klaus-Robert Kabeliz, E.ON Ruhrgas, Germany

SG A.3 is examining long-term action to combat climate change. Members are looking into a possible framework for action after the Kyoto Protocol ends in 2012. The Study Group is also considering how IGU can be more visible in important arenas like the COP meetings (Conference of the Parties to the UN Framework Convention on Climate Change). It is important that the gas industry uses its expertise to contribute to the debate.

Contribution of the natural gas industry to CO₂ mitigation

PGC A is in charge of a study on how the natural gas industry can contribute to CO₂ 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.

The main outcome of this work will be a detailed report. In addition a colourful and informative brochure might be produced. The aim is to contribute to discussion of how the gas industry can contribute to CO₂ mitigation, and also to get the message out to the media and general public.

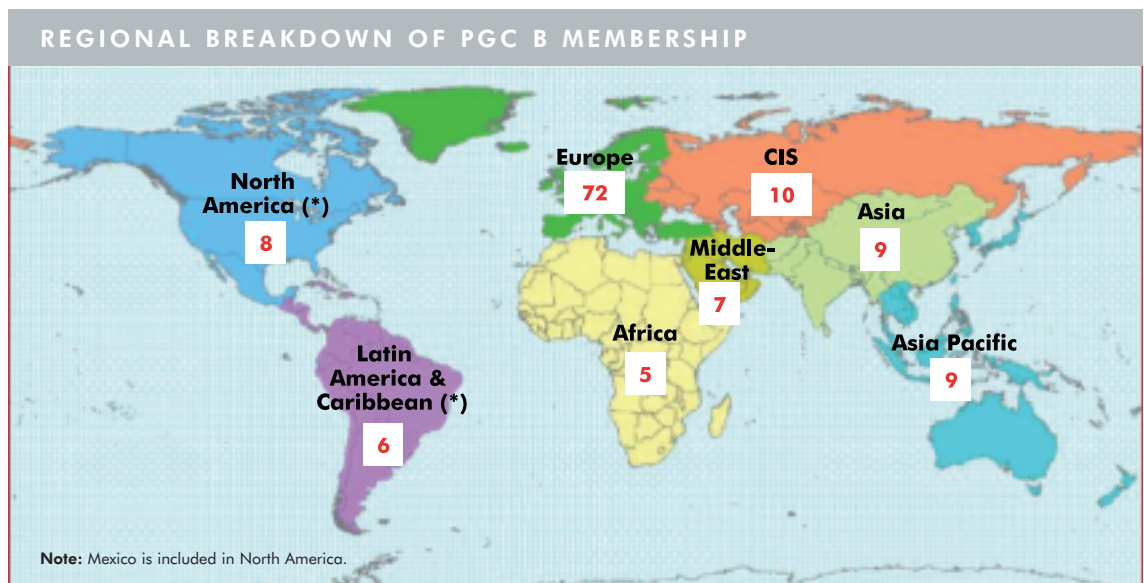
● Programme Committee B – Strategy, Economics and Regulation

PGC B’s membership has increased to 126 since the last progress report. The new members include representatives from Russia’s Gazprom and an expert from the Chinese gas market. Although European gas associations and companies account for nearly 60% of delegates, all gas regions are represented on the Committee (see Figure 2).

Since the last progress report, one meeting has been held, in Amsterdam, The Netherlands, April 10-11. This was not a plenary but focused on two objectives:

- To progress with the work of the Study Groups; and
- To provide and coordinate inputs for the 2030 Natural Gas Industry Outlook study. (Answers to the study questionnaire were submitted to the Vice Chairman shortly after the meeting.)

RIGHT
Figure 2.





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