



IGU and the prospects of Natural Gas

By Peter K. Storm,
Secretary General of
The International Gas Union (IGU)

If you want to learn about the International Gas Industry, the most efficient, the most pleasant and the most exciting way is to join the 23rd World Gas Conference taking place in Amsterdam, The Netherlands in the beginning of June, 2006. Then you need not read this Article! but of course it is a little long to wait.

The World Gas Conferences and Exhibition take place every three years around the world and are normally joined by at least 5.000 participants from all Continents, and with an Exhibition of more than 15.000 m².

They are the flagships of International Gas Union (IGU), because they are not only the place where the results of the newest research and development within the Gas industry are presented, it is also **the** Venue for all high echelon officers and managers of Gas companies and organisations from all the Continents of the World.

An abundance of Natural Gas

One of the most common types of questions are : "Do we have enough gas? For how long?"

With respect to the adequacy of natural gas resources and reserves, IGU is encouraging new projects to improve our understanding of the long-term dynamics of natural gas reserve growth and how technology can expand our capacity to build reserves and lower the costs of their development, production, and transmission.

IGU has recently published a booklet, called " Natural Gas Supply to 2100".¹⁾ It is written by the distinguished Professor Emeritus M. A. Adelman and his colleague Michael C. Lynch from the Massachusetts Institute of Technology, who have well documented the experience of the oil industry in expanding productive capacity and reserves. In this booklet they have now developed a path-breaking examination of the supply potential of natural gas in the 21st century.

The development of new technology has clearly improved forecasts. Geologists are now discovering natural gas at deeper levels than previous exploration indicated, leading to a greater understanding and certainty about natural gas reserves that will be available in the future.

While the exact amount of natural gas reserves is still not clear, reserve forecasts have been steadily increasing as existing reserves are more extensively explored. High prices for natural gas and demand have made new development more economically feasible.

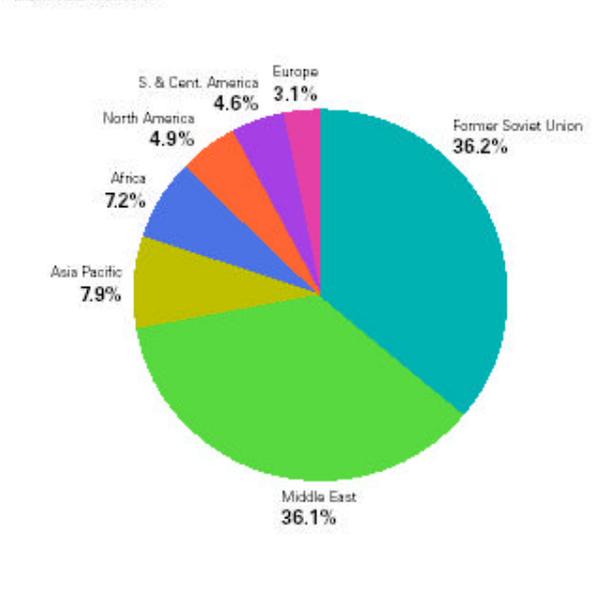
In 1979, the proven reserves of natural gas in the world were 73 trillion cubic metres. 20 years later



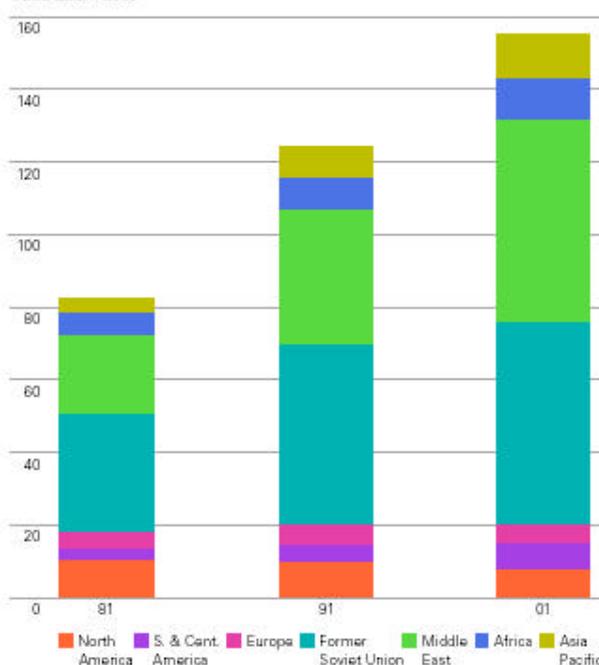
proven reserves were doubled to 146 trillion cubic metres .and in 2003 the Statistics of BP/Amoco indicates world reserves in the size of 155 trillion cubic metres in spite of growing consumption.2)

Graph of Proved Reserves:

distribution of proved reserves 2001
Trillion cubic metres %



proved reserves
Trillion cubic metres



Source: BP/Amoco Statistical Review of World Energy 2002

With a continuing Technology development, which IGU is strongly promoting, new and unconventional gas resources will be developed. Currently investigations in hydrate gas winning Technology is progressing and this might radically alter even the above statements regarding natural gas availability.

We produce, transport and consume more gas than ever

There has been a steady increase in natural gas production over the past many years. From 1991 to 2001 world production increased 21,5%

Similarly, world consumption increased close to 20 % over the same period. Trends indicate that a steady increase will continue in the coming years as the world moves towards less carbon-intensive energy strategies.

One of the negative factors often highlighted about Natural Gas is the dependence on heavy investments in Pipelines.

In this context it is worth also mentioning LNG, Liquefied Natural Gas, which has become a very important element, especially in Asia Pacific.



Out of the 554 billion cubic metres of gas exported around the world in 2001, nearly 26 % or 143 billion cubic metres were in the form of Liquefied Natural Gas (LNG), 71 % of which is transported to Asia Pacific.

LNG is today a booming business in itself, and with the growing energy demand this will be a continuous upward trend, challenging the gas industry and IGU to develop cheaper and more advanced LNG technology.

That the market players expect growth in the natural gas sector in the coming years are illustrated by the investment in infrastructure for Natural Gas which is estimated to exceed more than 25 billion USD annually.

A cleaner source of energy

Not so many years ago Natural Gas was regarded by the large producers as a by-product you had to get rid of in order to get to the Crude. That picture has changed radically over the last Decade primarily because Natural Gas has become the favoured fuel for new Power generation because of its greater thermal efficiency and environmental friendly characteristics.

"Emission of CO₂ and other greenhouse gases", "Climate Change" and lately "Sustainable Development" are keywords or labels in society today, and energy plays a very important role in this debate.

Obviously Natural Gas is a fossil fuel, and as such greenhouse gases are emitted during both production and distribution of Natural Gas.

But unlike coal and oil Natural Gas has a higher hydrogen/carbon ratio and consequently emits less carbon dioxide (CO₂) for a given quantity of energy consumed. A conservative analysis indicates that oil contributes 20 % more CO₂ emissions than natural gas and coal contributes 50 % more.³⁾

IGU advocates a switch from more carbon-intensive fuels to Natural Gas as part of its commitment to work towards a more sustainable development. by bringing benefits both economically, environmentally and socially.

Natural Gas is not the only fuel to use. Around the world a palate of energy forms is necessary to serve the needs of the countries, but where it is feasible to leave more polluting or dangerous energy sources IGU argues, that:

“Natural Gas is the better alternative both globally and regionally as the bridging fuel towards a sustainable development and beyond”

An energy source of the future

Because of its special molecular composition methane is an excellent energy carrier for hydrogen both in the current combustion technology and in future technologies.

There seems to be growing recognition among scientists and experts that methane might also have a significant role to play in a possibly future Hydrogen age, as the protagonist of the future.



Hydrogen fuel cells are a promising new innovation and the increasing concern in the public about the environment has already produced powerful market incentives for businesses to invest in cleaner technologies and increased efficiencies.

Recent research also indicates, that Natural Gas infrastructure such as pipelines and storages to a large extent can be used in a future hydrogen age.

An industry with challenges

Gas monopolies of yesterday have disappeared or are about to disappear. It is not just within the European Union that deregulation and competition has become topical issues.

United States and Canada were the fore-runners but both in Latin America and in Asia privatisation and deregulation has already taken place in many countries or are underway.

Official Regulators have emerged to control the companies and secure competition often covering both Gas and Electricity.

This is quite a challenge to gas companies and organisations around the world and indeed to IGU.

One reaction is another rapprochement to the Electricity sector. The trend is today in many countries that gas companies and utilities merge or swallow each other, they become "Energy" companies selling both Gas and Electricity and possibly also other commodities and services.

In spite of these challenges or maybe because of them the interest in IGU and the activity within IGU is greater than ever before in its 72 year history.

International Gas Union (IGU)

It is in this context I would like to introduce you to IGU.

IGU is a non-governmental, non-political and non-profit world wide organisation, currently with representatives from 67 countries and covering about 90 % of the Gas produced and consumed.



(Members Non members)

3. februar 2003
International Gas Union



Since 1931 only one representative from each country, the Charter Member - typically the national Gas Association - was allowed, but since the beginning of 2003 IGU has also opened for Associate Membership, typically from Multinational Energy companies or companies and organisations from specific parts of the gas industry. This new possibility has been very successful. As of April 2004 IGU now has 16 Associate Members, located around the Globe and very different in size, but among them are companies like BP, Chevron-Exxon, Shell and Total as well as a number of the larger traditional gas-companies.

In this way the knowledgebase and the networking possibilities in IGU have expanded considerably. 4)

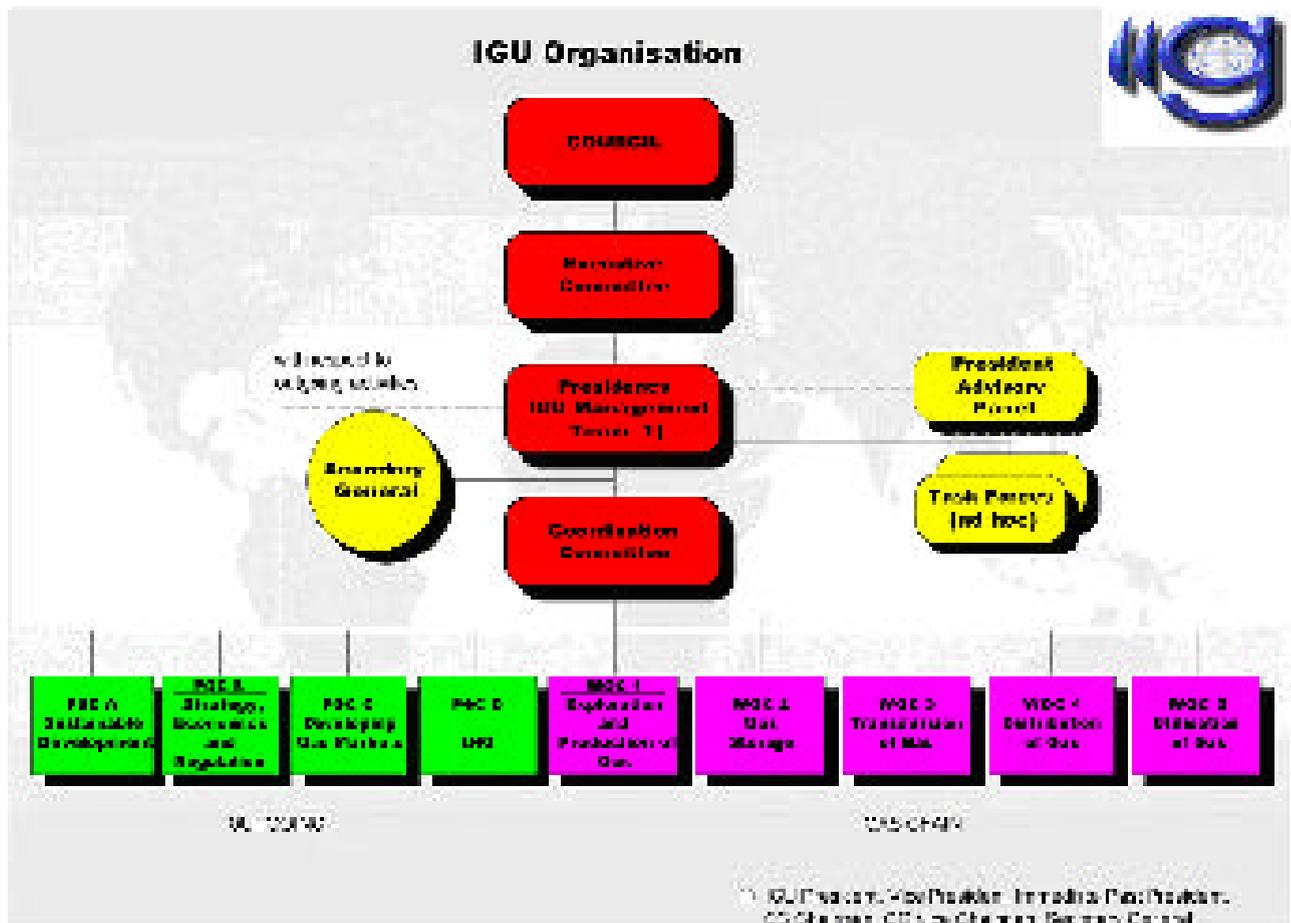
The general purpose of IGU is to promote the technical and economic progress of the gas industry. 5)

In a number of permanent Committees IGU is performing research and development covering the whole of the gas chain from well head to burner tip including LNG, as well as important outgoing issues like Sustainable Development, Strategy, Economics and Regulation and Developing Countries. Thus, the specific gas issues, which I have covered in very general terms above is being studied in much more details by specialists in the Committees.

IGU is also promoting gas by organising Special Events at UN Conferences concerning Climate Change and Sustainable Development. Furthermore with both mature and emerging Gas countries as members Technology Transfer in the form of regional seminars and workshops are also high on the list.

In the current Triennium 2003-2006 under Dutch Presidency around 500 leaders and specialists from around the world are participating in the work of IGU.

This is the overall organisation of IGU:



The current Triennium finishes with the aforementioned World Gas Conference in Amsterdam in June 2006. 6)

Before each Presidency some Strategic Guidelines and a Triennial Work Programme are prepared and adopted by IGU.

The current Dutch Presidency follows Strategic Guidelines 8) with emphasis on promoting

- Technology, Industry efficiency and Customer focus
- Gas as the Transition Fuel towards a sustainable energy system, and
- The Industries role as a Responsible Corporate Citizen.

And the adopted Triennial Work programme is being followed by the Committees preparing the programme for 9)

the 23rd World Gas Conference in Amsterdam working under the slogan:

GAS powers the people and preserves the world - promoted by IGU.

Peter K. Storm, June 2004

Notes:



- 1) The booklets can be obtained at the IGU Secretariat or you can use the Order form displayed at the IGU Web site: www.igu.org under "IGU Publications"
- 2) Source: BP AMOCO Statistical Review of World Energy 2002, Section on Natural Gas
- 3) Source: Kirchgessner, D.A., et al (1997) Estimate of Methane Emissions from the U.S. Natural Gas Industry, Chemosphere, Vol. 35, No. 6, pp. 1365-1390.
- 4) You can read more about Associate Membership in IGU at: http://www.igu.org/index.asp?p_link=members/mem_asso.asp
- 5) Please go to: http://www.igu.org/index.asp?p_link=members/mem_asso.asp to read more about the Vision, Mission and Objectives of IGU.
- 6) At <http://www.wgc2006.nl> you can find more about the 23rd World Gas Conference in Amsterdam in June 2006.