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The Ukraine Gas Crisis and the Future of European Gas Imports

By Iain Esau

The extent of Europe's dependence on energy imports was thrown into the spotlight in early 2006 when Russia's state-controlled gas giant Gazprom cut supplies to Ukraine, a move that also interrupted supplies to the European Union (EU) and heralded some much-needed debate about security of supply in Europe.

The Moscow-based player's decision, which coincided with higher-than-normal demand for gas in Europe, brought on by a cold winter, caused supply shortfalls, price hikes and heightened political tension between Vladimir Putin's government, authorities in Kiev and EU politicians and officials.

Before the Ukrainian debacle, security of supply was low on the political agenda in the EU, even though forecast after forecast showed that energy demand in the 25-nation Union would rise continuously in the years ahead and stressed the need to find new supplies of gas, oil and other forms of energy.

Now, energy security has a much higher priority in Brussels with existing plans to diversify supply sources being accelerated and new plans being considered.

Nevertheless, as Andris Piebalgs, the EU's Energy Commissioner, says: "It is important to stress that no matter how successful we are at such efforts to diversify our import dependency, we will almost certainly need to import more gas from Russia than we do today, and the same applies to Algeria and Norway."

He believes the EU must improve its dialogue with Russia and Algeria, in particular, but also with other gas producers.

Piebalgs says the Union needs to "actively engage" Moscow to develop a "true energy partnership based on mutual self-interest" in which Russia would be encouraged to make the necessary investments in its gas infrastructure in order to meet burgeoning EU demand, while Europe would create a transparent pricing system.



EU Energy Commissioner, Andris Piebalgs: calling for energy dialogue.

EU GAS AND OIL CONSUMPTION IN 2004 BY SOURCE

	Gas	Oil
Import from Russia	24%	27%
Import from Norway	13%	16%
Import from the Middle East		19%
Import from Algeria	10%	
Import from North Africa		12%
Indigenous production	46%	21%
Other regions	7%	5%



The Presidents of Ukraine and Russia, Viktor Yushchenko (CENTRE) and Vladimir Putin (RIGHT) meeting in Kazakhstan after the crisis (AT LEFT, Oleksiy Ivchenko, Chairman of Naftogaz of Ukraine).

The commissioner has also expressed surprise that Brussels has no energy dialogue with Algeria despite the North African country, like Russia, being a major supplier of the EU's gas needs.

Alexei Miller, Chairman of Gazprom, largely endorses Piebalgs' views: "There can be no security for gas consumers without security for gas producers. No formula for energy security can be viable unless it provides an incentive to produce that energy."

Nevertheless, even as the two parties agree on certain issues, Russia's government has pressed ahead with new legislation granting Gazprom the exclusive right to export gas, despite Moscow's recent pledge to the EU to gradually liberalise gas markets.

In addition, Russian Energy Minister Viktor Khristenko warned recently that: "If we see demand markets looking to diversify sources of supply,

inevitably this will lead to supply route diversification on the suppliers' side."

However, there is concern in some circles that Gazprom is not investing enough in its upstream assets to meet future EU demand let alone tapping oil and gas for export to Asia.

Miller puts a gloss on the Ukrainian problem, saying the long-term result has been positive because there are now separate contracts for supplying gas to Ukraine and for the transit of Russian gas through that country.

"Before, there was a single contract covering both transit and gas deliveries which allowed," claims Miller, "Ukraine ... to blackmail both Russia and Europe on the issue of gas supply".

The gas crisis was triggered by Gazprom wanting Kiev to pay market prices for supplies because, believe many observers, Putin's government was uneasy with Ukraine's desire to



Yulia Tymoshenko: gas supplies need further revision.

form closer economic and political ties with the EU, thus distancing itself from Russia.

After Gazprom cut supplies to Ukraine, Russian officials accused its neighbour of siphoning off gas that was destined for Europe, accusations vehemently denied by Kiev.

What some observers call an “opaque” agreement was eventually reached by Kiev and Moscow in February this year, which means that the price Ukraine pays to a new company, Rosukrenergo, for Gazprom gas has almost doubled to \$95 per 1000 cubic metres.

Gazprom vows to seek further increases in the hope that Kiev will pay a price closer to the average for western Europe, which last year was about \$190 per 1000 cubic metres, and also reflecting the increased price Gazprom now has to pay for gas from Turkmenistan, a fair chunk of which is sold on to Ukraine.

Rosukrenergo, the sole supplier of Russian and central Asian gas to Ukraine, is 45%-owned by Ukrainian businessman Dmitry Firtash, who was a representative of EuralTransGaz, which sold Turkmen, Uzbek and Kazakh gas to Ukraine.

Ivan Fursin, a Ukrainian who owns the country’s Mistro Bank, controls 5% of Rosukrenergo while the remaining 50% is held by Gazprom.

The gas deal has not gone down well with the Ukrainian electorate and Yulia Tymoshenko, the leader of the second largest faction in the Ukrainian parliament, has vowed to revisit the agreement.

“I think all agreements on gas supplies to Ukraine need a further profound revision,” says Tymoshenko.

Tymoshenko’s electoral pledges, combined with suggestions that Ukraine – which handles 80% of Gazprom’s gas exports to the EU – may run out of gas this winter if it is unable to buy enough to store in its underground storage reservoirs, could create the perfect conditions for another gas crisis.

● Towards a new European energy policy

With the ramifications of the Ukraine gas crisis fresh in people’s minds, the EU has set in train plans to adopt an energy “action plan” in the first half of 2007.

The European Council has demanded the fast-track establishment of an Energy Policy for Europe, emphasising energy security, to “ensure reliable, affordable and sustainable energy flows into the EU”.

A preliminary meeting was held in June this year – as a precursor to submission of a “strategic review” to the European Commission by the end of 2006 – where participants stressed the need for an EU-wide solution.

A working paper has been drawn up by the Union’s External Affairs Commissioner Benita Ferrero-Waldner and foreign policy chief Javier Solana.

The document considers how the EU’s external relations can be used more effectively – with one European voice – to secure reliable flows of affordable and environmentally sustainable energy.

“The legitimate right of individual Member States to pursue their own external relations for ensuring security of energy supplies and to choose

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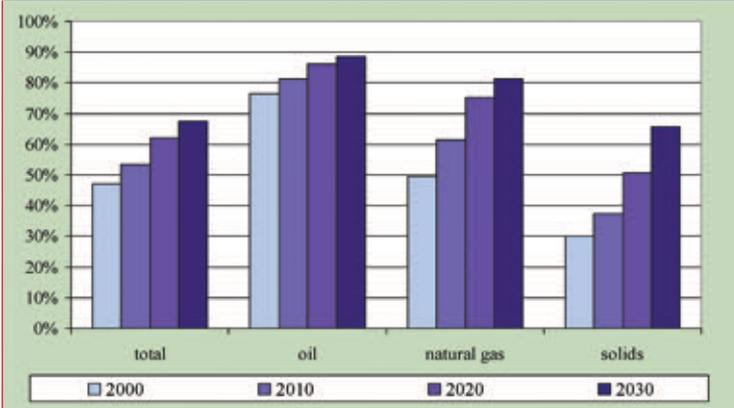
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LOOKING AHEAD: EU 25 IMPORT DEPENDENCY (%)



their internal energy mix is not in question,” says the briefing paper.

“Nonetheless, the development of a coherent and focused external EU energy policy, drawing on the full range of EU internal and external policies, would enhance the collective external energy security of the Union”, and “help the EU face more effectively possible strategies by major external energy suppliers to adversely influence market fundamentals”, it continues.

The briefing document outlines guiding principles that need to be at the heart of any energy policy designed to meet the demands of a 450-million strong population. These are to:

- promote transparency/improved governance in

the energy sector via energy partnerships with third countries;

- improve production/export capacities in producer countries and develop/upgrade energy transport infrastructure in producer/transit countries;
- improve the investment climate for European companies in third countries and open up production/export of energy resources to EU industry;
- improve conditions for trade in energy through non-discriminatory transit and third-party access to export pipeline infrastructure;
- enhance physical and environmental security as well as energy infrastructure safety.
- encourage energy efficiency and the use of renewable energies;
- implement relevant Kyoto Protocol mechanisms;
- diversify energy imports by product and country;
- create an international regime to supply enriched uranium to countries choosing the nuclear option; and
- promote strategic reserve stocks and encourage joint stock holding with partner countries.

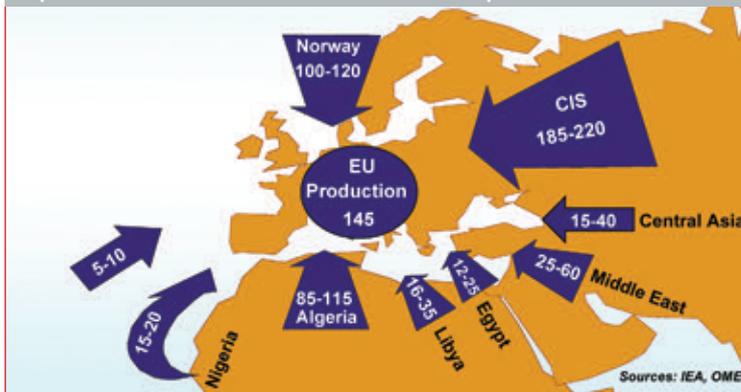
The document also highlights two “building blocks” for energy security – functioning markets and diversification.

“Well-functioning world markets are the best way of ensuring safe and affordable energy supplies because they create a resilient and responsive world energy supply, facilitate investment decisions, cushion shocks and provide security for both customers and producers”, say Solano and Ferrero-Waldner.

However, they point out that for a market to operate effectively, it needs physical and legal infrastructure, information, transparency and the active participation of major players.

“This could be achieved by the EU extending its own energy market to include its neighbours with the underlying principles of reciprocity in market opening and respect for market rules.

GAS SUPPLY FOR WESTERN EUROPE 2010-2020 (BILLION CUBIC METRES/YEAR)





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Gas drilling at In Salah – Algeria’s supply of gas to Europe is set to increase.

“We need to convince non-EU consumer countries that world energy markets can work for them. If they were to conclude that the only route to security lay in bilateral deals, the risk of disruption of the energy system would grow”, say the paper’s authors.

While these sentiments are laudable, it is ironic that despite endorsing gas liberalisation, the EU has failed to liberalise its own internal market.

“Without liberalisation, Europe will have far greater dependence on external producers and pay higher gas prices,” Dr Alan Riley of London’s City Law School told the European Parliament earlier this year.

He poses the question: “Why should Russia open up its market when the EU has signally failed to open up its own?”

This is also a view held by Andris Piebalgs: “For a successfully functioning EU energy market in terms of security of supply as well as competition we therefore need a strong commitment to a competitive internal market instead of protectionism, and enhanced cooperation instead of one-sided national responses to supply problems.”

According to the Solano/Ferrero-Waldner working paper, EU energy security would also be enhanced by diversifying the geographical origin and type of energy sources as well as their transit routes, and by maintaining and upgrading infrastructure in neighbouring countries and developing new infrastructure.

A number of new gas projects have been approved or are in an advanced stage of planning which, if completed, could create new energy corridors and “significant” new import capacity.

Liquefied natural gas imports are another method of diversifying supplies while the development of major new pipelines to deliver oil from the Caspian region and central Asia to the EU are “vital”.

“All instruments”, urges the briefing paper, “from political dialogues and community policies such as trade, development, competition, research and environment through to financial grants and loans ... should be used in a coherent manner to speed up the completion of these infrastructure projects.”

As well as improving relations with the EU’s three key oil and gas suppliers – Russia, Algeria and Norway – the document highlights the importance of both Ukraine and Turkey as energy transit countries.

The paper also asks if the EU wants to “start implementation of these specific actions straight away, without waiting for this longer process of

odpovědní **responsible** ansvarbevisst **responsabilità** от
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 abilità niezawodni **reliable** zuverlässig niezawodni społa
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The VNG group is a natural gas wholesaler and energy service provider for public utilities, regional providers and industrial companies, as well as a logistical partner for natural gas trading and transportation companies.

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Telephone: +36 72 503-290
Facsimile: +36 72 503-115
E-mail: ddgaz@ddgaz.hu
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Mailing address: H-6701 Szeged, P.O.B. 6
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Laying the pipeline for the Blue Stream project connecting Russia and Turkey which was officially inaugurated in November 2005.

establishing a really coherent external energy security policy”.

● **Expanding Europe’s energy corridors**

Within the EU, despite many years of efforts to be more energy-conscious, energy demand continues to rise by 1%-2% per year and in 10 years’ time, the Union could be consuming 10% more energy than now, about two-thirds of which could be imported.

The EU is backing a number of new hydrocarbon infrastructure projects as it seeks to diversify its energy sources over the next five-to-10 years.

In Norway, gas from the huge offshore Ormen Lange field is set to make landfall in the UK in 2007 via a major pipeline with a capacity of 20 bcm per year.

Also being considered is the Yamal II project that aims to pipe gas from northern Russia via either Belarus or the Baltic States.

In addition, there is a separate Baltic pipeline scheme, which is scheduled to start up in 2010 with an initial capacity of 27.5 bcm annually that will feed gas to northern continental Europe and the UK.

Also on the radar is what is known as the Nabucco pipeline which will cross Turkey, Bulgaria, Romania, Hungary and Austria – with a spur to Greece and Italy – and make it possible to transport gas from the Caspian region, Iran and the Middle East to the European markets with a capacity of up to 31 bcm by 2020.

An agreement was signed by the relevant countries’ energy ministers in June 2006 to accelerate this project.

Separately, a future Trans-Caspian gas line will offer the EU direct access to gas from central Asia via the southern Caucasus region or Iran and Turkey.

In the Mediterranean area, two new subsea lines will be completed in the coming years

THE FUTURE BELONGS TO THOSE WHO CAN IMAGINE IT.

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taking Algerian gas to Spain (Medgaz) and Italy (Galsi).

Then there is the trans-Mashrek pipeline that will bring Egyptian, Syrian and Iraqi gas to Turkey and the EU via a link to the Nabucco line.

Another possibility, currently being evaluated beyond the EU, is to pipe Nigerian gas north into Algeria's gas transmission system for onward export to the EU.

The opportunities to build liquefied natural gas (LNG) terminals are abundant with developments underway and proposals made in the UK, Italy, Spain, France and Belgium, among others.

The EU's total LNG import capacity could reach 140 bcm per year by 2010.

Boosting gas storage capacity is an option being studied seriously in many countries, particularly eastern Europe and the UK.

Expansion of and extensions to the greater European oil pipeline network are also underway or promised including new schemes designed to source oil from Kazakhstan and Azerbaijan.

Others being developed include extensions of the Odessa-Brody line into Poland, Latvia, Germany, Slovakia and the Czech Republic, a new line linking Bulgaria and Greece, by-passing the congested Bosphorus Strait, plus a variety of new links between central and eastern Europe and the Balkan states.

● Towards transparency

The Ukraine gas crisis highlighted the need for continued progress towards a liberalised, transparent and international energy economy less prone to bottlenecks and regional factors. It is clear that the complementary needs of producers and consumers must be met as the market evolves, and that alternative routes and methods of access to energy sources continue to be developed, so that fluctuations in both supply and demand can be absorbed.

Iain Esau is the London correspondent of the international oil and gas newspaper Upstream.



Gas from Ormen Lange is due to arrive in the UK in 2007.

Slovenský Plynárenský Priemysel, a.s.



SPP is a traditional gas company – strategic for Slovakia – which takes care of the supply of natural gas to consumers. From the perspective of Europe, SPP is significant because of its role in international transmission. The pipelines of SPP have been part of the international network for over three decades.

Thanks to the gas transmission system and Slovakia's strategic position between Russia and Western Europe, SPP is the largest carrier of gas in the EU.

In May 2004, Slovakia joined the European Union. Consequently, in order to comply with European legislation, the country passed the new Energy Act and Regulation Act. The Slovak gas market is rapidly adapting to a market economy and SPP is preparing for the liberalised gas market – mainly by a new strategy oriented at the customer. SPP is continuing with its restructuring,

which intensified following the entry of Gaz de France and Ruhrgas (now E.ON Ruhrgas) in 2002. The objective is to increase the effectiveness of SPP and to retain its key position in the market. The latest visible step of the restructuring is the legal unbundling of the company. SPP wants to continue focusing on its core business activities, to remain the best supplier of natural gas in the country and, in terms of international transmission, to hold on to its dominant position as a reliable carrier of gas.

SPP is adapting to new challenges in order to comply with the legal requirements associated with EU membership. The legal unbundling of SPP a.s. into three separate companies was implemented as of July 1, 2006, with the operation of SPP's 100% subsidiaries: SPP – preprava a. s. and SPP – distribúcia a. s.



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IGU Grows Associate Membership with Cheniere Energy

By Mark Blacklock

When Cheniere Energy's Keith M. Meyer addressed delegates to the June Council meeting in Amsterdam, he prefaced his remarks by describing the company as "relatively young particularly when compared to the 75-year history of IGU". Youthful it might be, but Cheniere is certainly making its mark in the LNG business and delegates were pleased to approve it as one of the latest Associate Members of IGU.

Meyer is Cheniere Energy's Senior Vice President LNG and President of its subsidiary Cheniere LNG. He sees participating in international fora like IGU as an important way of building professional relationships, sharing information and ensuring best practices. "LNG by definition is a global commodity," he said, "and offers the opportunity to build a commercial bridge between companies and countries."

Cheniere's focus is on North American regasification and it is developing a network of three wholly-owned terminals in Louisiana and Texas that will have a capacity of 9.9 bcf (28 mcm) per day. "The US Gulf Coast has the highest concentration of gas demand in the world and is the heart of the US gas grid," pointed out Meyer.

As reported in the last issue of the IGU Magazine (April 2006, pp134-150), there has been a flurry of proposals for new LNG terminals in the US but the approval process can be lengthy and difficult. Cheniere was pro-active in identifying good sites and working closely with the local communities to get the go-ahead for its network, which will start coming onstream in 2008.

"We will begin cool-down of our terminal in Sabine Pass next year and it is set to open in



LEFT
Keith Meyer:
looking forward to
getting involved in
IGU's work.

January 2008," said Meyer. Located alongside the Sabine Pass Channel in Cameron Parish, Louisiana, the terminal will initially have a capacity of 2.6 bcf/day with subsequent expansion to 4 bcf/day in 2009.

The 2.6 bcf/day Corpus Christi facility will be located alongside the La Quinta Ship Channel in San Patricio County, Texas, and is set for completion in late 2009. Meanwhile, a second project in Cameron Parish is Creole Trail, located on the Calcasieu Channel, which will have a capacity of 3.3 bcf/day and is expected to enter service in 2011.

Cheniere also has a 30% stake in the Freeport LNG consortium that is building a terminal on Quintana Island in Texas. This will have a capacity of 1.75 bcf/day and is due for completion in early 2008.

● Key player

Given that current US regasification capacity is approximately 5 bcf/day, the Cheniere terminal network will clearly make it a key player in a market set for major expansion. LNG accounted for just under 3% of US gas consumption in 2005, but will grow in importance as domestic and Canadian supplies cannot keep pace with overall gas demand. "We anticipate LNG growing to 15-20% of the US market by 2012," declared Meyer.

Cheniere has signed long-term terminal use agreements with companies such as Chevron and

Total, but will also retain regasification capacity for its own use and is pursuing a portfolio of LNG purchase and gas sale agreements. Meyer sees scope to develop trading relationships between North America, Asia and Europe taking advantage of differing regional demand peaks. Cheniere is also a partner in an LNG shipping venture, and engages in oil and gas exploration in the shallow waters of the US Gulf of Mexico.

Meyer and his colleagues are enthusiastic about getting involved in IGU's activities and will – logi-ally – focus initial attention on the work of PGC D.

Mark Blacklock is the Editor-in-Chief of International Systems and Communications.



An artist's impression of the Creole Trail terminal, which is expected to enter service in 2011.



Bechtel has the EPC agreement for Cheniere's Sabine Pass LNG terminal and construction of the \$820 million first phase started in March 2005.

Building the future of gas

Saudi Aramco has played a dominant role in the Kingdom's gas sector over the last 30 years. Beginning in the mid-1970s under the Saudi government's long-term vision, the Kingdom's Master Gas System (MGS) was launched to add value to the gas associated with crude oil production. Saudi Aramco's development of the MGS led to the availability of sales gas, ethane and NGLs as fuel and petrochemical feedstock to support the Kingdom's expanding industry and utilities.

At year-end 2004, the Kingdom had 237 trillion standard cubic feet (scf) of proven natural gas reserves. That same year, Saudi Aramco's annual gas production reached almost 2.7 trillion scf. Saudi Aramco's average daily gas production hit 7.35 billion scf during that same period, and NGL average daily production was over 1 million barrels per day. These gas and gas product supplies provide vital feedstock to the primary petrochemical industries and fuel gas for utilities such as electricity and water, as well as a number of process industries. Saudi Aramco is also the world's top exporter of NGL.

Saudi Aramco remains committed to expanding the Kingdom's gas reserves and production to match the robust growth in demand for gas as fuel and petrochemical feedstock, both domestically and internationally.





Holdigaz – Serving IGU’s Registered Domicile

By Mark Blacklock

Since IGU was set up in 1931, six countries have hosted the Secretariat and Norway is due to take over from Denmark in the last quarter of 2007. However, the Union has always been registered in one place – Vevey, Switzerland – where the local gas company is Holdigaz SA.

While Holdigaz is a new holding company set up in January 2005, it brings together a number of companies with a proud history. The origins of Vevey-based Compagnie Industrielle et Commerciale du Gaz (CICG) date back to 1861 and those of Aigle-based Société du Gaz de la



Philippe Petitpierre: significant potential to develop the Swiss gas industry.



The compressor station at Ruswil (60 MW) is the operational centre of the Transitgas system.

Plaine du Rhône (SGPR) to 1922. Originally they manufactured and supplied town gas, switching to imported natural gas in 1974. Between them the two distribution companies supply 41 communities in western Switzerland. The bulk of gas is sold to residential customers (75% for CICG and 62% for SGPR), 19% to commercial customers and the balance to the industrial segment (6% for CICG and 19% for SGPR).

Three other group subsidiaries supply and install equipment: Joseph Diémand works in the field of sanitary installations, Brauchli in heating and Novogaz in catering. Holdigaz additionally has stakes in Gaznat (one of Switzerland’s four regional transmission companies) and exploration company Petrosvibri. Gaznat in turn owns 25.98% of Swissgas, which is responsible for buying the bulk of gas consumed in Switzerland and is the majority shareholder in Transitgas, the owner and operator of the Swiss section of the Trans-European Natural Gas Pipeline.

The wholly-owned companies employ over 300 people and the group’s annual turnover for the financial year ending March 2006 was Sfr129



On display at the public refuelling station in Collombey are a Toyota Prius and Smart (background), both retrofitted by Holdigaz with a natural gas fuel system. (The Prius was also exhibited at the 23rd WGC in Amsterdam.)

million (\$107 million), of which two-thirds was accounted for by sales of gas. A net profit of Sfr4.8 million (\$4 million) was declared.

Holdigaz is a publicly-quoted company and approximately 43% of its shares are held by the local authorities (communes) in its distribution area. The Holdigaz CEO is Philippe Petitpierre, who is also President of Swissgas, and he sees significant potential to develop the Swiss gas industry.

Petitpierre explains that natural gas was introduced to Switzerland in the 1970s as the European gas transmission network was developed. In 1971 work started on a pipeline entering Switzerland from Germany with a metering station at Wallbach and crossing the country to Griespass on the border with Italy. The challenge of crossing the Alps meant construction took three years with tunnels built at altitudes of up to 2400 metres, which included sloping sections of between 95 and 760 metres and gradients from 41% to 85%.

The Transitgas pipeline was officially inaugurated in April 1974 and during the first 20

years of operation the average annual transport volumes entering at Wallbach ranged between 5 and 7 bcm.

In 1994 part of the northern section was expanded with a parallel pipeline of 33 kilometres, and then between 1997 and 2002 the entire system was expanded and an additional connection made to France. This has increased capacity to 20 bcm a year. Switzerland imports most of its gas via the Transitgas system – the Ticino region is linked separately to Italy – and annual consumption is around 3.5 bcm.

● Market development

“Gas covers 13% of the total energy consumption of Switzerland,” says Petitpierre, which compares to the average for European countries (excluding the CIS) of around 25%. A key factor here is Switzerland’s lesser reliance on gas for electricity generation – hydro and nuclear power play major roles in the country’s energy mix. However, the use of gas for electricity generation is set to increase: “Currently, some projects are planned for small and medium size (up to 400 MW) gas-fuelled



An NGV refuelling station at the Holdigaz headquarters in Vevey.

combined-cycle plants to be finished in 2010," he explains.

Gas is also being substituted for liquid fuels with the focus on heating and transport. In an interesting development, renewable energies are being integrated to help meet Switzerland's commitments under the Kyoto Protocol. "For instance, consumers are now looking to combine solar cells and natural gas," says Petitpierre. "Another aspect is that the Swiss gas industry has agreed to inject gas from biomass into the natural gas network for quantities of at least 10% of all gas sold as motor fuel."

This latter development is part of the promotion of natural gas vehicles (NGVs) in Switzerland. Three years ago, the gas industry launched a marketing programme which resulted in the opening of 65 public filling stations, enabling vehicles to be refuelled in all urban zones of the country. A new tax regime set to come into operation in mid-2007 will favour clean fuels with a tax reduction of Sfr0.40 per litre of petrol equivalent for natural and liquefied petroleum gas and complete tax exemption for biogas and other fuels from renewable sources. This will be financed by higher taxes on petrol.

Apart from implementing an efficient NGV network, Switzerland has also been working on the development of bi-fuel vehicles and Holdigaz companies have been playing an important role. "In close cooperation with the École Polytechnique Fédérale in Lausanne, Holdigaz and its engineers have developed and implemented many solutions to enable easy engine conversions to bi-fuel technology," says Petitpierre. "The hybrid solution gasoline engine-electric motor, adopted by a growing range of manufacturers, has recently been complemented with a natural gas-gasoline engine by Holdigaz. This engine is recognised by the Swiss authorities and meets the Euro IV standards."

● Welcoming the EXC

Holdigaz will be able to demonstrate its activities to members of the IGU Executive Committee, which will be meeting in Montreux and Vevey for the first session of 2007. The official host is IGU's Charter Member the Swiss Gas and Water Association (SSIGE/SVGW) and the meeting will take place May 3-5, 2007.

Mark Blacklock is the Editor-in-Chief of International Systems and Communications.



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Spanish Gas Association

Gearing Up for LNG-15

By Mark Blacklock

The world's leading forum for the exchange of information on liquefied natural gas is the LNG-X series of conferences sponsored by IGU, the International Institute of Refrigeration (IIR) and the Gas Technology Institute (GTI). The first was held in 1968 and they have now settled into a three-yearly cycle, alternatively hosted by exporting and importing LNG countries. For LNG-15 in 2007, the baton has been passed to Spain and IGU Charter Member Sedigas, the Spanish Gas Association.

"LNG-15 will be held in Barcelona, April 24-27, 2007, and we are aiming for 2000 delegates," says Juan Pons, Secretary General of Sedigas and Chairman of the National Organising Committee for LNG-15, "which highlights the growing importance of LNG in global energy markets."

Confirmed keynote speakers include Tan Sri Dato Sri Mohd Hassan Marican, President and CEO of Petronas, James MacHardy, General

Manager of SIGTTO, and Rune Bjørnson, Executive Vice President of Statoil, and Pons explains that the LNG-15 programme centres around seven paper sessions and four workshops.

Some 204 abstracts were submitted and the Programme Committee chaired by Nirmal Chatterjee has selected 46 to be presented as papers covering technical and commercial aspects of the LNG chain. The seven paper sessions will cover:

Technical

Export plants – new trends in LNG processing
Export/import terminals
Shipping and transfer
Training and sustainability

Commercial

Globalisation – challenges and opportunities of LNG's emerging global reach
Markets – market challenges for a growing LNG industry
Integrated projects – what are suppliers doing to meet market expectations?

The workshops will address:

- Technical innovations for the future of the LNG business;
- Challenges associated with the rapid growth in the LNG business;
- Globalisation of the LNG business; and
- Improving stakeholders' perception of LNG.

Additionally there will be a poster session and a series of visits to Barcelona's LNG terminal, which is operated by Enagás. A field trip will also be organised to the new LNG terminal operated by Saggas at Sagunto, 50 kilometres north of Valencia.

● Exhibition and sponsorship

Having done an excellent job at the previous three LNG conferences in Perth, Seoul and Doha, the Australian company Exhibitions and Trade Fairs will be managing LNG-15's exhibition which will cover



Juan Pons (left) receives the conference banner at the close of LNG-14 in Doha in March 2004.

18,000 square metres on two levels. According to Pons even before delegate registration started in July, 90% of the exhibition space had been booked.

LNG-15 is supported at the highest level in Spain with HM King Juan Carlos chairing a Committee of Honour whose members include politicians at national and local levels and representatives of the major companies active in the Spanish gas sector. These companies started the ball rolling by accepting the sponsorship of the opening ceremony; additionally there are opportunities to sponsor specific events and topics. Pons says the sponsorship response has been “very positive”.

The venue for LNG-15 will be Barcelona’s International Convention Centre (CCIB) on the seafront at one end of the city’s famous Diagonal Avenue. The CCIB comprises two principal buildings – the main convention hall and the emblematic Forum building – which are linked by an underground Rambla.

Spain is a fitting host for LNG-15 being the third country in the world to start LNG imports (after the UK and France) when the LNG terminal in Barcelona received its first cargo from Libya in February 1969. Regasification plants have since been opened in Huelva (1988), Cartagena (1989), Bilbao (2003) and Sagunto (2006), and full operations at a new plant in Mugardos should start



Barcelona’s emblematic Forum Building was designed by the Swiss architects Herzog and De Meuron and the main LNG-15 ceremonies will be held in its auditorium.

by early 2007. In 2005 Spain imported 21.85 bcm of LNG making it the third largest importer after Japan and Korea. LNG accounts for 65% of Spain’s gas supplies; there is a very small amount of domestic production and the balance is imported via pipeline.

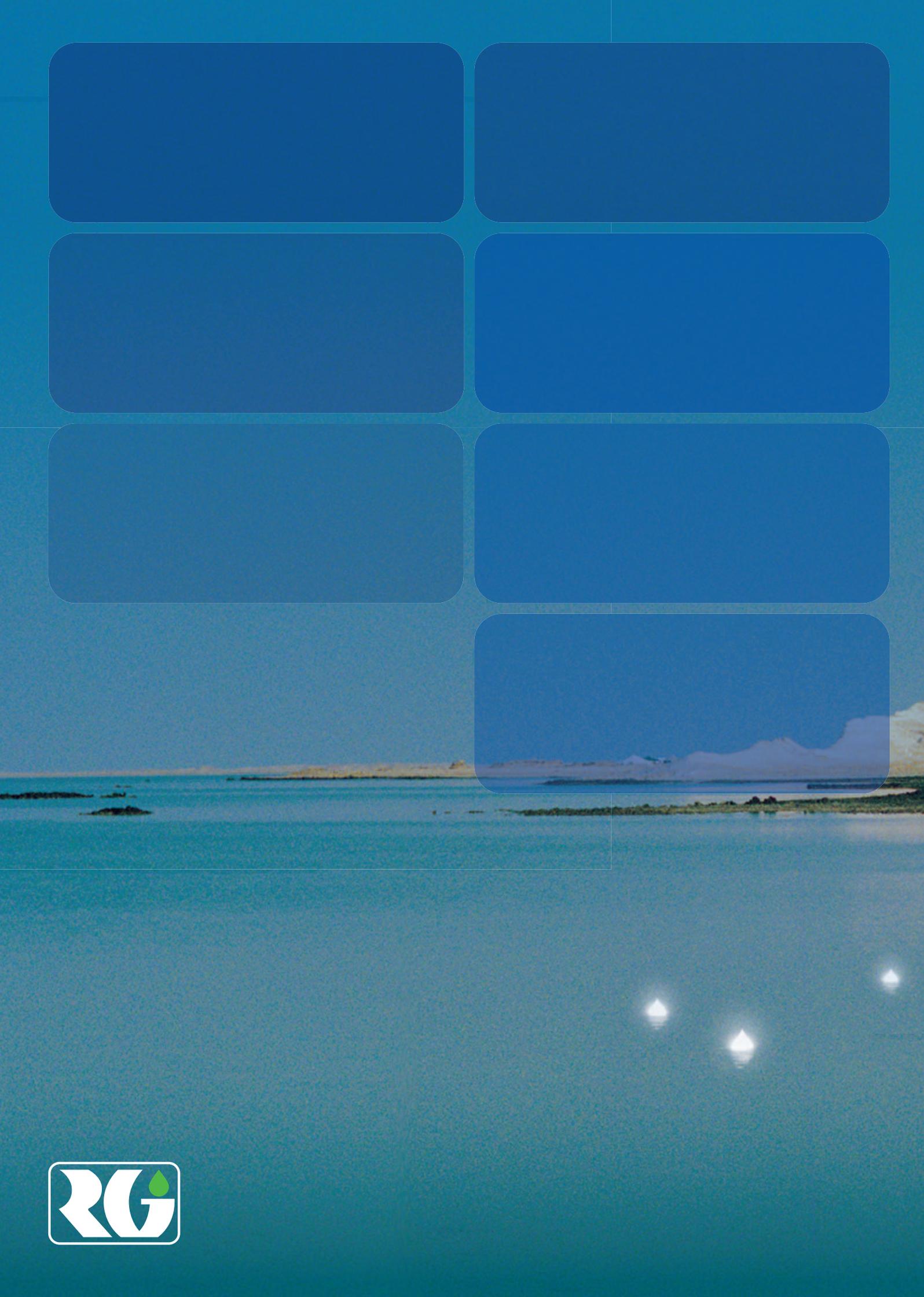
Mark Blacklock is the Editor-in-Chief of International Systems and Communications. For more information on LNG-15 go to www.lng15.com.



Spain’s latest LNG terminal is at Sagunto – the *Galicia Spirit* delivered the first cargo on February 15.



Spain’s first LNG regasification plant in Barcelona has been steadily expanded. A sixth storage tank is under construction.





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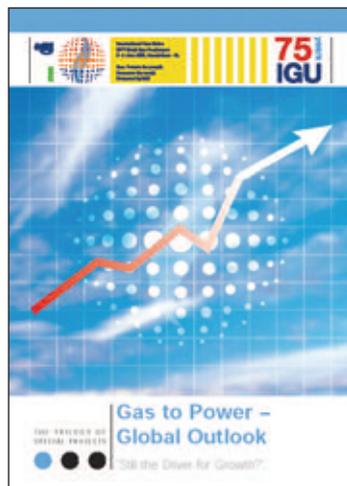
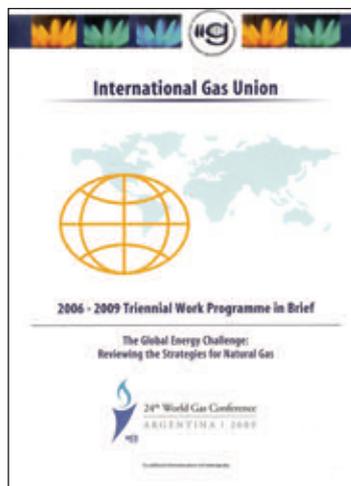
Publications and Documents Available from IGU

As a non-commercial organisation promoting technical and economic progress in the gas industry worldwide, IGU offers its publications free of charge and you are invited to order the IGU publications currently available from the Secretariat. (All documents are A4 format unless stated otherwise and those that can be downloaded from the IGU website are indicated.)

Mrs Lotta Hållén-Kragh
 IGU Secretariat
 P. O. Box 550
 c/o DONG Energy A/S
 Agern Allé 24-26
 DK-2970 Hørsholm
 Denmark
 Tel: +45 45 17 12 00
 Fax: +45 45 17 19 00
 E-mail: secr.igu@dong.dk

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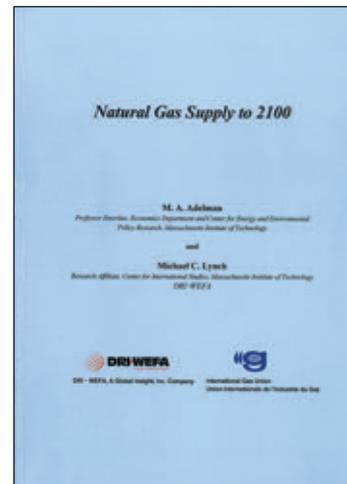
- Strategic Guidelines 2006-2009.
- Triennial Work Programme in Brief.



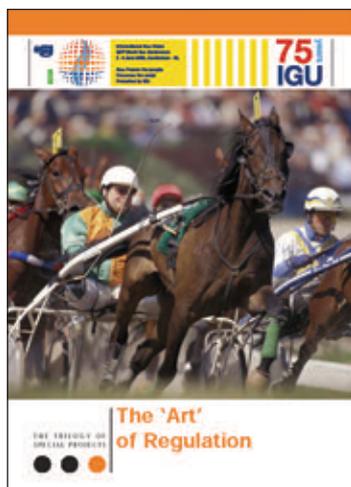
- Triennial Work Programme.

Scientific and technical papers and documentation

- Natural Gas Supply to 2100, M. A. Adelman and Michael C. Lynch, DRI-WEFA, IGU, October 2002, (51 pages 18 x 25.7 cm). This booklet outlines the authors' assessment of a long-term supply curve for natural gas.
- Seven Decades with IGU, ISC 2003, (186 pages). IGU's 70th anniversary fell in 2001 and at the next World Gas Conference in 2003 this book was launched containing articles on the organisation's history and on contemporary issues facing the international gas industry.
- Proceedings of the 20th World Gas Conference, Copenhagen 1997, (CD-ROM).
- Proceedings of the 21st World Gas Conference, Nice 2000, (CD-ROM).



- Proceedings of the 22nd World Gas Conference, Tokyo 2003, (available on www.igu.org).
- Proceedings of the 23rd World Gas Conference, Amsterdam 2006, (CD-ROM).
- Worldwide Underground Storage (UGS) database, (available on www.igu.org).
- Gas to Power Global Outlook, (brochure, 12 pages).
- Sustainable Development and the Role of Gas, (brochure, 12 pages).
- The Art of Regulation, (brochure, 8 pages).
- International Gas, ISC, April 2006, (192 pages). The fifth issue of the IGU Magazine.



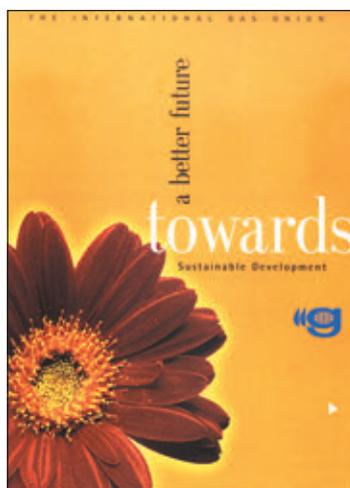
- News, Views and Knowledge on Gas – worldwide, (3 pages). This general brochure gives a concise introduction to the organisation together with its Vision and Mission.
- A Better Future Towards Sustainable Development, (5 pages). This brochure highlights IGU's position in promoting natural gas as a part of the solution to climate change.
- IGU Organisation Chart 2006-2009, (4 pages).

The following publications can be downloaded from www.wgc2006.nl/sprb:

- Gas to Power Africa
- Gas to Power China
- Gas to Power Europe
- Gas to Power India
- Gas to Power Japan
- Gas to Power Korea
- Gas to Power North America
- Gas to Power North East Asia – Taiwan, China
- Gas to Power Russia
- Gas to Power South America
- Gas to Power South East Asia and Australasia
- Report Regulation
- Report Sustainability

IGU organisational information

- IGU Articles of Association, (A5, 28 pages).
- IGU Guiding Principles for Sustainable Development, October 2003, (A5, 12 pages).





A major player in LNG

Following the successful debottlenecking of the three Qatargas LNG trains (Ras Laffan, Qatar) Technip was awarded successively the EPC contracts for Qatargas II (Trains 4 and 5), RasGas III (Trains 6 and 7) and recently for Qatargas III and IV (Trains 6 and 7). So, Technip, in joint venture, is now building the world's six largest LNG trains (7.8 Mtpa each) that will allow Qatar to become by far the largest LNG producer with some 77 Mtpa. Still in the Middle East, the Group signed in September 2005 a major lump sum turnkey contract with the Yemen LNG Company Ltd for the country's first LNG plant.

The Group is also currently executing major LNG turnkey projects in West Africa and the United States including the sixth train of Nigeria LNG Ltd. at Bonny Island and the Freeport LNG receiving terminal in Texas.

This extensive Group experience at both ends of the LNG chain is now being further extended to address the challenges of nearshore and offshore LNG terminals. By combining this know-how with our marine and subsea divisions, a range of new technologies and methods has been evolved. As well as full facility construction, this includes cryogenic flexibles, rigid pipe-in-pipes, and complete transfer systems and architectures. These compliant transfer systems are custom built to optimize LNG transfer to or from marine floating (FPSO/FSRU) or fixed structures (GBS/Platform). Through a series of Joint Industry Projects, partly sponsored by a group of major operators, LNG shipping companies and engineering companies, Technip can now propose complete EPCI onshore and offshore contracts. The cryogenic pipe-in-pipe is a key element in this overall picture as it allows a nearshore LNG loading terminal to be directly linked to onshore facilities. This pipe-in-pipe can easily be installed on land, subsea or on trestles, as it has no expansion loops or bellows, and has a highly effective, passive insulation system. Coupled with an optimal built-in double containment method, an exceptionally safe and reliable link between shoreside and marine operations can now be assured.

With a workforce of more than 20,000 people and an average annual revenue of € 5 billion, Technip ranks among the world's top five corporations in the field of oil, gas and petrochemical engineering, construction and services. Headquartered in Paris, the Group is listed in New York and Paris. The Group's main operations and engineering centers and business units are located in France, Italy, Germany, the UK, Norway, Finland, the Netherlands, the USA, Brazil, Abu-Dhabi, China, India, Malaysia and Australia. In support of its activities, the Group manufactures flexible pipes and umbilicals, and builds offshore platforms in its manufacturing plants and fabrication yards in France, Brazil, the UK, the USA, Finland and Angola, and has a fleet of specialized vessels for pipeline installation and subsea construction.

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With over 40 years of experience, the Technip group has established itself as a world leader in the conceptual design, engineering and construction of gas production, transport, processing, liquefaction and storage facilities and terminals.

References cover grassroots facilities, ranging from small individual units to gigantic complexes, in every sort of environment, as well as upgrades of existing installations.

Technip

Tour Technip - 8 allée de l'Arche
92973 Paris La Défense Cedex - France
Tel. +33 1 47 78 21 21
Fax +33 1 47 78 33 40
infopresse@technip.com



www.technip.com

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IGU Events and IGU-related Events 2006-2009

2006

October 16-19 IGU Council Meeting Lima, Peru

November 6-17
12th session of the Conference of the Parties to the UNFCCC (COP 12)
Nairobi, Kenya

November 7-9
10th International Conference and Exhibition on NGVs (NGV 2006)
Cairo, Egypt

2007

April 24-27
LNG-15
Barcelona, Spain

May 3-5 IGU Executive Committee Montreux/Vevy, Switzerland

October 22-25 IGU Council Meeting St Petersburg, Russia

November 9-15
World Energy Congress (WEC 2007)
Rome, Italy

2008

March 26-28 IGU Executive Committee Port of Spain, Trinidad and Tobago

June 29-July 3
World Petroleum Congress (WPC 2008)
Madrid, Spain

September 22-25 IGU Council Meeting Gyeongju, Korea

October 8-9 IGRC 2008 Paris, France

2009

June 3-5 IGU Executive Committee London, UK

October 5 IGU Council Meeting Buenos Aires, Argentina

October 5-9 24th World Gas Conference Buenos Aires, Argentina

You can find links to many of the above events by visiting www.igu.org and clicking on "Events". Under "Energy-related Events" in the side menu you can also find a link to the WEC Events Calendar displaying a multitude of energy-related events.

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Information from Organisations Affiliated to IGU: GIE.

WGC2006 – A Great Success for Delegates and Exhibitors: Guus Pauka/WGC2006 NOC.

Some Impressions of WGC2006 in Amsterdam: Guus Pauka/WGC2006 NOC.

Final Report of WGC2006 – Introduction: All Guus Pauka/WGC2006 NOC except on page 55 Jeroen van der Veer (Royal Dutch Shell) and Alexei Miller (Gazprom).

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The Global Energy Challenge: Reviewing the Strategies for Natural Gas: Statoil (142), Guus Pauka/WGC2006 NOC (145).

Argentina Assumes the Presidency: Guus Pauka/WGC2006 NOC.

The Triennial Work Programme 2006-2009: IGU.

South American Survey – Focus on Peru: PhotoDisc (160), EMPICS/AP Photo/Silvia Izquierdo (161), Pluspetrol (162), EMPICS/AP Photo/Martin Mejia (164).

The Ukraine Gas Crisis and the Future of European Gas Imports: Guus Pauka/WGC2006 NOC (168), EMPICS/AP Photo/Mykola Lazarenko, Presidential Press Service Pool (169), Yulia Tymoshenko (170), BP plc (174), ENI (176) Hydro (178).

IGU Grows Associate Membership with Cheniere Energy: Cheniere Energy.

Holdigaz – Serving IGU's Registered Domicile: Holdigaz (184 upper, 185 & 186), Transigas (184 lower).

Gearing up for LNG-15: Qatar Petroleum (188), Blai Carda/CCIB (189 upper), Saggas (189 lower left), Enagás (189 lower right).

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Fax: +7 495 775 76 01

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Tel.: +41 43 888 73 00
Fax: +41 43 888 73 01

