



News from Organisations Affiliated to IGU

In this issue we have reports from the Gas Technology Institute (GTI), the Energy Delta Institute (EDI), NGV Global (International Association for Natural Gas Vehicles) and the Russian National Gas Vehicle Association (NGVRUS).

● Meeting Global Challenges, Providing Global Solutions

By Ron Snedic

In a dynamic global energy market, GTI is accelerating the delivery of sustainable energy solutions around the world. Global initiatives continue to address the increasingly complex energy and environmental pressures to reach a secure, abundant and affordable energy future using clean burning natural gas. Technological innovation and diversification through R&D and collaboration will be key in meeting these challenges.

GTI, a leading research, development and training organisation, has been providing economic value to the natural gas industry and energy markets by developing and deploying technology-based solutions for customers, industry and government for nearly 70 years. Our core focus is

to optimise the economics of the entire gas chain by expanding the supply of affordable natural gas and renewable energy, ensuring a safe and reliable natural gas infrastructure, promoting the clean and efficient use of energy resources, and addressing carbon management concerns.

An organisational strength is effective partnering through a focus on market-oriented results and solving the needs of our customers and constituents. From concept to commercialisation, GTI offers expert services that lead emerging technologies across market sectors at each phase of the technology development cycle.

Providing abundant, affordable and clean energy is necessary for a world demanding stable energy prices, energy security and solutions to the climate change challenge. Collaboration among industry, government and academia is crucial to providing new sustainable solutions.

Tapping the global potential

GTI's Exploration and Production (E&P) Sector is central to reduced production costs and generating the innovations required to unlock global unconventional gas resources in an environmentally friendly manner from shale, tight gas sands, coal-beds and gas hydrates. In one project, researchers are pursuing R&D efforts on New Albany Shale gas wells to increase the success rate and production viability – a project awarded best paper at WGC2009 in Buenos Aires. Results will be applicable to other gas shale formations such as the Marcellus, Woodford and Mancos as well as other low permeability gas-bearing formations in North America and around the world.

To ensure broader technology transfer and collaboration, GTI was able to foster a global network of industry experts at "Global Unconventional Gas 2010" (GUG2010) in Amsterdam. The conference was a success in the pursuit to exchange ideas on the enormous global potential of gas shale and other unconventional gas resources. Next March in Amsterdam there will be a

GTI CONFERENCES IN 2011

Dedicated GTI-led one-day session on unconventional gas at Gastech, March 2011, Amsterdam, The Netherlands



GUG 2011
Global Unconventional Gas 2011
Second half 2011, Asia

tcbiomass 2011
The International Conference on Thermochemical Conversion Science
September 2011, Chicago, IL USA



R&D and collaboration are central to GTI's work.

dedicated GTI-led one-day session on UCG at Gastech, and GUG2011 will take place in the second half of 2011 in Asia (visit www.gastechnology.org for more information).

Enabling renewable resources

GTI is exploring renewable energy resources by designing, constructing and operating advanced, low-cost, highly efficient and clean gasification systems. Our Gasification Sector is working on converting coal and biomass into alternative energy products, and on developing lower-cost processes for upgrading sub-quality gas.

In 2009, GTI gathered 250 registrants from 22 countries and 130 organisations together at "tcbiomass2009" in Chicago, IL to enable energy supply diversification and innovation. Industry, government and academia were able to share their knowledge on the topic of new research in thermochemical biomass conversion. We look

forward to hosting our second biannual conference, tcbiomass2011, next year.

Ensuring a safe and intelligent infrastructure

A robust supply of natural and renewable gas sources, combined with an intelligent energy infrastructure, will provide opportunities for enhanced end-use applications. Our Delivery Sector is working with industry to ensure the safe, reliable and efficient delivery of gas and provide solutions for regulatory compliance.

GTI, together with industry leaders, is developing a compelling roadmap for further integration of natural gas in the smart energy grid to enhance reliability and minimise the carbon footprint for utility customers. The strategic vision will be the foundation for technology development, infrastructure automation, an enhanced customer experience and simplified compliance, and will provide new opportunities to energy suppliers.

Exploring energy efficient solutions

Carbon management is among the top priorities of private industry, government agencies and any organisation seeking cost-effective, technology-based solutions for reducing environmental impacts. As a result, GTI's End Use Solutions Sector is working to advance development and deployment of high-efficiency utilisation technology to reduce costs, increase efficiency and offer new opportunities for natural gas.

One primary way to reduce carbon emissions is the direct use of natural gas in high-efficiency equipment. In one project, GTI is utilising a unique technology incorporating an advanced heat recovery system that offers up to 25% increases in steam generation efficiency and reduced footprints relative to their conventional boiler counterparts. Efficiency gains alone could result in total US manufacturing energy cost savings of approximately \$6 billion per year.

In another project, GTI and the City of Chicago are working to expand the presence of alternative



The GTI campus near Chicago, Illinois.

fuel vehicles and fuelling infrastructure. The project will deploy approximately 600 alternative-fuel and advanced technology vehicles (approximately 230 of which are NGVs), increase the use of alternative fuels, install infrastructure to support that use (16 new or upgraded CNG stations), provide training and create jobs. Vehicle and infrastructure deployments are expected to reduce carbon emissions throughout the Chicago region by almost 59,000 metric tons (equivalent to taking almost 11,000 cars off the road) and displace over 21 million gallons of gasoline.

Training for a sustainable future

The continuing introduction of new technologies, techniques and regulatory requirements into the natural gas industry means that education and training is an ongoing activity. The next-generation workforce needs high-quality and standardised training to help broaden their skill sets and effectively apply advanced products and technologies. Our knowledgeable instructors have trained more than 60,000 natural gas and energy professionals worldwide in gas production, transmission, distribution, marketing and LNG via an array of training options – from classroom courses and self-study programmes to e-learning and on-site classes.

Energy solutions... delivered

GTI is well-positioned to support expanding global energy needs. By aligning our research technology and deployment initiatives along the natural gas industry value chain – supply, delivery and end use – we offer a broader systems perspective for meeting these needs. We are addressing technical, economic and environmental challenges by leveraging our broad portfolio of technologies through contract and collaborative R&D services to bring innovative solutions to market. GTI is finding a greener way of using energy and helping to shape a clean energy future.

Ron Snedic is GTI's Vice President of Corporate Development. To find out more, please visit www.gastechnology.org or contact him at +1 847 768 0572, ron.snedic@gastechnology.org.

● Energy Delta Institute: Empower your Business, Share the Energy of Knowledge

By Tans van Kleef

EDI is the international energy business school in The Netherlands, which was founded in 2003 with a primary focus on natural gas. Indeed, our Institute is based on top of the Groningen gas field.

EDI's development has been rapid since 2003 and last year over 650 participants were welcomed

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to the range of Masters programmes, courses and in-house training programmes. I would like to take this opportunity to update you on how EDI is instrumental in bridging the knowledge gap in the industry especially now that many senior experts are starting to retire.

On July 1, 2010 Professor Catrinus Jepma stepped down as EDI President and I succeeded him. For the last 10 years I served as manager of the UNECE Gas Centre based in Geneva, Switzerland. Professor Jepma remains active as Scientific Director of the EDIaal programme. EDIaal is partly made possible by a subsidy granted by the Northern Netherlands Provinces (Samenwerkingsverband Noord-Nederland – SNN), together with the European Fund for Regional Development and the Dutch Ministry of Foreign Affairs. It is devoted to developing training programmes on the role of natural gas in a sustainable future.

EDI and IGU

The opportunity provided by IGU for EDI to become an affiliated organisation in 2008 was accepted with enthusiasm.

Today, EDI is involved in the activities of Task Force 1 “Building Strategic Human Capital”. This Task Force (TF) is an initiative of the Malaysian Presidency for the 2009-2012 Triennium following from one of the strategic guidelines, viz. “Ensure adequate human capacity to enable the growth and integrity of the [gas] industry”. This guideline fits in perfectly with the mission of EDI. Marius Popescu, a member of EDI’s Intelligence Unit, acts as an assistant to the secretary of TF1.

EDI courses

Given the increasing number of students, especially for our specific and in-house courses, the energy community has come to appreciate EDI as the platform for knowledge exchange. The continuously changing energy markets and the additional challenges resulting from the economic crisis force companies to consolidate but also to innovate in order to be better prepared for the future. Investing in continuing education to stay ahead of the competition is often seen as a prerequisite. Now that senior experts are starting to retire, the energy sector is confronted with the

EDI PARTNERS

Founding partners

In 2003, N.V. Nederlandse Gasunie, GasTerra B.V., OAO Gazprom and the University of Groningen founded the Energy Delta Institute. They were later joined by Shell in 2006 and RWE in 2007. These organisations are the founding partners of EDI. They are members of the Institute’s International Supervisory Board and meet annually, not only to discuss EDI’s results, progress and plans, but also to strengthen their mutual bonds.

Associated partners

To ensure our products and services meet the demands of the energy sector and are of the highest quality, EDI cooperates with a number of parties in the business and knowledge



ENERGY DELTA INSTITUTE
ENERGY BUSINESS SCHOOL

sectors. In order to realise our mission and vision, EDI is expanding its network of business partners, known as associate partners. Our present and future associate partners are active players in the international energy market. Currently, Electrabel, Essent, Dong and Energy Beheer Nederland (EBN) are associate partners.

Knowledge partners

The current knowledge partners of EDI are the University of Groningen, Delft University of Technology, Clingendael International Energy Programme (CIEP), Oxford Institute for Energy Studies, Institut Français du Pétrole (IFP), Gubkin University, Moscow State Institute of International Relations (MGIMO) and VNIIGaz.



EDI's International Supervisory Board meets annually – last year's meeting was held in Amsterdam on October 22, 2009.

possibility of a growing shortage of qualified personnel in the coming decades. The sector has only one choice and that is to invest in knowledge. EDI's main objective is to fill the knowledge gap and to contribute to the development of current and future energy professionals and managers to keep your organisation vital.

We are proud to have attracted more than 220 lecturers with wide ranging and in-depth experience from their active professional life within the energy sector. They are instrumental in transferring, through the EDI structured and supported programmes, the knowledge to succeeding generations of energy professionals and management.

Together with our partners we identify their educational requirements, and as a result we adapt our programmes to their specific needs. We constantly adapt our training programmes to the rapidly changing energy market circumstances. Most of our lecturers are in day-to-day contact with the main players that are at the forefront of – or even determining – the latest developments in energy markets.

Partner programmes

We are proud of our partners' support of our Institute and that we in return can contribute to their management development programmes. EDI

has chosen a network approach as good networks are to our mutual benefit, leading to more creativity and innovation (for the list of partners, (see box).

Executive education – European Business Congress FEP

On May 11, 2009, the first edition of the Fellowship Programme on Energy (FEP) started. This programme was initiated by the European Business Congress (EBC), whose President is Dr Alexei Miller, CEO of OAO Gazprom. It consists of 110 companies from 14 countries operating both in eastern and western Europe.

FEP is their most important programme in the area of educating talented managers for the energy industry. One of the main goals of the programme is to train the participants to become managers capable of facing the increasing challenges of the modern energy industry. EBC invited EDI to organise this programme in cooperation with the European School of Management and Technology (ESMT) in Berlin.

In June 2010, the second edition of FEP started with a first module hosted by Overgas in Sofia, Bulgaria. This module provided an overview of geo-political issues between the main energy suppliers in the European region and the key issues of oil and gas. The second module will be hosted by



OAO Gazprom and will cover the pros and cons of primary energy resources, such as nuclear, coal, gas and renewables. The third module will take place in Berlin and will provide participants with tools to improve their leadership skills. Different perspectives with respect to leadership for the future, such as a new geopolitical realities and international mindsets, will be introduced and discussed.

Executive education – customised programmes

During 2009/2010 EDI developed many new customised programmes. The so-called “Introduction to the energy market” programmes have played a major role in this process. The introduction programmes are developed to make new employees familiar with the gas value chain by gaining in-depth insights into the various dynamics and vital aspects of the energy market. EDI’s customised programmes are evaluated very positively and, more importantly, the participants encourage their colleagues to follow the programme as well. As a result, they feel more committed to their jobs and companies.

Another interesting request from one of EDI’s partners has led to the development of more specific programmes. Not only to offer energy specific knowledge but to combine this with business strategy practices and the development of managerial and personal skills. These integrated programmes are aimed at the energy business. An optimal balance between theory and practice is reached through these programmes. We make sure that we use selected trainers and lecturers who are not only providing participants with theory and concepts, but typical specific energy business practices and cases as well.

EDI knowledge hub

Via its knowledge hub, EDI also initiates a wide variety of knowledge and information activities to enhance insight into the energy business. The activities include research results in the field of business economics and business administration, various publications (including *EDI Quarterly*), the online

Latest Energy News (daily) at www.energydelta.org, conferences, seminars and roundtable discussions. The primary purpose is to share the “energy of knowledge” with leading energy businesses in the world and to empower energy companies.

In May 2010, EDI launched a unique Research Database consisting of two sections called the Energy Research Hub and Academia. These bring together some of the newest and most interesting research results in the field of business economics and business administration relevant to the energy industry

The Energy Research Hub contains research results primarily focused on the business side of the gas industry, which are collected from our knowledge partners mentioned earlier and other prominent research centres. The Energy Research Hub is updated every three months.

Academia provides an overview of some of the most recent PhD research in the field of energy with a focus on natural gas. A brief extract is provided summarising the research and its results. Contact details of either the author or EDI are provided in case one wants to have the full report. EDI is continuously looking for new PhD research to add to Academia.

Currently the Intelligence Unit is working on two new tools. Firstly a Gas Encyclopaedia is being developed, which combines the fragmented knowledge about the gas industry in a user-friendly way. The second tool under development is an interactive World Map for IGU, which is going to provide key natural gas statistics (reserves, consumption, production, storage capacity etc.) per country in a graphical way designed for easy reference. These tools will help our partners and others to remain updated on the latest developments within the gas field as well as being a useful source of reference.

Seminars, conferences and events

In 2010, EDI aimed to enhance the opportunities for “Sharing the Energy of Knowledge” thus



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Session 1 : Bringing Norwegian gas to Europe

Will Norway be a key supplier in the future gas supply mix in Europe? 2011 marks the 10th anniversary of Gassco.

Session 2 : Natural Gas in a low carbon Europe

Politically clean in Europe and dirty in Norway. Some say it is part of the solution, some say it is part of the problem.

Session 3 : Gas sources – origin and use

Can new sources of gas be unlocked? What is the potential in the European transportation sector?

Brian Bjordal
President and
CEO in
Gassco AS



Gas is a fantastic resource which must be recognised as a high-value natural product. It will most probably be the bridging fuel to an diversified, sustainable and affordable energy future with reduced global CO2 emissions. Idealists and realists may battle over our common energy future, and the debate will not be an easy one. But gas will be part of the solution.

The Norwegian Petroleum Society and the Norwegian Gas Association have been the proud hosts of The European Gas Conference since 1981. The biannual conference has all these years been a valuable meeting place for the European gas industry, underlining the importance of Norwegian gas exports to Europe. With the 16th conference, we are again pleased to invite you to Oslo where important issues related to the industry will be presented and discussed. Welcome to Oslo !



Gro Mjellem
General
Manager
Norwegian
Petroleum
Society

Organizer



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EDI organises a range of events including some targeted at young professionals. This one was held in conjunction with Gasunie in June.

providing its partners, (potential) participants and alumni with even more possibilities to increase their networking within the industry.

One of the new initiatives is EDI's first conference on the theme "Energy Transition meets Leadership", which will be held on October 12. We are honoured that speakers such as Hermann Scheer (President of Eurosolar), Gertjan Lankhorst (CEO of GasTerra), Maria van der Hoeven (the Dutch Minister of Economic Affairs) and Peter de Wit (CEO of Shell Netherlands) have agreed to contribute to the conference. This conference will offer a platform to air different types of opinions on this theme and lead to new insights, which participants will be able to take back to their day-to-day work.

EDI continues to grow; we are planning to offer more of these types of events in the near future.

Tans van Kleef is the President of EDI.

● IANGV Undergoes Its Own Revolution – New Brand, New Structure

By Brett Jarman

Our last item for the IGU Magazine highlighted the transport revolution currently underway around the world as a result of the increased use of natural gas as a fuel. We've since celebrated that

revolution at our NGV2010 biennial conference in Rome, Italy. At the same time we also completed an 18-month process which saw the Association undergo a review of our membership and governance structure and the adoption of a new brand. This review culminated in several major changes being approved by members to better position the Association as it moves into what is likely to be the most exciting decade the NGV industry will ever see.

New brand – NGV Global

Say hello to our new operating name and logo.



Originally approved in October 2009 (at our Council meeting in Donghae, Korea), we have now publicly announced and launched our new brand NGV Global. Our formal name for the Association will continue to be International Association for Natural Gas Vehicles Inc., but as we are no longer the only international association, due to the formation of several regional associations, we have adopted NGV Global as it better defines our "territory". Of course, it's also easier to say and is an improvement on the IANGV acronym, which doesn't roll off the tongue so easily. Our weekly newsletter of the same name, has now been renamed NGV Global News.

The globe in the new logo will be used for a range of applications so keep an eye out for it in its various forms.

New structure – membership and governance

Structural changes approved at our meetings in Rome include a wider range of membership options, more options for national or regional associations wanting to join our network, the establishment of a Board of Directors, and also a General Assembly, where all members can have a voice and an opportunity to influence the strategic direction of the Association.

NGV GLOBAL HONOURS DATUK RAHIM

Every two years the Association honours NGV Champions, those who have shown outstanding commitment to the NGV industry. This year, Datuk (Dr) Abdul Rahim Hj Hashim, known to most as the current President of IGU, was among the recipients.

Datuk Rahim was honoured for his role in developing the NGV industry in Malaysia (through his position in Petronas) but more importantly for his critical part in solidifying the

foundation for ANGVA (Asia-Pacific NGV Association). Datuk Rahim was the first elected President of the Association and was instrumental in obtaining the financial and in-kind support from Petronas which has allowed ANGVA to thrive from its base in Kuala Lumpur. ANGVA now has more than 80 members from across the region and has established itself as a significant institution in the NGV industry.

Members will now have a choice of joining us directly as "Corporate Members" or via one of our affiliated national or regional associations as "Corporate Associate Members". Associate Members will be entitled to most of the benefits available to Corporate Members. This level will suit most industry members but for those who want the extra benefits, such as increased voting rights, Board of Directors eligibility or enhanced listings in our business directory, they will be welcome to join us directly. We still strongly encourage national or regional association membership though and provide incentives (fee discounts) for those that do.

We have also introduced a new class of Sponsoring Members to acknowledge industry leaders taking part in our sponsorship programme. In recognition of their significant financial commitment to the Association, these leaders receive additional benefits including automatic Board of Directors entitlements. Companies interested in taking up a leadership position should contact me directly (see below for contact details).

More options for national and regional associations

One of the weaknesses of our Association, the low participation rate of national and regional NGV associations, has been addressed by lowering the

entry level for associations wishing to join our network. Currently less than half of the national or regional NGV associations operating around the world are members of NGV Global, with cost reportedly being the main barrier.

Under our new structure, associations can become an Allied Association for one third of the price previously charged. Associations can also take a higher level of membership (Affiliation) under which their members will become Corporate



Gabriele Gozzi, Representative of Consorzio NGV System Italia on the NGV Global Board and newly elected Chairman of NGV Global. Gozzi will remain in the Chair until NGV2012 in Chuncheon, Korea, October 2012.



Landi-Renzo chose NGV2010 to unveil their upcoming light duty dual-fuel natural gas diesel conversion system, believed to be a world first.

Associate Members of NGV Global. The entry price for this has also lowered and is structured in a way that gives NGV Global a more equitable return based on numbers of members.

IGU relationship embodied in the rules

We have also formalised our relationship with IGU, granting automatic membership entitlement within our rules and a permanent position on our Board of Directors. This is indicative of the importance of this relationship to our Association.

The revolution in action

All of these changes are designed to strengthen the Association as we move towards 2020. Our projections indicate growth to as many as 65 million NGVs on the road by that time so we need to be in a strong position to contribute to that advance. Issues that we will face will be much larger in scale and more critical to address as an industry body.

Specific outcomes of the changes will be:

- Broader representation of the industry by NGV Global;
- Increased participation in our international

network by national and regional NGV associations;

- Improved financial stability for the Association;
- Improved participation by members in NGV Global's strategic direction through our General Assembly and its associated sub-committees;
- Increased staffing and resources for NGV Global; and
- Improved decision making within the Association through clearer definition of the decision-making bodies.

Our next step as an Association is to complete and adopt a Strategic Plan for NGV Global. This process commenced last year but was put on hold while we resolved the underlying structural issues of the Association. I look forward to reporting more on this plan in future issues.

Join the club

The critical question gas industry members should ask themselves is; how can I be a part of this revolution and where does our business or organisation fit in? Membership is the first and most obvious step. If your country has a national NGV association, then that would be the best place to start. As the national, regional and global associations all have different functions and areas of focus, you might find it appropriate to join one, two or even all three.

It's a complex set of options but don't let that be an excuse for non-action. You can find our affiliated and allied associations listed on our www.ngvglobal.org website – and of course, we welcome your enquiries to join NGV Global directly.

Brett Jarman is the Executive Director of NGV Global (www.iangv.org – industry or www.ngvglobal.org – Association). He can be contacted at bjarman@iangv.org, tel: +61 2 6608 0011. To access weekly NGV industry news visit www.ngvglobal.com.

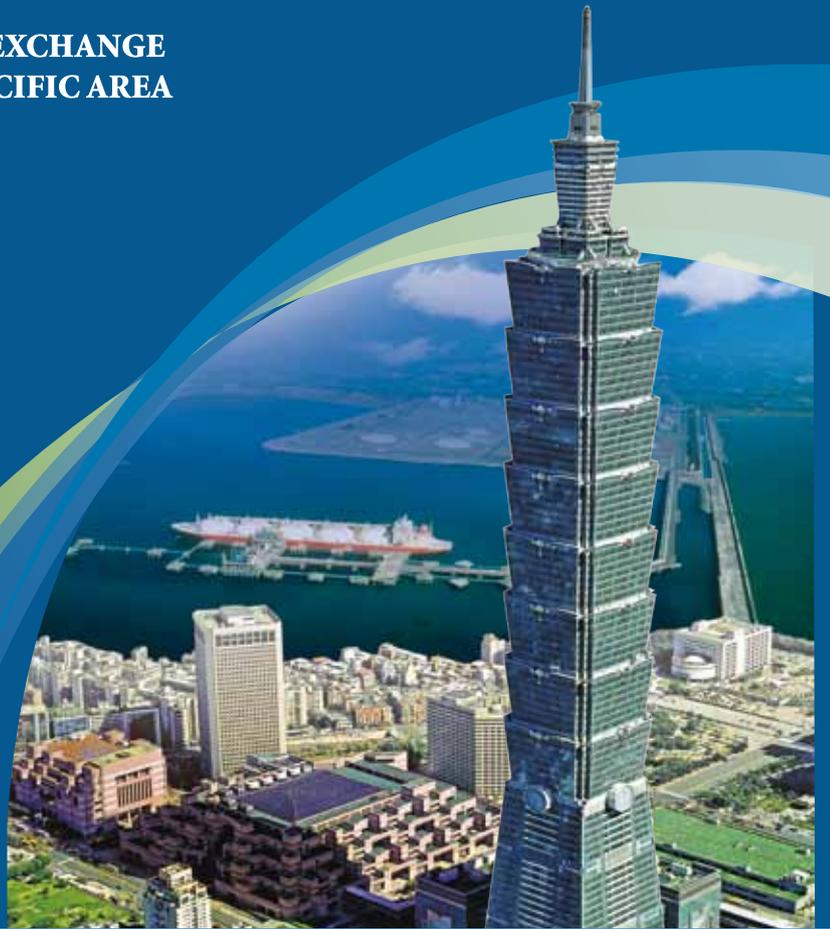
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Eugene Pronin: study will stimulate NGV development.

● **Russia Participates in New Study on NGV Use**

By Eugene Pronin

A study on the use of gas in transport in the region covered by the United Nations Economic Commission for Europe (UNECE) has been launched. It is due to be completed by the first quarter of 2012 for presentation to UNECE, with possibly a subsequent presentation during WGC2012 in Kuala Lumpur.

The study is intended to become an important tool in stimulating further development of the NGV sector. It will focus on the various legal, environmental, commercial and technical aspects of the use of natural gas (and biomethane) as a transportation fuel for road, rail, water and air modes. The study will also provide guidance on future trends in transport use in the UNECE region including underlying technological developments.

There will be chapters on: current market trends, technology, competitiveness, regulation and policy issues, marketing, future scenarios and

recommendations. The study will cover all UNECE regions including Europe, the CIS, Israel, Canada and the USA.

The study is being carried out under the auspices of the UNECE Working Party on Gas (WPG) and an Expert Group has been set up chaired by Dr Oleg Aksiutin, a member of the board of Gazprom, and co-chaired by Dr Werner Auli, a member of the board of OMV. I serve as secretary.

The Expert Group will coordinate its work to ensure there is no duplication of reports prepared by other international organisations such as IGU, and is seeking a wide range of contributions. National and regional governments, energy companies, the automobile industry, other transport sectors, related equipment manufacturers, fleet operators, financial institutions and R&D organisations from all UNECE region countries are welcome to participate. The Expert Group will report on progress twice a year (in April and October) and will brief the WPG annually.

Promoting NGVs in Moscow

Here in Russia, one of the factors the study will consider will be the impact of a new resolution to promote alternative transport fuels, which was passed by the local government of Moscow in June. The resolution aims to encourage both electric vehicles and NGVs. As regards the latter, the local government intends to begin production of NGVs, source biomethane from sewage and landfill sites, use fiscal incentives to increase the number of CNG refuelling stations, exempt NGV trucks from the ban on entering central Moscow and switch to alternative fuels for public transport. Six Moscow bus companies will be using NGVs.

This is a promising resolution that offers new investment opportunities.

Eugene Pronin is the Head of Gazprom's NGV Division, the President of NGVRUS and the Leader of IGU's Study Group 5.3.

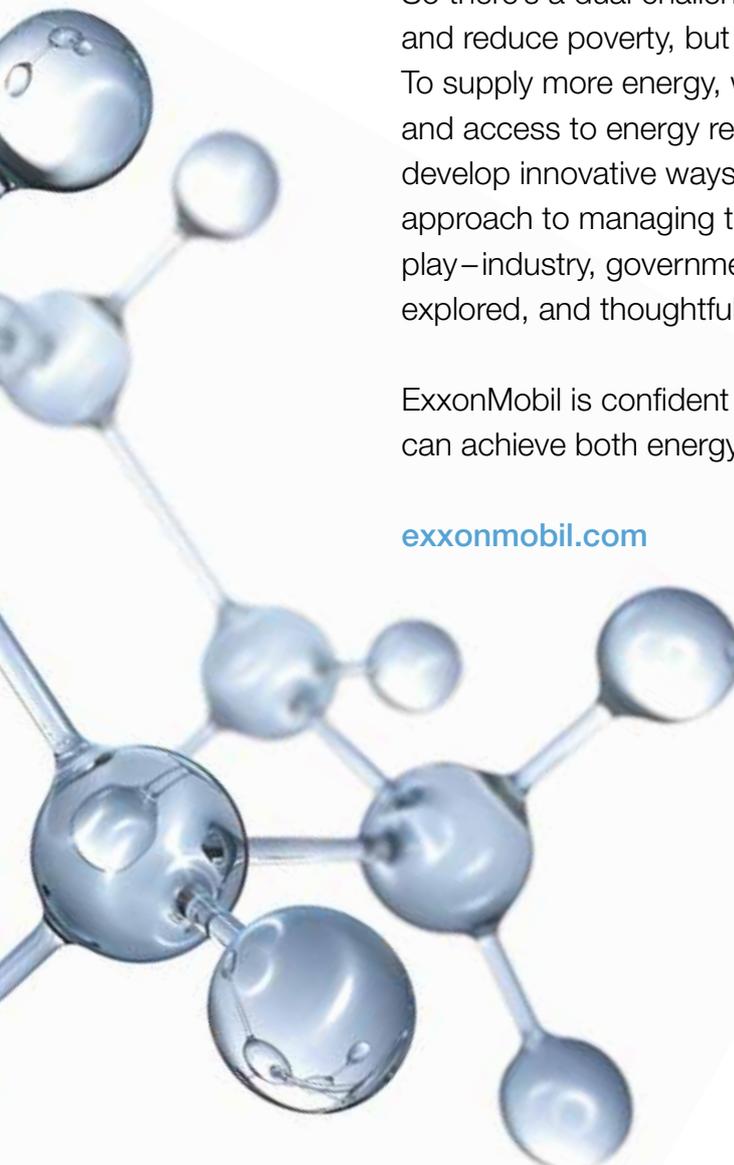
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So there's a dual challenge: provide the energy the world needs to prosper and reduce poverty, but do it in ways that lessen our environmental impact. To supply more energy, we'll need increased investments, new technologies and access to energy resources. To reduce emissions, we'll need to develop innovative ways to use energy more efficiently and take a global approach to managing the risks of climate change. Everyone has a role to play—industry, governments, individuals. Every practical option must be explored, and thoughtful solutions and technologies have to be found.

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Natural Gas and the Dual Energy Challenge

by Tom Walters, President, ExxonMobil Gas & Power Marketing Company

As we survey the global energy landscape over the next 20 years, we must recognise that there is a dual energy challenge.

First, the energy industry needs to provide reliable and affordable energy to help support continued economic growth and improve living standards around the world.

Second, we must maintain an unwavering focus on safety and protection of the environment for future generations.

While all energy sources will be needed to address these issues, natural gas is well equipped to play a key role in meeting this dual energy challenge.

► Natural Gas Will Help Meet Growing Demand

As we move into the future, the global trend is encouraging. Although the recession produced a contraction in last year's global GDP, we believe economic growth will return to pre-recession rates. Improvements in efficiency will keep energy demand growth below GDP, especially in mature economies. Nevertheless, we expect global energy demand to grow from about 240 million barrels of oil equivalent per day today, to more than 300 by 2030 – an increase of about 30%.

ExxonMobil's Energy Outlook projects an annual 1.2% energy growth to 2030, with gas projected to grow at a rate of 1.8%. By 2030, global gas demand will be around 140 billion cubic feet per



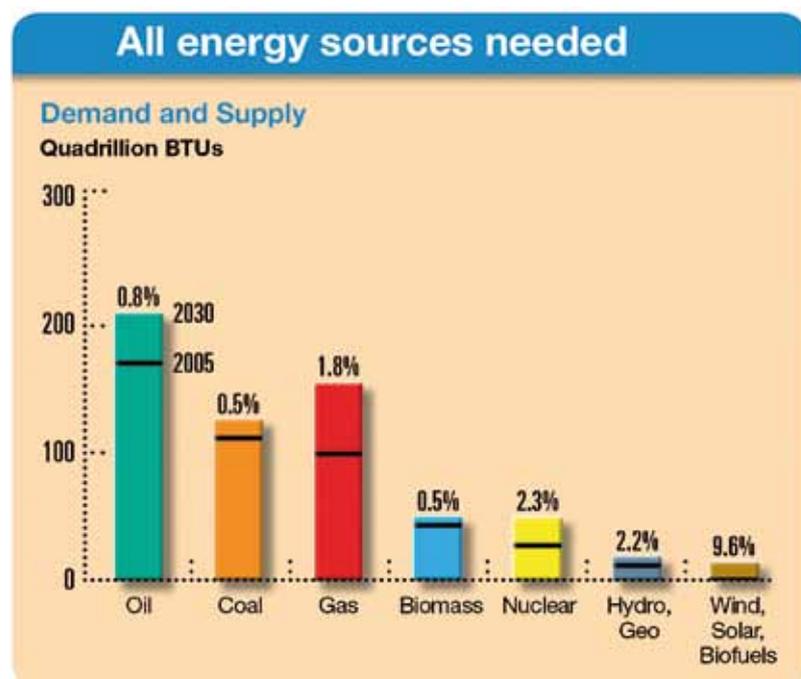
Tom Walters, President, ExxonMobil Gas & Power Marketing Company

day higher than in 2009 – an increase of more than two times current U.S. gas demand

The major driver of this increase is power generation, which is expected to account for more than half of the growth. With the world focusing on the mitigation of greenhouse gas emissions, cleaner-burning natural gas has a competitive advantage. For example, a gas-fired power plant can reduce

CO₂ emissions up by to 60% compared to a traditional coal plant. Gas-fired power generation with co-generation can achieve an even greater reduction in carbon emissions.

Even with the emergence of renewable energy sources like wind and solar, there is a key role for natural gas. When the sun goes behind a cloud or the wind stops blowing, gas-fired power can fill the gap and maintain system stability.



Source: ExxonMobil Energy Outlook

Natural gas also complements nuclear resources. With nuclear best suited to base-load operations, gas-fired generation is well positioned to provide the flexibility required to balance power networks.

Natural gas is a flexible fuel that can function independently, or in support of other energy sources. It is this flexibility that ensures natural gas will have a place in addressing the dual energy challenge.

► **Regional Demand for Natural Gas**

While the need for natural gas is universal, the type of natural gas resources required to meet each region's demand varies.

In the U.S., all eyes are on unconventional gas resources. Improvements in technology, especially horizontal drilling, have increased their competitiveness. Recent assessments reveal that, with the inclusion of unconventional resources, there is about 100 years of U.S. natural gas supply available at current U.S. consumption rates. This is almost double the projections from just a few years ago.

The increasing production of unconventional, coupled with a decline in use of conventional resources and the importing of LNG and pipeline gas, should change the U.S. supply mix significantly over the next 20 years and beyond.

With Europe experiencing developments similar to the U.S. regarding carbon legislation, gas demand in the region is expected to rise with increased natural gas use in power generation. As domestic production continues to decline, pipeline imports from Russia and the Caspian, as well as LNG, will help meet demand.

Unlike the U.S., Europe is just starting down the path toward achieving success in the development of unconventional resources. Considerable time and effort will be required to unlock the geology that is unique to each resource. Nevertheless, unconventional production is projected to increase,

particularly in areas like Germany and Central Europe where active exploration is in progress.

Demand for natural gas in Asia Pacific is expected to grow more rapidly than in the U.S. and Europe at almost 4% per year to 2030. Consistent with the other two regions, power generation underpins this massive increase in demand.

The Asia Pacific region can expect to see a continuing reliance on gas imports, as domestic production will climb at a slower pace than demand. In fact, we expect LNG to meet more than one-third of the region's demand in 2030. Like Europe, a gradual growth in unconventional production is projected, but it pales in comparison to what we expect to see in North America.

► **A Prominent Role for Gas Moving Forward**

As we identify tools to address this dual energy challenge, natural gas continues to distinguish itself as an undeniable part of the energy solution. Regardless of region, gas has a growing role to play as the resource that can provide reliable, affordable energy in an environmentally friendly way.

Natural gas is abundant and available today, with current global resources of more than 150 years of production at current demand rates. It is very competitive with other energy sources based on cost and ease of development, and is a cleaner-burning fuel.

As IGU members, we are the industry leaders in promoting the advantages of natural gas. Our commitment to improving the competitiveness of gas around the world has well positioned natural gas as a major player in addressing the dual energy challenge. Creating a system that allows natural gas to compete on a truly level playing field will help to ensure it has a prominent role in meeting global energy demand for years to come.



IGRC2011 Launches Call for Papers

By Jeanet van Dellen

The triennial International Gas Union Research Conference (IGRC) aims to be the most important R&D conference of the gas industry where technological developments meet market needs. IGRC2011 will be held in Seoul, Korea, October 19-21, 2011 with the theme “Innovation is the Key to a Sustainable Future” and the Call for Papers has now been launched. A limited exhibition of innovative products and services will take place concurrently with the conference in the COEX Convention and Exhibition Centre.

Natural gas will continue to play a vital role in meeting the world’s expanding energy needs while helping to cut greenhouse gas emissions, a persistent threat to global growth, life and environ-

mental sustainability. Despite intense interest in accelerating the development of “green energy” for the creation of a low carbon economy, natural gas – given its availability and environmental qualities as the cleanest fossil fuel – is expected to continue its dominance as the fuel of choice in the coming decades.

This requires innovative and bold thinking together with action in the spheres of technology and research. IGRC2011 offers the number one international opportunity to inform the industry about your research, and we therefore call upon you to submit an abstract for this conference.

● **Subjects and presentations**

Papers should discuss significant results from research, development or demonstration projects related to the gas business in the broadest terms, preferably related to the theme of the conference. The entire gas chain from wellhead to burner tip



ABOVE AND OPPOSITE COEX in Seoul will be the venue for IGRC2011.

may be addressed. The following list of examples is for inspiration only:

Supply

- Conventional and unconventional gas resources;
- Renewables, biogas, hydrogen;
- Gasification.

Processing

- Gas quality;
- LNG;
- CCS;
- Odourisation;
- Methane emissions.

Transmission/distribution

- Design and operation;
- Pipeline integrity;
- Simulation and modelling;
- Injection of "new" gases;
- Methane emissions;
- CO₂ transport;
- LNG carriers;
- Metering.

End use

- Residential, commercial, and industrial gas utilisation;
- Gas for power production, cogeneration, micro cogeneration;
- Gas heat pumps;
- Renewable energy/gas hybrid solutions;
- Environment, efficiency and safety;
- Combustion;
- Smart metering;
- Energy services;
- NGVs.

● Presentations and guidelines for abstract submission

A majority of the papers will be presented in the form of posters in four dedicated poster sessions.



From the abstracts received some papers will be selected for oral presentation in 12 technical sessions or as part of a roundtable discussion in six workshops. All accepted and presented papers will be part of the conference proceedings.

The abstract must be written in English, clearly explain the main points of the proposed paper and demonstrate the originality of the work done. The length of the abstract should be between 700 and 1,000 words, supplemented by graphical illustrations, etc.

All authors are required to register for the conference and pay the conference fee. The early bird fee (from February 1 until May 1, 2011) is €1,100. The full conference fee (after May 1, 2011) is €1,250.

● Selection of abstracts

Final selection of the abstracts to be included as papers in the programme will be done by the IGRC Technical Programme Committee (TPC) chaired by Marc Florette, Senior Vice President of GDF Suez. The TPC will also decide the presentation mode (oral or poster) for the individual papers. Authors will be notified about the outcome of the selection process at the beginning of April 2011. The full paper must be submitted by July 1, 2011.

Abstracts must be submitted on www.igrc2011.com before February 1, 2011. As part of the review process, the TPC will select up to 15 extended abstracts as candidates for publication in Elsevier's *Journal of Natural Gas Science & Engineering*. The TPC will inform the selected authors by the end of March 2011, advise them of the schedule they will need to meet in order for their papers to be published in the journal, and request them to confirm that they can meet this schedule. These authors will have to complete their papers by May 30, 2011. The TPC will provide peer review feedback to the authors by mid-June 2011. The authors then have two weeks to make required changes and send the full paper to the TPC and Elsevier directly no later than July 1, 2011.

Elsevier will publish the final selected papers as a regular issue of the *Journal of Natural Gas Science & Engineering*, and will make copies available at IGRC2011.

● Awards

Dan A. Dolenc Award

The Dan A. Dolenc Award will be given to an outstanding paper selected from all papers accepted and presented at the conference. The winner will receive a certificate and a €10,000 prize.

Young Researchers Prize

A special prize will be given to a young researcher (born after October 18, 1982), who has contributed to the conference with an outstanding

CONTACTS AND KEY DATES

Foundation IGRC

IGRC Technical Programme Committee
Robert Badoux, Secretary
E-mail: r.a.j.badoux@gasunie.nl

IGRC Exhibition Committee
Rob Aptroot, Coordinator
E-mail: igrc.exhibition@gmail.com

Korea Gas Union

IGRC2011 National Organising Committee
Kap Young Ryu, Chairman
E-mail: global@kgu.or.kr

Key Dates

- Abstract submission deadline February 1, 2011
- Notification of selected authors April 1, 2011
- Full paper submission July 1, 2011
- Early bird registration February 1-May 1, 2011

paper and presented this at the conference. The winner will receive a certificate and a €3,000 prize.

IGU Gas Efficiency Award

Those preparing papers for IGRC2011 may consider applying for the IGU Efficiency Award 2012, see pages 42-44 of this magazine for more information.

For further details about the conference programme and call for papers, please visit www.igrc2011.com. For information about sponsoring opportunities, please contact foundation.igrc@upcmail.nl.

Jeanet van Dellen is
Advisor to the Secretary
General.



Greener *gas* alternatives



Gas is more than just an option for over a billion people in India. It is a source of clean and green energy that promises to transform and help build a truly sustainable economy.

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Bringing gas solutions to households, transport systems and industries.

Building a cleaner world through greener alternatives.

IndianOil. *Energy solutions for the future.*



25th World Gas Conference – Coming Together Nicely

By Zahariah Abdul Rahman

When Malaysia won the right to host the 25th World Gas Conference, it had already been decided that no stone would be left unturned in organising the world's premier gas event in Kuala Lumpur, June 4-8, 2012. With over 3,500 delegates, 248 speakers, 200 exhibitors and up to 24,000 trade visitors expected from across the globe, the preparatory works are daunting, to say the least.

This is only the second time a World Gas Conference will have been held in Asia and there is a sense of excitement and anticipation in the air that such a world-class event will be coming to Malaysia. With the Malaysian Gas Association (MGA) as the host and PETRONAS providing an early commitment of financial support, WGC 2012 was created with the sole task of organising and ensuring the success of this high-profile gas event.

To date, with a full complement of 26 (and rising) full-time staff within six departments handling all aspects of organising and marketing the



Zahariah Abdul Rahman, CEO of WGC 2012.

conference and exhibition, WGC 2012 is going in the right direction as far as having the right machinery in place to gear up for the event. It even has a bold vision – to host the most successful and memorable World Gas Conference and Exhibition.

Going through thick and thin, and the vagaries of organising such a prestigious event, the collective and differing experience of the number of people within WGC 2012 have been making the difference. Under the guidance and support of NOC Chairman, Datuk Wan Zulkiflee, who was formerly Vice President of Gas Business at PETRONAS, there has been visible progress made over the last two years.

NOTE FROM THE CHAIRMAN

"As one of the founding members and also Chairman of WGC 2012, I've been pleased to witness the development of the National Organising Committee over the past year after we received the IGU Presidency from WGC2009 in Buenos Aires and our successful KL launch for the World Gas Conference," says Datuk Wan Zulkiflee.

"The organising team is working very hard to the vision of having a memorable World Gas Conference. We may be facing challenging times now but with the progress we are making, I am confident that the 25th World Gas Conference will be a successful and memorable event."



Datuk Wan Zulkiflee, Chairman of WGC 2012.

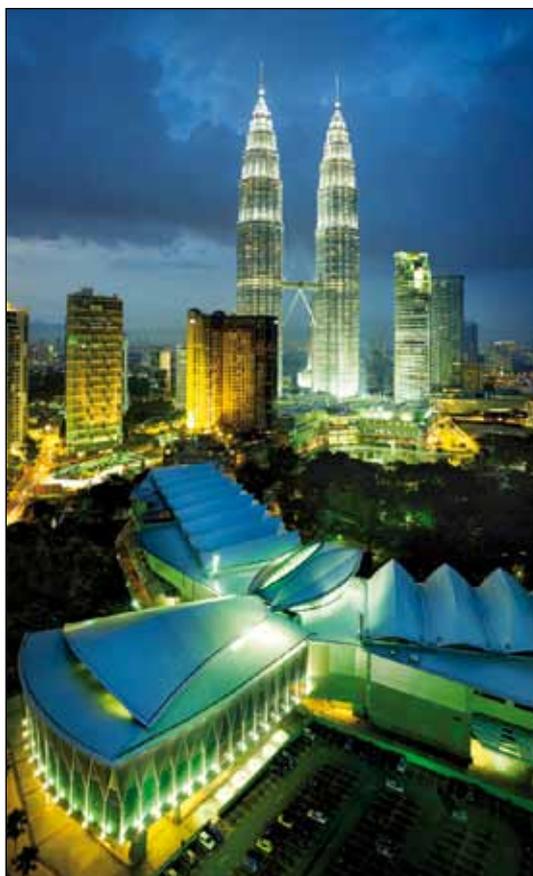
Certain key members of the MGA have also been playing their part in supporting the event, such as giving strength to the organising team by assigning their staff to WGC 2012. As events of the magnitude and importance of the World Gas Conference do not come along often, it is an opportunity for the Malaysian industry, as well as MGA members, to participate and gain invaluable exposure by helping to host the event.

● **Work and play at the WGC2012 Concept Village**

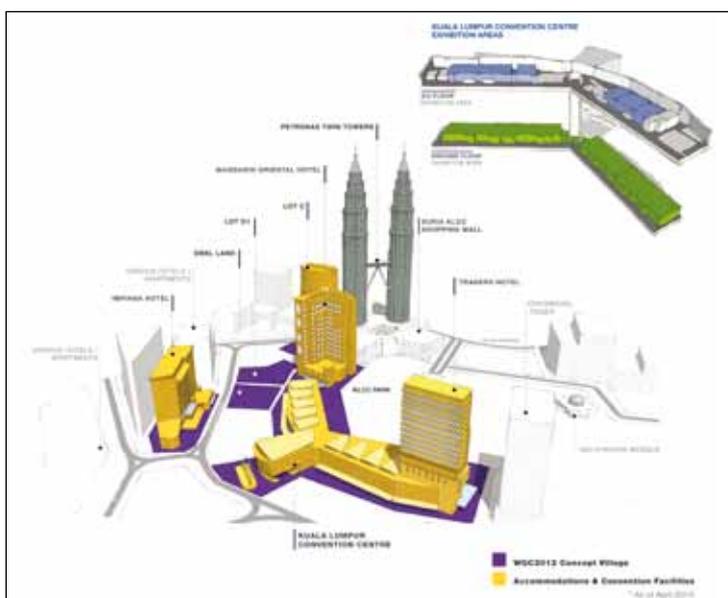
The Kuala Lumpur Convention Centre will be the hub of the WGC2012 Concept Village. Here, delegates will have the opportunity to enjoy the seamless integration of the exhibition centre and sophisticated conference venues within easy walking distance of their hotels. This means easy access to various meeting and social venues. At the same time, the pleasant park surroundings and the iconic PETRONAS Twin Towers housing the Suria shopping centre will provide effortless opportunities for relaxing and socialising after the formal proceedings. As the host, Malaysia has a unique opportunity to profile itself as one of the industry players as well as a distinctive and progressive destination for world-class events. The rich natural and cultural heritage of Malaysia also makes the country an unrivalled destination for visitors to experience. An impressive array of city tours and post-conference holidays will be on offer for delegates and their families in addition to a range of technical tours for industry professionals.

With all the essential facilities and amenities housed in one location, the WGC2012 Concept Village offers both delegates and exhibitors a total event experience. And, with the conference and exhibition venues being strategically connected with the accommodation and commercial centre, this ensures accessibility and shorter footprints for all participants in the 25th World Gas Conference.

At the same time the design of the Concept Village is meant to boost the exhibition space. The



ABOVE AND BELOW The Kuala Lumpur Convention Centre will be the hub of the WGC2012 Concept Village.





**INTERESTED IN PARTICIPATING?
TO FIND OUT MORE PLEASE CONTACT:**

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For further information you can also e-mail: info@wgc2012.com.

exhibition is undoubtedly one of the main attractions of the World Gas Conference, being the strategic meeting ground for major gas industry players and suppliers to showcase their newest technologies and products to industry decision-makers. The total exhibition space of 10,300 square metres for this upcoming event ensures excellent value and experience for potential exhibitors and delegates alike.

It is also worth mentioning that the local authorities, which include the likes of the Kuala Lumpur City Council and Royal Malaysian Police, have joined forces with WGC 2012 in ensuring that the 25th World Gas Conference is a resounding success and that all delegates return home with warm and happy memories of their time in Malaysia.

● **The next stage**

WGC 2012 has already had a successful run of marketing the Kuala Lumpur event to delegates and exhibitors at industry events in Buenos Aires, Oran, Houston and Montreal, and has also confirmed its participation for events in Taiwan, India and Singapore. The rate for exhibition space which was announced to the IGU fraternity in April has been set at US\$715 per square metre. At the

time of writing, it was announced that 40% of the exhibition space for the 25th World Gas Conference had been booked. With the limited space available at the exhibition venue, interested exhibitors are well advised to act fast to secure an exhibition spot at this event.

Registration for delegates will commence in April 2011, and Early Birds (those that register before December 31, 2011) will qualify for a special conference fee of US\$2,700, a huge saving compared to the normal price of US\$3,200. In keeping with the traditions of IGU and past World Gas Conferences, WGC 2012 has been working on preparing a comprehensive programme of keynote addresses, paper presentations and workshops, as well as special luncheon talks. Special care will also be taken to ensure that the sessions and venues are meticulously arranged to ensure maximum participation by the delegates.

Efforts have also been made to encourage participation from both local and global multinational companies at the event. Avenues are being created for industry players to get involved and gain visibility. A number of attractive sponsorship packages are now available. Interested companies will have the opportunity to choose the various sponsorship levels and also provide some of the



PARTICIPATION BY WGC2012 IN 2010

Event	Location	Date
LNG16	Oran, Algeria	April 18-21
Offshore Technology Conference (OTC)	Houston, USA	May 3-6
Asia Oil & Gas Conference (AOGC)	Kuala Lumpur, Malaysia	June 6-8
World Energy Congress (WEC)	Montreal, Canada	September 12-16
World LNG Series – Asia Pacific Summit	Singapore	September 20-22
Africa Energy Week (AEW)	Cape Town, South Africa	September 27-30
PETROTECH	New Delhi, India	October 31-November 3
Abu Dhabi Petroleum Exhibition & Exhibition (ADIPEC)	Abu Dhabi, UAE	November 1-4
Gas Information Exchange (GASEX)	Taipei, Taiwan	November 24-26
Offshore Southeast Asia Exhibition (OSEA)	Singapore	November 30-December 3

items as giveaways to delegates or sponsor some of the social events. Sponsoring companies are assured of the right exposure to the right demography at this prestigious event.

Overall, the establishment of the WGC 2012 organising team and the preparatory works for the World Gas Conference have been going smoothly thus far, and all the different aspects of the event are falling nicely into place. Please visit

www.wgc2012.com for more information. Mark your calendar to join us at the 25th World Gas Conference and be a part of the most significant gas industry event in the world.

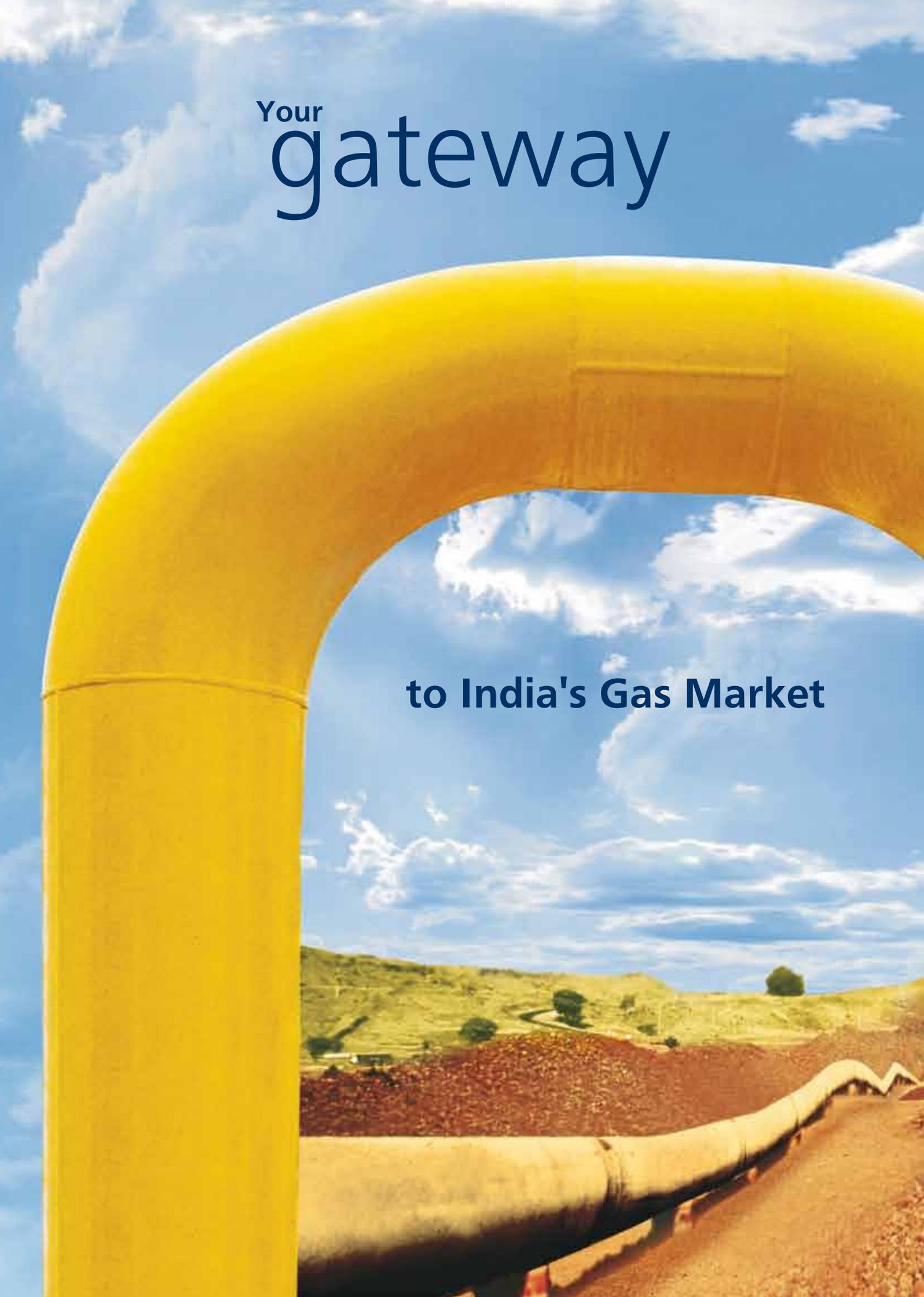
Zahariah Abdul Rahman is the CEO of WGC 2012.

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