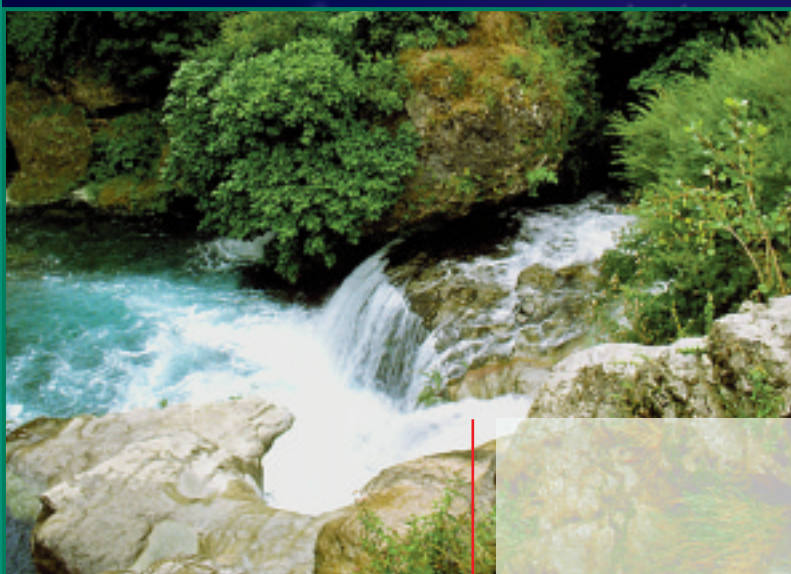


natural gas
and
climate change
policy



the
european gas
industry's
view



The European Gas Industry's view

With a view to the debate underway on the policies to be adopted in Buenos Aires, **eurogas** sets out the European gas industry's position, at the core of which is an understanding of the potential role of natural gas in combating the climate change effect. By virtue of not just its chemical composition but also its ease and efficiency of use, natural gas can make a substantial contribution to the reduction in emissions of greenhouse gases, in particular carbon dioxide (CO₂) through displacement of other fossil fuels(1).

eurogas, the European Union of the Natural Gas Industry, accepts the prevailing scientific consensus which points to shifts in world climate pattern, due in part at least to anthropogenic activities, notably the increasing emissions of climate change gases into the atmosphere in particular CO₂ from fossil fuel use. **eurogas** hopes that the ambitious and hard-won consensus at the meeting of the Conference of the Parties in Kyoto in December 1997 can be realised. The next Conference of the Parties in Buenos Aires represents an important opportunity towards a more concrete framework for action. **eurogas** confirms the contribution which the gas industry can make to achieving climate change policy objectives. By virtue of not just its chemical composition but also its ease and efficiency of use, natural gas can make a substantial contribution to the reduction in emissions of climate change gases, in particular carbon dioxide (CO₂) through displacement of other fossil fuels.



Need for continuous dialogue

The realisation of climate change policy objectives within a framework of global sustainable development will be among the major challenges of the 21st century. The decision making in Buenos Aires will lie with Governments, but the implementation will require continuous dialogue with a wide range of parties, in order to develop cost-effective approaches, based on sound analysis and involving flexible options. Within a framework of objectives agreed with authorities, industry should be free to focus on policies and measures which offer the most advantageous cost-benefit relationships, and guarantee international competitiveness on a fair basis for global growth.



Support for European initiatives

eurogas supports a number of policy initiatives underway in Europe, which will reduce emissions of climate change gases :

- ◆ increased share in electricity generation of CHP technology, for which natural gas is the fuel of choice
- ◆ promotion of renewables on an economic basis, of which the use of natural gas and renewables in combination offers an ideal approach

- ◆ energy efficiency and rational use of energy, to which policy, promoted on a market-oriented basis, the natural gas industry can make an important contribution
- ◆ a new emphasis on environmental agreements as a way of implementing policy. Such agreements can meet objectives on emissions' levels while in so far as they represent balanced cost-effective commitments suited to companies' concerns, they safeguard industrial competitiveness. **eurogas** is currently considering follow-up possibilities for the gas industry.

Objections to energy tax

eurogas does not agree with the imposition of new and additional taxes to achieve energy efficiency; in particular EU unilateral action would damage the competitiveness of European Industry. If, however, taxes are used as an emission control instrument they should be structured as a carbon-tax, encouraging fuel-switching to gas from other fossil fuels emitting more CO₂.

Proposed policies and measures

eurogas affirms its recommendations on policies and measures to reduce CO₂ by using natural gas.

- ◆ Replace other fossil fuels which emit more CO₂ per unit of energy produced, by natural gas, in both the production of electricity, especially through cogeneration of heat and power (CHP), and in end-use applications.
- ◆ Promote hybrid energy schemes
 - gas and renewables applications (e.g. gas used in combination with solar)
- ◆ Stimulate energy efficiency in a market-based approach including :
 - greater consumer awareness generally of ways of conserving energy and using energy efficiently
 - promote research and development of more efficient gas combustion
 - development of energy efficiency standards
 - actions to encourage large users in co-operation with energy supply companies to agree energy efficiency programmes with national authorities.
- ◆ Promote natural gas as a motor fuel for vehicles.
- ◆ Promote research and development of new energy efficient technologies in applications for using natural gas, including gas fired heat pumps for use in heating and cooling, and also development of fuel cell technology.
- ◆ Stimulate technology transfer to developing countries
 - experience and know-how in gas supply
 - efficient gas end-use applications.

For its part, **eurogas** notes that the European gas industry will address its responsibilities with regard to minimising ever further emissions of methane, also a greenhouse gas. The impact of these emissions, in any case, in no way negates the contribution gas can make to combating climate change. The insignificant emissions of methane from gas industry activities are of a different order of magnitude than those from natural sources and other anthropogenic sources which are much higher. Increasing gas use in replacement of other fossil fuels will also bring added-value benefits in terms of reduced emissions of sulphur dioxide, nitrogen oxides and solid residues.



Elements for an EU implementation strategy

eurogas supports the broad approach which the EU brings to the negotiating process in Buenos Aires. Specifically **eurogas**,

- ◆ supports the development of indicative targets for climate change gases derived from a combination of the most cost-effective policies. The gas industry will co-operate with the EU and national authorities to contribute to the establishment of a sound emissions database for the gas sector and in the preparation of a shared analysis of the economic impact of the targets for climate change gas emissions
- ◆ agrees with the principle of flexible mechanisms. Their application should strengthen the possibility of achieving overall real reductions in climate change gases over time
- ◆ supports especially the principles underlying the approach on joint implementation which will offer very important opportunities to meet targets on emissions levels
- ◆ supports the clean development mechanism which will enable developing countries to co-operate in a co-ordinated way in climate change policy
- ◆ considers that the system should be transparent at global level, and caution should be exercised on any use of public funds in project funding, to avoid the possibility of introducing market distortions
- ◆ considers that a common global framework approach should be set up for emissions trading, which avoids market distortions. In view of the complexity of developing a trading system, the approach should be staged, initially trading in CO₂ and later, when there is more certainty about their sources and measurement, in other climate change gases expressed as CO₂ equivalent. The system should allow opportunity for private entities to trade
- ◆ endorses the importance of establishing transparent and reliable monitoring mechanisms world-wide.

eurogas expresses the wish that the EU should ratify the Kyoto Protocol parallel to other major Parties, especially the USA and Japan. Benefits of an unilateral action would be rather limited without support of other Players. The EU should make best efforts to achieve real reductions in climate change gases which will meet policy objectives, underpinned by transparent and reliable and fair modalities. Also, non Annex 1 developing countries in particularly those which are more advanced economically and industrially, should be encouraged to engage in efforts within the framework of objectives set by the Protocol.

Explanatory note



"Switching from coal to oil or natural gas, and from oil to natural gas, can reduce (greenhouse gas) emissions. Natural gas has the lowest CO₂ emissions per unit of energy of all fossil fuels. The lower carbon-containing fuels can, in general, be converted with higher efficiency than coal. Large resources of natural gas exist in many areas. New, low capital cost, highly efficient, combined cycle technology has reduced electricity costs considerably in some areas. Natural gas could potentially replace oil in the transportation sector. Approaches exist to reduce emissions of CH₄ from natural gas pipelines and emissions of CH₄ and/or CO₂ from oil and gas wells and coal mines". (1)

Facts and views on greenhouse gas emissions and the impact of natural gas

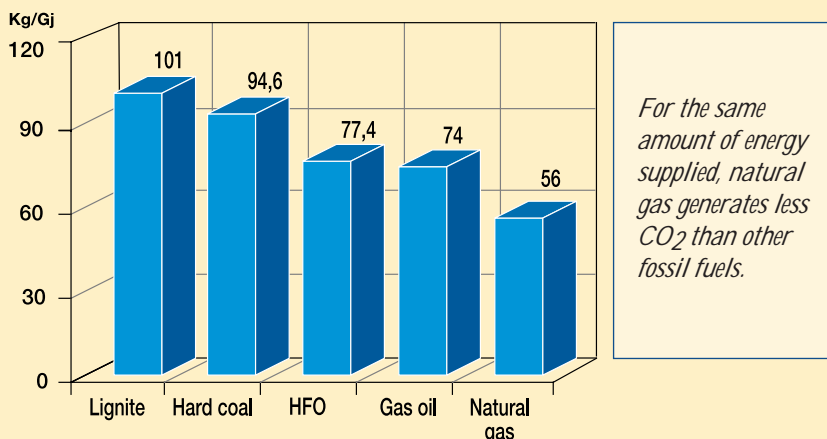
euogas supports the need to reduce the emissions of all greenhouse gases into the atmosphere. CO₂ emissions, however, pose the main problem and should be the priority target of decision makers in Buenos Aires.

- ◆ CO₂ is the main anthropogenic greenhouse gas contributing to enhanced global warming by 65%. CO₂ survives in the atmosphere for 50-200 years, so concentrations will continue to grow for a critical length of time, emission cuts today notwithstanding.
- ◆ Although a short-term framework for targets should be favoured for policy reasons, these targets should derive from the long-term objectives, which should be the reduction of CO₂ emissions in the next century.
- ◆ CO₂ production (unlike CH₄) can be monitored, calculated and controlled with confidence because it is emitted from point sources. This is a very important consideration, particularly if approaches to target achievements are to allow for banking and borrowing of emissions. Only CO₂ would permit confidence with regard to this flexible approach.

Natural gas, since it contains more hydrogen in relation to its carbon content than other fossil fuels for the same amount of energy produced generates

- 41 % less CO₂ than hard coal
- 28 % less CO₂ than heavy fuel oil (HFO)
- 24 % less CO₂ than heating oil.

CO₂ formed by the combustion of fossil fuels (2)



Prudent switching to natural gas from more carbon intensive fuels reduces CO₂ emissions in a cost-effective way.

Moreover, a gaseous fuel can usually be burned more easily and efficiently than either coal or oil. This higher utilisation efficiency of gas in many end-uses (especially in power generation) further reduces CO₂ formation. Recovery of waste heat from exhaust gases is also easier for natural gas, since the flue gases are not contaminated by particles or corrosive sulphur compounds.

Efficient gas use can be stimulated by a series of market-based approaches :

- educate and advise all categories of end-users to economise on energy use; promote and disseminate information on correct use of appliances, systems and plant
- promote use of energy audits especially by industrial customers
- promote use of higher efficiency appliances and plant : commercial and technical development activities
- promote substitution of new high efficiency appliances in replacement programmes
- co-operation with developers, architects, engineers, installers to promote the development of energy efficient housing
- involvement in research and development of high efficiency gas plant and appliances ; co-operation with manufacturers of gas plant and appliances, to stimulate their manufacture and promote their use
- promote the installation of high-efficiency gas heating in new dwellings.

Developments should be encouraged on a market-orientated commercial basis. A service-based approach of the energy supply industry will evolve, and does not require a regulated approach.

eurogas does not agree with the imposition of new and additional taxes to achieve energy efficiency. If, however, taxes are used as an emission control instrument, they should be structured to encourage fuel-switching to gas from fossil fuels emitting more CO₂.

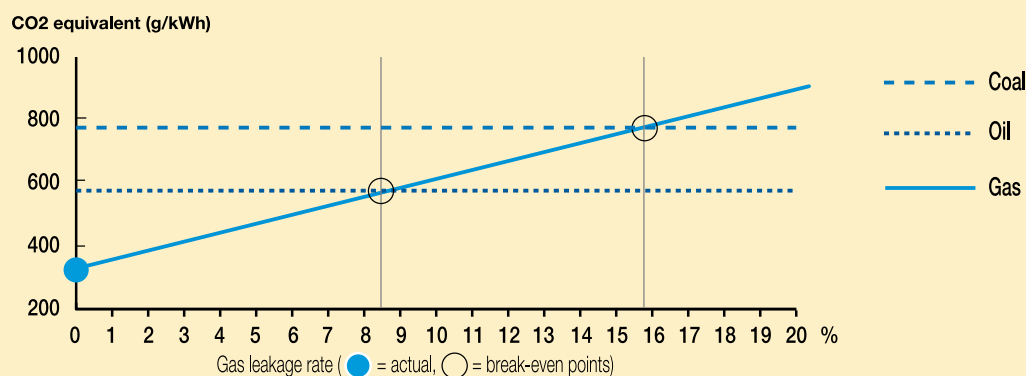
Although CO₂ emissions should be the priority concern of policy makers. **eurogas** also supports the need to achieve global reductions of other climate change gases, including methane (CH₄). Fugitive CH₄ emissions occur from the pipeline systems carrying natural gas from the production well-head to the user. It has long been the policy of the gas industry for safety, operational, and economic reasons to prevent fugitive methane emissions. For the gas industry, leakage represents a revenue loss; in contrast other methane emitting sectors regard methane as a waste product. A variety of technological means and implementation strategies are employed to ensure that methane losses from the system are minimised.

World-wide, the contribution of methane from gas supply activities to the global warming effect is minimal. Methane caused by rice-farming and livestock is much more significant. Gas leakage, which is insignificant in well maintained systems, in no way negates the greenhouse gas advantage of natural gas use and even when leakage rates are taken into account, natural gas use retains its advantage as an instrument to combat climate change.

This can be demonstrated : although molecule for molecule methane is a more potent greenhouse gas, it survives in the atmosphere for only 12 ± 3 years whereas carbon dioxide survives for 50-200 years. Their relative warming effects can be computed for different timescales. In one hundred years leakage from natural gas networks would have to exceed 6% and 11% of throughput for natural gas to lose its comparative advantage with oil and hard coal described above.

When utilisation efficiencies of, for example, power generating applications are taken into consideration, the advantages of natural gas are even greater.

Break-Even Leakage Rates - Gas vs Oil and Coal (power generation efficiencies: coal 46%, oil 50%, natural gas 58%)



Methane leakages from natural gas networks in Western Europe including Scandinavia are estimated at 0,1 - 1,4% of throughput (source: IGU), far below the break even rates that would negate the climate change advantage of natural gas. With the ongoing replacement of older, low pressure distribution systems, this figure will gradually be reduced further

Estimates of the world-wide leakage rate of natural gas from the supply networks at 1.1% (0.7% in Western Europe) are well below the level of methane losses which would negate the climate change advantage of natural gas.

Notwithstanding, consistent with its concern for constant improvement of environmental management, the gas industry will examine scope for intensifying its methane control activities, and also accept need for greater transparency in this respect.

eurogas signals specifically :

- **eurogas** is examining in co-operation with the International Gas Union, approaches to estimating methane emissions, to improve basic information on leakage rates, and is also considering the potential which voluntary agreements on methane reduction offer towards improved performance, developed on the basis of national approaches.
- The European gas industry can also consider exploitation of landfill methane.

Natural gas is abundantly available and proven reserves are regularly reassessed upwards. Gas industries world-wide are demonstrating their abilities and commitments to provide safe and secure supplies to growing and diverse end-use markets, confirming natural gas as a fuel of choice for a sustainable future.

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