

**International Gas Union
23rd World Gas Conference
Amsterdam, The Netherlands
5 - 9 June 2006**

**Sustainability and Natural Gas
A Strong Tandem**

Midday Address

by

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I. Introduction

The Netherlands is generally known and appreciated not only as a country of windmills and canals but also as a country of cyclists. A particular form of cycling involves a tandem in which two riders join forces to move in the same direction. This is a very cooperative, energy-efficient, low-cost and climate-friendly method of motion and transport. It thus meets major requirements of sustainability.

But the Netherlands has also long been an important gas nation, a pacemaker for progress in the European gas industry in recent decades.

So what would be more obvious here in Amsterdam than to combine the two things conceptually and figuratively under today's general theme? When doing so, it immediately becomes clear that sustainability and the gas industry meet major prerequisites for efficiently operating in tandem.

But we need to ask whether this tandem is strong and robust enough to take the gas industry successfully through the next decades. And what about threats, risks and handicaps on this path, considering the steep rise in crude oil prices from just under 30 dollars per barrel to about 70 dollars a barrel since the last World Gas Conference in Tokyo?

II. Ambitious Message

The message that came from the 22nd World Gas Conference in Tokyo in 2003 was:

"Natural gas is the fuel of choice, natural gas is the transition fuel of the 21st century, natural gas is the fuel of no regrets."

The motto of this World Gas Conference here in Amsterdam expresses an equally appropriate and optimistic message:

"Gas powers the people and preserves the world."

This morning's strategic panel on "Gas for Sustainability" is undoubtedly right in its assessment that the gas industry is well equipped and can turn up many trumps to assert its strong position on the world energy market.

And there can be no doubt about the continuing validity of the expectation that gas is the fossil energy with the steepest rate of growth in covering future energy demand worldwide.

The driving forces for such a development are a number of factors that are basically self-evident:

1st factor:

The global gas reserve situation is fairly reassuring. A substantial contribution by gas to meeting the energy needs of future generations in the world will not founder on a lack of gas reserves. There is also some justification in now going beyond the proven reserves and including presumed resources in our calculations.

And another option are the reserves of unconventional natural gas, even though their economic use currently still involves some uncertainty. But we are talking about sustainability, and that means the long-term perspective.

2nd factor:

Natural gas is the cleanest fossil fuel.

This finding applicable to all relevant pollutants is nowadays rashly limited to CO₂ emissions. But here, too, it is generally known that gas has by far the lowest figures.

Anyone who today speaks of CO₂-free coal-fired power stations for the future should remember that this can be achieved far more economically and efficiently with gas-fired power stations.

But we should not confine the environmental benefits of our product to CO₂ alone.

Instead, we should repeatedly emphasise the broad range of positive environmental characteristics, not least the low emission levels of particulate matter, giving gas an outstanding position, for instance as motor fuel in built-up areas.

3rd factor:

Efficient and forward-looking technologies are available for the gas chain from the wellhead to the burner tip and for energy conversion.

With wide-ranging R&D activities over the decades, the gas industry has played a decisive part in marketing new and clean technologies specifically for natural gas.

4th factor:

Natural gas can be effectively linked to renewable energies.

5th factor:

Natural gas is the bridge to hydrogen technology.

I will return to the last three factors later on.

Natural gas and the gas industry thus have good properties for proving successful in the transition towards a more sustainable energy future. This seemingly commonplace observation can be illustrated with a figure:

If gas were not to increase its absolute contribution to global energy consumption in 2030, as expected by the IEA^{*)}, but were to stagnate at the 2003 level, then global CO₂ emissions at the end of the decade after next would be 18 % higher, which is equivalent to roughly 7 billion tonnes! This corresponds to the CO₂ emissions of North America (US, Canada, Mexico) in the recent past.

III. Threats and Handicaps

I do not want to dampen your spirits, but the good starting situation does not automatically mean that gas will be successful at all events and can steadily increase its market share. For instance, we can see that other energy sources are also considered to be well equipped for operating in tandem with sustainability. Be they coal, nuclear energy or renewables - none of them will be idle. Instead they will make major efforts to improve their competitive position, in some cases with strong political backing.

It is also conceivable that nuclear energy will experience a changed public awareness in cases where it is to be phased out at present or has not been accepted at all until now. One thing is certain: nuclear energy is now more attractive than ever in terms of economic viability, supply security and climate protection.

Finally, a large number of technologies will be developed for renewable energies in the direction of large-scale commercial applications at a faster rate than currently anticipated.

* IEA World Energy Outlook 2005, reference case

Competing energies will therefore not stop from challenging gas as the sustainable energy. This will be all the more likely if gas is no longer regarded indisputably as the fuel of choice, the transition fuel or the fuel of no regrets, but gets the image of an unreliable, imported energy that is problematic in geopolitical terms and is moreover expensive and has a volatile price.

IV. Managing Security of Supply

This is not a theoretical consideration, but a concern that we are increasingly confronted with due to the oil price-linked rise in gas prices and the new debate about supply security - not least in Europe, a region which just like the United States, for example, is dependent more and more on gas imports.

The role played by gas in energy supply will therefore only be sustainable if we can give consumers long-term volume and price security. What does this mean from the viewpoint of a gas-importing region?

The aim must be to ensure that gas imports remain economically and politically stable and involve minimum risk. For this, we need today and tomorrow a broad range of supply regions and a diversity of suppliers and supply routes.

That frequently conflicts with short-term profit optimisation goals. However, such goals have to be resisted, or else the long-term goals will be jeopardised. Yet this is often not easy for companies dependent on capital markets (or governments dependent on election dates).

Ensuring secure supply that is sufficient at all times as well as the broadest possible range of supply sources - this challenge on the

increasingly global procurement market is certainly not new but will in future become ever more important and harder to cope with.

This globalisation is fostered not least by the growing importance of LNG, which in turn benefits supply security. It extends the supply spectrum beyond the confines of pipeline links and thus increases the diversity just mentioned. And the isolated failure of an LNG source has fewer consequences for overall market supply. On the other hand, we must bear in mind that greater reliance on LNG makes us more vulnerable to any supply shortfalls in other regions. The significance of LNG as a flexible adjunct to pipeline gas may therefore be quite ambivalent.

Regardless of whether LNG or pipeline gas is involved, in both cases long-term contracts will continue to be of fundamental importance in international and interregional gas trade:

- They give producers the necessary long-term sales prospect and the guarantee that in return they will always obtain the respective market price.

This is the precondition for them making their resources available for sustainable energy supply involving high investments in the development of new fields and their linkage via major infrastructure projects.

- On the import side, those contracts guarantee supply security which is evidently not possible by relying solely on short-term market forces.

Ladies and gentlemen,

This strategy of efficient risk-sharing is not the product of monopolists but is discussed in economic theory as the most efficient strategy for safeguarding resources on a long-term basis!

In this context, price mechanisms must be such that the interests of exporting and importing countries can be lastingly balanced under long-term gas supply contracts and the competitiveness of gas can be durably ensured with consumers, which is one aspect of sustainability.

From the viewpoint of a gas-importing company and country, I can state this: Oil price indexation - a synonym for pegging gas prices to the prices of competing energies - has proved its worth in this respect. Especially in the past few months, it has led in continental Europe to a fairly constant price development without erratic fluctuations, as were observed elsewhere.

Nonetheless, oil price indexation is not a dogma but surely the best solution when dependent on a limited number of producers who determine the supply volumes. And where is the alternative that guarantees more security, reliability and price constancy more efficiently?

These advantages might, however, be eroded if ideas or demands were to prevail which are aimed at misusing temporary shortages for the purpose of excessively high prices or if the mechanism allowing oil price indexation to act both upwards and downwards were deactivated.

V. Safeguarding Energy Supplies

In view of the global race for gas resources, I would like to enlarge on another aspect: foreign policy measures to support cross-border deliveries and projects. Energy policy must be an integral part of foreign policy and external trade policy. This is needed especially in view of likely developments on world energy markets

and geopolitical conditions that have not improved. My impression is that there is a greater awareness of this need.

The aim must be to create viable and calculable political ties with the gas-producing and transit countries and at the same time to contribute where possible towards stability and international reliability in the relevant countries and regions.

It is essential to find practicable solutions in which all relevant players can and wish to participate: energy-producing and consuming countries, transit countries and also energy companies, to be incorporated in a stable partnership at political and entrepreneurial level.

VI. Prudent Regulation

It also needs to be asked whether regulatory and political conditions are structured and developed in such a way that gas can contribute to global energy supply in good time and on a lasting basis, effectively on the scale needed and competitively, in other words, sustainably.

In view of rapid and far-reaching changes in gas markets, regulatory authorities are confronted with very serious decisions having far-reaching repercussions.

Along the gas chain, different regulatory regimes often compete with each other to safeguard the rent for their own stakeholders in their geographical jurisdiction. Different or often contradictory objectives of competing regulatory regimes may result in a market not being regarded as favourable by an investor. Regulation must allow reasonable returns and match the investor's perception of risk and return, not the regulator's.

Therefore, a prudent regulatory regime has to strike a balance between the investor's long-term needs and the customer's short-term interest and should be seen along the entire gas chain.

Regulation must above all create sufficient incentives so that

- pipeline systems remain reliable and in good operating condition and
- the necessary investments in expansions can be made economically.

And it must be confined to the areas where there is no genuine competition. The prime goal, therefore, is to meet the shared interest in durably secure and favourably priced energy supply. Regulation that seeks to achieve an atomised and fully liquid market by fragmenting the gas industry will fail to meet the customer's interest in long-term security of supply.

VII. Emissions Trading

While there has so far been ample reason for not necessarily pinning positive hopes on regulation, the gas industry has basically positive expectations in respect of the emissions trading system introduced in the EU in 2005. However, this still very young EU emissions trading system has shown very clearly that the high gas price, and not the lower carbon content of gas, significantly dampens those expectations.

After all, the likelihood of gas-fired power stations replacing those using other fuels is largely determined by the price difference between gas and competing fuels.

Yet these have greatly benefited from high gas prices.

Unlike the other factors, especially energy prices, the EU-ETS is not a driving force. The difference in energy prices and its impact on the merit order are of greater relevance. The EU-ETS will assist the moderate increase in the use of gas in power generation, but not greatly accelerate it. In other words, the EU-ETS will, for the time being, not trigger a dash for gas.

This unsatisfactory outcome is, to a large extent, due to emissions trading being superimposed on a broad range of regulatory measures already existing in the energy market.

Those measures include, for example, taxes, subsidies and environmental regulations.

For instance, as long as fuel-differentiated benchmarks for new power stations are laid down in many EU countries, gas is clearly at a disadvantage against carbon-containing fuels - which in turn has an unfavourable impact on the attainment of climate protection targets that have been set.

These provisions partly clash with the targets of emissions trading and thus impede or distort control of CO₂ emissions via the market. Politicians are therefore called upon to clearly give precedence to market forces and competition and to pare back the catalogue of regulations and fiscal interventions. It can only be hoped that, in any post-Kyoto regime, gas is given a fair chance to make a greater contribution to climate protection.

VIII. Stepping Up R&D Activities

Another subject I set great store by are our industry's R&D activities.

In connection with worldwide liberalisation, it is noticeable that this fundament of our business is being increasingly neglected and is even in danger of collapsing. In the past, large organisations in the US and in European countries carried out extensive, forward-looking R&D projects. But this has now dramatically changed.

At first glance it is understandable and logical if companies seek to remove the burden of R&D expenditure as a reaction to growing competition with shrinking margins. On the other hand, there is a danger - though not in the short term, but in the medium and long run - of weakening the outstanding competitive position of gas.

In my view, we must counteract worldwide the trend of decreasing innovative activity in the gas industry.

This may include reflecting on possible new organisational forms that serve to promote R&D in a neutral, industry-wide context. The alternative would be to let appliance manufacturers alone seize the initiative. This may be a solution but involves the risk that they might not give priority to the development of gas technologies.

Today there are but a few companies that have retained their strategy of innovation in unchanged form. I am able to state that E.ON Ruhrgas continues to do so out of conviction.

As before, we have developed forward-looking projects in collaboration with manufacturers and launched them on the

market. What is more, we have decided within the E.ON Group to establish an E.ON research institute for energy in order to create a common platform for science and policy and to handle and answer important questions arising for the energy industry and society.

I also greatly welcome the fact that the IGU has set up a task force dealing specifically with relevant questions, such as:

- What has changed in the past few years due to liberalisation in the R&D sector?
- What consequences will this have on our business in the long run?
- What can we do against the backdrop of liberalisation and stiffer competition to trigger technological developments and innovation and launch them on the market?

There are a number of R&D subjects on which we should refocus our attention in future. Let me mention, for example, the development and refinement of micro cogeneration, combined cycle power stations, micro turbines and fuel cells. Just as important are activities aimed at linking gas to renewables. Such examples are:

- increased efforts to introduce gas heat pumps and
- conversion of biomass into biomethane that can be used for all gas applications.

Incidentally, the bridge to hydrogen can be followed via biomass. Another important aspect is technical safety. We must also make efforts to improve still further the safety of gas transmission and its environmental compatibility.

Let me finish this section by appealing to everyone concerned not to neglect R&D and to support the IGU and use above all its task force just mentioned. We must not allow our technological development to be disrupted.

IX. Summary and Recommendations

Let me sum up: the starting conditions for the tandem described at the outset are basically good. However, due to numerous restrictions, regulations and other handicaps, the gas industry is hindered on a broad scale from effectively using the favourable properties of its product for the benefit of sustainability. This is noticeable not least on the European market. It therefore needs to be asked which methods are possible and necessary to harness the literally natural potential of gas for the benefit of sustainability when operating in a force field comprising criticism of rising prices, increasing regulation, global competition for resources and high investment demands.

Let me mention a few approaches in this respect, in so far as I have not already addressed them:

- We must organise a publicity campaign presenting gas as the transition fuel having a package of positive characteristics serving sustainability.
- We must reflect actively and creatively on the implementation of strategies that intelligently combine gas with renewable energies.
- We must become involved with greater commitment than hitherto in national and international debates and decision-making processes on future climate and environmental policy.

- We must convince our governments, especially in the EU, that competition is a great asset in our economic and social system but that competition is worthless and sustainability cannot be achieved without secure gas supplies.

In other words, we must not lose hope of energy policy being shaped by what is feasible and not by what is desirable.

It boils down to this: sustainability and natural gas are a strong tandem, but to get this tandem moving, we must pedal hard and perseveringly and steer in the right direction.