



UNECE Weekly

United Nations Economic Commission for Europe

Issue N° 173 – 22-26 May 2006

Liquefied Natural Gas: Contributing to Market Flexibility

On 2-4 May, member companies of the UNECE Gas Centre met in Hammerfest, Norway (about 500 km north of the Arctic Circle) to discuss the prospects for the production and marketing of Liquefied

interconnected by extensive pipeline networks. Today, we are witnessing the emergence of a truly global market for natural gas and the vehicle making this possible is Liquefied Natural Gas.



Natural Gas (LNG). The meeting was hosted by the Norwegian oil and gas company Statoil and included a visit to Statoil's facilities on Melkoya Island.

Natural gas continues to be the fuel of choice for the provision of energy services, including the generation of electric power.

The Melkoya facilities, which are currently under construction, will be Europe's first export facility for the liquefaction and shipment of natural gas. The natural gas treated at Melkoya will come from the Snohvit field, located 140 km offshore, by pipeline. The Snohvit natural gas production facilities represent the first offshore project in the Barents Sea in the Arctic region. It is hoped that the Melkoya and Snohvit projects are a precursor of additional exploitation projects in the Barents Sea. The Shtokman field in the Russian portion of the Barents Sea is reputed to contain more gas than the combined total North Sea reserves offshore Norway and the United Kingdom.

Natural gas resources are relatively plentiful worldwide but supplies will increasingly have to come from more remote and difficult places, with harsh weather conditions, such as the Barents Sea. Alternatively, natural gas will have to come from the Middle East or Africa. As production and consumption centres get further apart, and particularly where pipeline transport is difficult or impossible, the only way to get natural gas to markets is to liquefy the natural gas, transport it by sea and regasify it once it has reached the

pipeline facilities of the intended market.

But LNG facilities do not come cheap, requiring huge

investments. The total capital costs for the Melkoya facilities (liquefaction and related infrastructure), including the



offshore natural gas production facilities, are estimated at about \$US 8 billion. While such facilities are economically and commercially attractive at current natural gas prices, of more significance to such projects is the future level of prices. Developers are called upon to make large upfront capital commitments in

Question of the Week

Resource Scarcity: Are Declining Hydrocarbon Reserves a Problem?



by George Kowalski, Director of the UNECE Sustainable Energy Division

The 1970s saw the limits to growth theory, espoused by the Club of Rome, reach its zenith of

popularity. The notion of scarcity was widely discussed and debated and the fear expressed that the world would soon run out of natural resources, notably hydrocarbons (oil and natural gas). Unless the world's appetite for hydrocarbons and other natural resources could be brought under control, this would seriously constrain the world's economic growth prospects, or even worse, catastrophic consequences would befall mankind.

So far, these predictions have proven to be unfounded. But the re-emergence of concern over high oil and natural gas prices and apprehension over security of oil and natural gas supplies has rekindled these fears. Once again, stark warnings can be heard about the sharp draw down of conventional hydrocarbon resources. Could it be that the Club of Rome was essentially right and only wrong as far as timing is concerned?

Within the current range of energy prices and with the present technology, it is estimated that conventional reserves of crude oil and natural gas are expected to be capable of meeting cumulative world demand for the next forty or more years. In addition, there are large non-conventional hydrocarbon resources that could be developed, if necessary, to meet growing demand, notably for oil. Hence, resource depletion per se is not of major concern. But what is of vital concern is whether the existing and potential new reserves will be financed and developed in an efficient and timely manner.

📌 *Liquefied Natural Gas (cont.)*

the hope that prices will remain reasonable over the life span of the project that is usually about 30-40 years.

Hence, international prices will need to continue to reflect the high capital costs of such projects.

But despite the high capital costs and inherent risks, LNG projects are vital for UNECE countries. They make the development of remote and difficult sites possible; they help to meet the growing demand for energy; they are the glue helping to bind regional natural gas markets together; and they contribute to flexibility by spreading risks over a wider range of countries and facilities. Even more importantly in the current energy context, they contribute to enhancing energy security through the diversification of sources of supply. They also provide greater political and territorial independence; it is important to recognize that sea transport makes it possible to ship LNG direct from producing to consuming country without transit through other countries, thus avoiding disputes over transit and transit fees. ✱

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Coming up ...

22-23 May

Tenth Conference on Urban and Regional Research ([Bratislava, Slovakia](#))

22-24 May

Centre for Trade Facilitation and Electronic Business (UN/CEFACT)

22-24 May

Ad Hoc Meeting on the European Agreement concerning the Work of Crews of Vehicles Engaged in International Road Transport (AETR)

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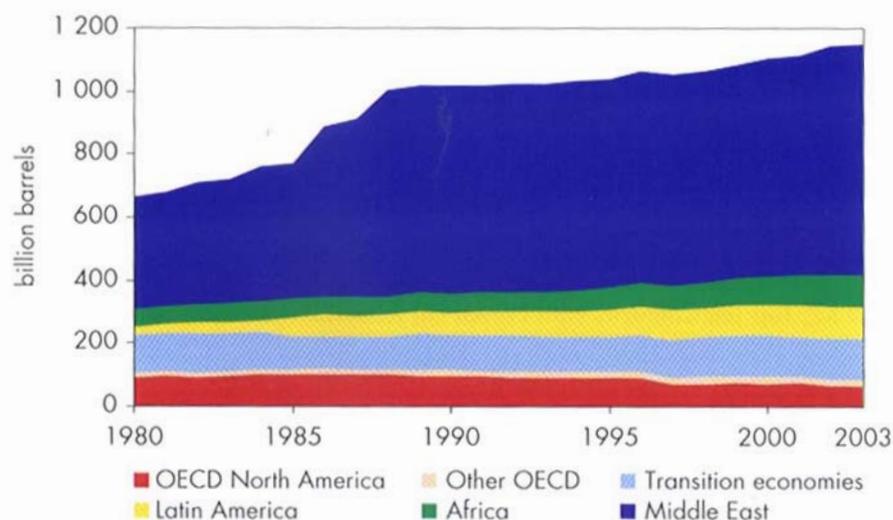
📌 *Resource scarcity (cont.)*

This is the unanswered question that currently hangs over oil and natural gas markets, adding to uncertainty, risks and anxieties.

Large western oil and natural gas companies, private and to some extent state-owned, have had a significant influence and role in the development of the world's hydrocarbon industry. However, their access to

hydrocarbon reserves and resources today is increasingly being restricted. Currently, some 65-75% of the world's hydrocarbon reserves lie outside their reach. And therefore, lacking investment opportunities in upstream projects, more and more of these companies are redirecting their considerable earnings away from exploration and upstream development to repurchasing their own shares and/or increasing dividends to shareholders.

Proven Oil Reserves by Region



Source: BP (2004).

According to the International Energy Agency, \$US 6 trillion of investment will be needed globally over the next three decades to maintain and expand energy supply systems in the oil and natural gas sectors and, most notably, in upstream oil and gas projects. But the problem is that most of the remaining undeveloped hydrocarbon reserves and resources are concentrated in developing countries. Unfortunately, many of these countries are not private sector investment friendly and, moreover, are in economically vulnerable and unstable regions of the world, providing no guarantee that their hydrocarbons will be accessible, developed and delivered when needed.

Some 65-75% of the world's hydrocarbon reserves lie outside the reach of large western oil companies.

In sum, hydrocarbon reserves and resources are sufficient to meet growing demand for the foreseeable future. Likewise, financing is available. However, the environment for developing these reserves is not sufficiently investment friendly and conducive at this time. Ensuring the security of hydrocarbon supplies will require access to and development of these reserves;

availability, access to and reliability of transportation infrastructure; and appropriate legal, regulatory, fiscal and policy frameworks conducive to investment. For this to happen, UNECE countries, individually and collectively, will need to engage hydrocarbon producing countries to tackle domestic problems and remove existing barriers to investment while, at the same time, take active measures to mitigate against the potential risks of inadequate future hydrocarbon supplies. The mitigation of these risks and barriers would benefit to a significant degree from a multilateral producer-consumer dialogue between governments, industry, the financial community and relevant international organizations within the framework of the United Nations, particularly under the auspices of the UNECE which has had an energy programme since 1947. ✱

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