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Brussels, October 1982

NATURAL GAS : KEEPING THE COMMUNITY SUPPLIED BETWEEN NOW AND 1990 (1)

By 1990 a total 56% of the gas consumed by the Community will be covered by indigenous production.

The balance will be provided by the traditional suppliers, i.e. Algeria, Norway, the USSR and, to a lesser extent, Libya - which will be supplying Italy.

Imports of natural gas will account for 8% of total energy consumption if it is assumed that the current negotiations between the USSR, Italy and Belgium lead to agreement.

Also on this assumption, the natural gas imported from the USSR will represent some 19% of total natural gas supplies and less than 4% of total energy supplies. In addition it would seem that the Community's gas industry is able to cover all foreseeable interruption scenarios for normal gas supplies (the 10% scenario and the 25% scenario over a six-month period, taking 1990 as the reference year).

Finally the Commission plans to set up, in conjunction with the representatives of the Member States and experts from the industry, a body which would be able to advise on an ad hoc basis if fears of a major interruption in supplies from outside the Community should arise.

These are the main points in a Communication the Commission has recently adopted and will be submitting to the Energy Ministers of the Ten who are due to meet on 9 November.

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(1) COM(82)653.

In its Communication on natural gas (1) to the Council of 27 October 1981 the Commission drew attention to the changing pattern of the Community's natural gas supplies and the growing contribution of imports of gas from outside the Community. The Council noted the Commission's analysis and invited the Commission to study this area in more detail, taking into account the views of the Member States.

In line with this invitation, the Commission presented a Communication on the security of natural gas supplies to the Community (2) to the Council of 16 March 1982. This Communication had been prepared after consultation with Member States' experts and reviewed the broad types of measures available to enhance the security of natural gas supplies.

The present Communication briefly reviews the developments and outlook for natural gas in the Community and summarises the Commission's further work on supply security, in particular the work undertaken in cooperation with Member States since the March 1982 Council.

(1) COM(81) 530 final "Communication from the Commission to the Council concerning natural gas"

(2) COM(82) 45 final "Communication from the Commission to the Council concerning measures to enhance the security of natural gas supplies to the Community".

NATURAL GAS DEVELOPMENT IN THE COMMUNITY

The role of natural gas in the Community has grown rapidly over the past two decades and natural gas now meets about 18% of Community energy needs compared to only 7% as recently as 1970. This rapid growth in natural gas consumption was largely based on the considerable reserves discovered in the Netherlands, the leading producer in the Community, and the subsequent finds in the UK sector of the North Sea.

The growth in natural gas consumption has made an important contribution to the diversification of the Community's energy supplies, and in particular has helped to reduce the over-dependence on oil. This is illustrated by the growth in natural gas consumption from 153 milliard cubic metres⁽¹⁾ in 1973, the time of the first oil shock, to a peak consumption of 226 milliard cubic metres reached in 1979, compared to a decline in oil consumption over the same period.

More recently, the part of imports from outside the Community in total natural gas supplies has also grown rapidly. In 1977 imports from third countries accounted for about 11% of total natural gas supplies, a proportion which had reached 21% two years later.

In 1980, however, Community natural gas consumption fell for the first time, reflecting price developments and uncertainty surrounding some contracts for imports from third countries, together with a worsening economic environment.

Current levels of Community natural gas consumption continue to fall with consumption in 1981 at 214 milliard cubic metres showing a slight decline for the second year in succession. The picture varies between Member States, however, showing the different impact of energy saving measures and substitution by alternative energies, economic recession and progress on major new import contracts. In France, for example, consumption in 1981 grew by more than 4% over the previous year whilst the Federal Republic of Germany showed a decline of more than 6%.

(1) Calorific value $35\,162\text{ kJ/m}^3$, equivalent to "Groningen" gas.
1 tonne oil equivalent = $1\,300\text{ m}^3$ "Groningen" gas.

Table 1 - Community Natural Gas Supplies 1990

10⁹ m³ Groningen

	Total Natural Gas Consumption	Ind. Prod.	Intra Community trade (Exp.- Imp.+)	Estimated Imports from Third Countries					Natural Gas Imports from Third Countries as :	
				Total	Algeria	Libya	Norway	USSR	% of Total Energy Consumption	% of Natural Gas consumption
Fed. Rep. of Germany	68.0	17.5	22.5	28.0	-	-	8.0	20.0	7%	41%
France	42.9	3.1	6.5	33.3	9.2	-	2.9	12.0	11%	78%
Italy	45.5	7.8	6.5	31.2	13.0	2.6	-	7.0(8.0) ²	14%	69%
Netherlands	38.0	75.8	-39.8 ⁽¹⁾	2.0	-	-	2.0	-	2%	5%
Belgium	12.7	-	4.3	8.4	5.0	-	2.9	(0.5) ³	11%	66%
Luxembourg	0.7	-	0.7	-	-	-	-	-	-	-
United Kingdom	61.5	45.0	-	16.5	-	-	16.5	-	5%	27%
Ireland	2.1	2.1	-	-	-	-	-	-	-	-
Denmark	1.9	2.6	-0.7	-	-	-	-	-	-	-
Greece	0.1	0.1	-	-	-	-	-	-	-	-
EUR 10	273.4	154.0	0	119.4	27.2	2.6	32.3	39.0(8.5) ³	8%	44%

(1) Based on forecasts for importers

(2) Contract not yet Government approved

(3) Under negotiation. Quantity given would be the estimated take in 1990.

Note: The sum of the imports given by source country is not necessarily equal to total imports as the source of some supplies is not yet settled.

These recent developments are also reflected in a reduction in the forecast for total Community natural gas consumption for 1990; from the 1981 forecast of 292 milliard cubic metres to the latest forecast of 273 milliard cubic metres. This decline in the forecast for natural gas consumption is mainly reflected in a reduction in the forecast for imports from third countries.

The forecasts given in Table 1 show that imports will account for about 44% of total natural gas consumption, or 8% of total energy consumption, if it is assumed that the current negotiations for gas supplies from the USSR with Italy and Belgium lead to an agreement.

Assuming full contractual quantities for imports from the USSR, (which are slightly above those given in Table 1) and assuming agreements with Belgium and Italy, gas imports from the USSR would represent about 19% of total Community gas supplies and less than 4% of total energy supplies.

Imports from Norway would account for about 12% of Community natural gas consumption, imports from Algeria 10%, from Libya about 1%, and the remaining 2% is accounted for by possible new third country suppliers. The percentages for individual Member States vary quite widely but in no case would the share of natural gas from the USSR, which would be the largest third country supplier, exceed one third of the total gas consumption in the importing country.

Beyond 1990 more diversification is expected as the new sources with which Community gas undertakings are currently holding exploratory discussions or negotiations are developed and begin deliveries. Possible new sources of supply to the Community include Canada, some African countries including the Cameroun and Nigeria and some Middle East states including Qatar and the United Arab Emirates.

There is also considerable potential for additional Norwegian supplies in the longer term, although there would be formidable technical problems to be overcome and very large investments to be made. The Norwegian Government is also concerned that the wider economic and environmental implications of oil and gas development policy are fully considered.

Depending on the progress in developing such new sources of supply, as well as the development of production within the Community, it is estimated that total Community consumption in the year 2000 could be between 280 to 320 milliard cubic metres, and natural gas would then hold its current share of about 18% of total energy consumption.

SECURITY OF COMMUNITY NATURAL GAS SUPPLIES

At the presentation at the 16th March 1982 Council of the Commission's previous document on natural gas supply security⁽¹⁾ the Council noted that the Commission would carry out further studies into this subject and report on its findings. A meeting of Member States' experts was then convened by the Commission to decide upon an approach to adopt for the further studies. It was agreed that a scenario approach would be the most suitable and a set of scenario conditions was agreed by Member States.

These conditions gave scenarios of an interruption of 10% and 25% in normal forecast natural gas supplies, expressed at an annual rate, for a 6 month winter period in the reference year chosen (1990). Furthermore, Member States were asked to examine how they could deal with such interruptions in both a normal and a severe winter.

A questionnaire based on these scenarios was subsequently sent out to Member States and these were completed and returned to the Commission. The questionnaire replies were then analysed by the Commission and discussed with Member States. They form the basis of the general conclusions on natural gas supply security contained in the following sections of this report.

The results of the scenario exercise show that the gas industry in the Member States of the Community is able to deal with all the scenarios examined with only some limited peak supply problems in some of the countries, in the most extreme circumstances. As regards the Member States which are most reliant on imports from outside the Community (see Table 1) the gas industry in these countries have taken particular care to ensure security of supplies and indeed they would be able to deal with an even more severe shortfall in supplies than that represented by the most extreme scenario.

(1) COM(82)45 final "Communication from the Commission to the Council concerning measures to enhance the security of natural gas supplies to the Community".

All of the types of measures to deal with a shortfall in gas supplies listed in the Commission's previous Communications would be used by different Member States although the exact combinations vary widely. Much depends on what criteria are used to guide the gas industry in dealing with shortfall in supplies in terms of economic optimisation and operating procedures, bearing in mind that in reality the duration of the shortfall and the type of winter faced would not be known at the beginning of the interruption period. Indeed in the severe winter scenario the picture is complicated by the need to use emergency resources for both the increased demand from cold weather and to make up the shortfall in supplies.

The scenario results show, however, that for the Community as a whole, the measure which makes the greatest contribution to making up the shortfall in supplies is storage, which would make up about one third of the shortfall under each of the scenarios. The next largest contribution is made by spare production capacity, which would play roughly an equal role in the 10% scenarios but a relatively smaller role in the 25% scenarios. Flexibility on import contracts would be used in only a few countries, although it makes a major contribution in these cases. The use of interruptible contracts is relatively small, meeting in the 10% scenarios around one eighth of the shortfall in supplies, although their role increases significantly in the 25% scenarios.

To date relatively very little natural gas has been produced from depths greater than 5000 metres although many productive fields in Europe lie between 3000 and 4000 metres. Recently, however, there have been a number of theories advanced that suggest very substantial quantities of gas exist at greater depths. Earlier this year the Commission organised a seminar to discuss these theories and invited representatives of the Member States and leading industry and academic experts. Following this seminar a study group will be established by the Commission, including representatives of the Member States and Norway, to examine the approach and information required to evaluate the potential of "deep gas". If these initial investigations are sufficiently encouraging it would then be appropriate to consider the next step such as a preliminary geological survey, which could benefit from Community aid. Whilst the Commission is aware of the rather speculative nature of an investigation into "deep gas", it is exactly this fact which makes a step by step approach, at Community level, so appropriate.

Further Co-operation at Community Level

The ability of Member States to deal with a major interruption in supplies relies on existing and planned measures undertaken by the gas industry in the individual Member States. It cannot, however, be excluded that some Member States could be affected more severely than others by a shortfall from outside supply sources and in such a case a degree of pooling of resources by Member States would further enhance the security of supply.

It is understandable that a precise commitment may be difficult to make in advance, particularly since the gas industry is essentially a commercial activity, but in exceptional circumstances there may be a need for such action. With the different measures available to individual Member States it is clear that there could be considerable scope for one Member State to help another, in addition to existing agreements.

The one physical constraint which could prevent such further co-operation is the inability of the gas transport system to re-allocate resources as required. However, the European gas grid is already highly integrated, although there may be a need for some further reinforcements to cope with the dislocation of a major supply shortfall.

In any event, the advantages of any further measures in terms of security of supply must be balanced against the extra cost. For this reason further links to enhance supply security which would also accommodate new supply patterns would be more likely to be justifiable. Such could be the case, for example, if there was a project for the export of Norwegian gas to continental customers via a route through the UK and additional benefits in terms of security of supply could be demonstrated.

The Commission is anxious to explore this area of additional co-operation at the Community level in more detail and proposes to undertake a series of studies into the different possibilities. The Commission also proposes to establish in conjunction with Member States' representatives and industry experts, a framework to advise, on an ad hoc basis, in the case where a major interruption in supplies from outside the Community could occur.



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Bruxelles, octobre 1982

GAZ NATUREL: L'APPROVISIONNEMENT DE LA COMMUNAUTE A L'HORIZON 1990(1)

A l'horizon de 1990, 56% de la consommation de gaz naturel dans la Communauté sera couverte par la production intérieure.

Le reste sera livré par les fournisseurs traditionnels qui sont l'Algérie, la Norvège, l'URSS et, en moindre importance, la Libye, à destination de l'Italie.

La part des importations de gaz naturel dans la consommation globale d'énergie de la Communauté atteindrait environ 8%, dans l'hypothèse où les négociations en cours entre l'URSS, l'Italie et la Belgique aboutissent.

Toujours dans cette hypothèse, la part du gaz naturel importé d'URSS représentera environ 19% de l'approvisionnement en gaz naturel de la Communauté et moins de 4% de son approvisionnement total énergie. L'industrie gazière de la Communauté serait par ailleurs en mesure de faire face à tous les scénarios d'interruption des approvisionnements normaux (de 10% et de 25% pendant 6 mois si l'on prend 1990 comme année de référence).

Enfin, la Commission propose de constituer en liaison avec les représentants des Etats membres et des experts de l'industrie, un organe qui pourrait être consulté sur une base ad hoc, au cas où une interruption importante des approvisionnements en provenance des pays tiers serait à craindre.

Tels sont les principaux éléments d'une communication que la Commission vient d'adopter et qu'elle soumet à l'étude des Ministres de l'Energie des Dix, qui se réunissent le 9 novembre prochain.

(1) COM(82)653

Dans la Communication sur le gaz naturel (1) qu'elle a présentée au Conseil le 27 octobre 1981, la Commission a attiré l'attention sur l'évolution de la structure de l'approvisionnement en gaz naturel de la Communauté et sur la part croissante des importations en provenance de pays tiers. Le Conseil a pris note de cette analyse et a invité la Commission à faire une étude plus poussée du problème, en tenant compte des avis exprimés par les Etats membres.

En réponse à cette invitation, la Commission a présenté, le 16 mars 1982, une Communication au Conseil concernant la sécurité de l'approvisionnement en gaz naturel de la Communauté (2). Cette Communication, rédigée après consultation des experts nationaux, présentait les principaux types de mesures permettant de renforcer la sécurité de l'approvisionnement en gaz naturel.

La présente Communication rappelle brièvement quelle a été l'évolution du rôle du gaz naturel dans la Communauté et quelles sont les perspectives pour l'avenir et donne un bref aperçu des travaux entrepris par la Commission en matière de sécurité des approvisionnements, en particulier de ceux réalisés en coopération avec les Etats membres depuis la réunion du Conseil de mars 1982.

(1) COM (81) 530 final : "Communication de la Commission au Conseil sur le gaz naturel".

(2) COM (82) 45 final : "Communication de la Commission au Conseil concernant les mesures destinées à renforcer la sécurité de l'approvisionnement en gaz naturel de la Communauté".

EVOLUTION DU ROLE DU GAZ DANS LA COMMUNAUTE

L'importance du gaz naturel dans la Communauté s'est accrue rapidement pendant les deux dernières décennies et le gaz naturel couvre maintenant environ 18 % des besoins énergétiques de la Communauté contre 7 % seulement en 1970. L'accroissement rapide de la consommation résulte principalement des réserves considérables découvertes aux Pays-Bas, principal producteur de la Communauté, et des découvertes qui ont suivi dans la zone britannique de la Mer du Nord.

L'accroissement de la consommation de gaz naturel a largement contribué à la diversification des sources d'approvisionnement en énergie de la Communauté et, en particulier, a permis de réduire la trop grande dépendance vis-à-vis du pétrole. La consommation est en effet passée de 153 milliards de mètres cubes (1) en 1973, date du premier choc pétrolier, à 226 milliards de mètres cubes en 1979, réduisant d'autant la consommation de pétrole.

La part des importations en provenance de pays tiers dans l'approvisionnement en gaz naturel de la Communauté s'est également accrue rapidement. En 1977, ces importations représentaient environ 11 % de l'approvisionnement en gaz naturel, pour atteindre 21 % deux années plus tard.

Cependant, en 1980, la consommation de gaz naturel diminuait pour la première fois, en raison de l'évolution des prix, de l'incertitude à propos de certains contrats d'importation conclus avec des pays tiers, ainsi que de la détérioration du climat économique.

La consommation, en 1981, s'est établie à 214 milliards de m³, en léger recul pour la seconde année consécutive. La situation a cependant été très variable suivant les pays, suivant l'importance des économies d'énergie, la substitution par d'autres combustibles, l'impact de la récession économique et la conclusion de nouveaux contrats importants. En France, par exemple, la consommation, en 1981, a augmenté de plus de 4 % par rapport à l'année précédente alors qu'elle diminuait de plus de 6 % en Allemagne.

(1) Pouvoir calorifique : 35.162 KJ/m³ équivalent au gaz de "Groningen".
1 tonne équivalent pétrole = 1.300 m³ de gaz de "Groningen".

Tableau - Approvisionnement en gaz naturel 1990

10⁹ m³ Groningen

	Consommation totale de gaz naturel	Prod. Int.	Echanges intra-communautaires (Exp.- Imp.+)	Importations des pays tiers (estimées)					Importations de gaz naturel des pays tiers en :	
				Total	Algérie	Libye	Norvège	URSS	% de la consommation totale d'énergie	% de la consommation de gaz naturel
Rép.féd. d'Allemagne	68.0	17.5	22.5	28.0	-	-	8.0	20.0	7 %	41 %
France	42.9	3.1	6.5	33.3	9.2	-	2.9	12.0	11 %	78 %
Italie	45.5	7.8	6.5	31.2	13.0	2.6	-	7.0(8.0) ²	14 %	69 %
Pays-Bas	38.0	75.8	-39.8(1)	2.0	-	-	2.0	-	2 %	5 %
Belgique	12.7	-	4.3	8.4	5.0	-	2.9	(0.5) ³	11 %	66 %
Luxembourg	0.7	-	0.7	-	-	-	-	-	-	-
Royaume-Uni	61.5	45.0	-	16.5	-	-	16.5	-	5 %	27 %
Irlande	2.1	2.1	-	-	-	-	-	-	-	-
Danemark	1.9	2.6	-0.7	-	-	-	-	-	-	-
Grèce	0.1	0.1	-	-	-	-	-	-	-	-
EUR 10	273.4	154.0	0	119.4	27.2	2.6	32.5	69.0(8.5) ³	8 %	44 %

(1) basés sur les prévisions établies par les importateurs

(2) contrat non encore approuvé par le gouvernement

(3) en cours de négociation. La quantité donnée correspondrait aux achats estimés pour 1990

Note: La somme des chiffres d'importation donnée par pays d'origine n'est pas nécessairement égale au total des importations étant donné que l'origine de certaines livraisons n'est pas encore fixée.

Ces récents développements se sont également traduits par une réduction de la consommation de gaz naturel escomptée pour 1990; alors que l'on prévoyait en 1981 292 milliards de mètres cubes, les prévisions les plus récentes portent sur 273 milliards de mètres cubes. Cette diminution se traduira essentiellement par une réduction du chiffre prévu pour les importations en provenance des pays tiers.

Les prévisions figurant dans le tableau montrent que les importations en provenance de pays tiers couvriront environ 44 % de la consommation totale de gaz naturel, soit 8 % de la consommation totale d'énergie, à supposer que les négociations en cours entre l'URSS, l'Italie et la Belgique aboutissent.

Compte tenu des quantités contractées avec l'URSS (qui sont légèrement supérieures à celles indiquées au tableau 1 pour l'année 1990) et à supposer que des accords soient conclus entre l'URSS, la Belgique et l'Italie, les importations de gaz en provenance d'URSS représenteront environ 19 % de l'approvisionnement total en gaz de la Communauté et moins de 4 % de l'approvisionnement total en énergie.

Les importations de Norvège couvriront environ 12 % de la consommation communautaire, celles d'Algérie 10 %, de Libye 1 %, les 2 % restants étant couverts par d'éventuels nouveaux fournisseurs de pays tiers. Les pourcentages varient largement d'un pays à l'autre mais en aucun cas la part du gaz naturel d'URSS, qui restera le principal pays tiers fournisseur, ne dépassera un tiers de la consommation totale de chacun des pays concernés.

Au delà de 1990 on prévoit une plus grande diversification des approvisionnements, à la suite des discussions exploratoires que les entreprises gazières ont avec de nouveaux pays fournisseurs. Les nouveaux fournisseurs possibles sont le Canada, certains pays africains dont le Cameroun et le Nigeria, ainsi qu'un certain nombre de pays du Moyen-Orient, dont le Qatar et les Emirats Arabes Unis.

A long terme, la Norvège devrait devenir une source d'approvisionnement supplémentaire importante en dépit de problèmes techniques considérables et de l'ampleur des investissements à réaliser. Le gouvernement norvégien souhaite aussi qu'il soit pleinement tenu compte de tous les aspects économiques et écologiques impliqués par une politique de développement des hydrocarbures.

Compte tenu des progrès réalisés en matière de diversification et de développement de la production dans la Communauté on estime que la consommation totale de la Communauté pourrait atteindre de 280 à 320 milliards de mètres cubes d'ici l'an 2000, ce qui permettrait au gaz naturel de maintenir sa part actuelle de 18 % de la consommation totale d'énergie.

SECURITE DE L'APPROVISIONNEMENT EN GAZ NATUREL DE LA COMMUNAUTE

Lors de la présentation au Conseil du document de la Commission sur la sécurité de l'approvisionnement en gaz naturel¹⁾, le 16 mars 1982, le Conseil a pris acte que la Commission entendait réaliser de nouvelles études et ferait connaître ses conclusions. Une réunion d'experts des Etats membres a été organisée par la Commission pour fixer la méthode de travail à employer. Les participants ont marqué leur accord sur une analyse par la méthode des scénarios et ont approuvé le choix des éléments constitutifs à utiliser.

Ces scénarios correspondent à une interruption des approvisionnements normaux de 10 % et de 25 % pendant une période de 6 mois pour l'année de référence choisie (1990). De plus, les Etats membres ont été priés d'examiner de quelle manière ils pourraient faire face à des ruptures d'approvisionnement de cette importance dans l'hypothèse d'un hiver normal, et d'un hiver rigoureux.

Les Etats membres ont été invités à répondre à un questionnaire établi sur la base des scénarios retenus. Analysées par la Commission et discutées avec les Etats membres, les réponses à ce questionnaire constituent la base des conclusions générales présentées ci-après.

L'industrie gazière des Etats membres serait en mesure de faire face à tous les scénarios examinés, avec seulement pour certains pays des difficultés pour faire face aux demandes de pointes dans des conditions extrêmes. Dans les Etats membres qui dépendent le plus fortement des importations en provenance de pays tiers, l'industrie gazière a pris des mesures particulières pour assurer la sécurité de l'approvisionnement et serait même capable de faire face à une interruption des livraisons plus grave que celle prévue dans le scénario le plus extrême.