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THE APPLICATION OF THE COMMUNITY'S ENERGY PRICING PRINCIPLES IN MEMBER STATES

(Commission Staff Report)

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THE APPLICATION OF THE COMMUNITY'S ENERGY PRICING PRINCIPLES IN MEMBER STATES

I - INTRODUCTION

1. In its last Communication to the Council on energy pricing[1], the Commission said that it would examine pricing practices in Member States to assess their compatibility with the principles adopted by the Council.

2. The Commission has already discussed certain aspects of energy pricing in its recent examination of national energy programmes[2].

3. The present Working Document includes an analysis of information provided by Governments in response to two enquiries carried out by the Commission's services during 1983. These enquiries concerned the application in practice both of the general pricing principles adopted by the Council and of the electricity tariff recommendation adopted in 1981[3].

4. The **five objectives** of the present report are:

- to define, **from analysis of the agreed pricing principles**, how they should be applied to specific situations and practices (Section II);
- to summarise the partial information on **pricing practices in Member States** which is available to the Commission services at this stage; (Section III)
- to explain the deficiencies which exist in the degree of **price transparency** and recommend how these should be remedied (Section IV);
- to emphasise the relevance of energy pricing policy for **intra-Community trade** in the energy field (Section V);
- to underline the **role of taxation** in energy pricing policy (Section VI).

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[1] COM(82) 651 of 19 October 1982.

[2] COM(84) 88 of 29 February 1984.

[3] Council Recommendation of 27 October 1981 on electricity tariff structures in the Community (81/924/CEE); OJ N° L 337 of 24.11.1981.

II - ANALYSIS OF COMMUNITY ENERGY PRICING PRINCIPLES

A. RE-STATEMENT OF PRICING PRINCIPLES

5. The principle of **realistic energy pricing** has been endorsed by the Council on several occasions during the past years. The main Council statements are set out below:

" - consumer prices should reflect representative conditions on the world market, taking account of longer-term trends;

- one of the factors determining consumer prices should be the cost of replacing and developing energy resources;[4]

" - consumer prices must permit an adequate level of investment in energy supply and encourage energy efficiency; to this end, they must not be kept at artificially low levels and thereby prevented from providing reliable market signals;

- government policies which contribute to the formation of energy prices must take account of the need for a realistic reflection of market trends. Differences in pre-tax energy prices within the Community may arise from the existence of a genuine competitive advantage (arising for example from favourable location, prudent investment, superior productivity or specific market conditions), or alternatively, from the existence of priorities consistent with the Community's own energy objectives, in particular the objective of reduced dependence on oil. Any differences which do not correspond to these guidelines must be clearly identified and, to the extent that they arise from differences in public policy, progressively reduced;"[5]

" - the Council recommends that the Member States ... apply energy pricing policies which unite the pursuit of energy objectives with efforts to ensure that prices truly correspond to market conditions and costs."[6]

" - Transparency is a necessary and urgent condition for the implementation of the principles...This means that consumers should have adequate access to information on energy prices and on the methods by which both prices and tariffs are determined."[5]

6. These pricing principles are fully consistent with the Community's EC competition policy. They also correspond, as far as coal is concerned, to the general provisions of the ECSC Treaty (Article 3c).

7. The principles set out in paragraph 5 are, however, all statements of **general application**, i.e. they were designed to cover all energy sectors and all types of market situation. In applying these agreements to **specific** cases, it is necessary to have clearly in mind the fundamental prin-

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[4] Council Resolution of 9 June 1980. OJ N° C 149 of 18.6.1980 (annex).

[5] Council Conclusions of 3 December 1981.

[6] Council Recommendation of 28 July 1982; OJ N° L 247 of 23.8.1982.

ciples which underlie the Council statements. The following paragraphs refer entirely to ex-tax consumer prices. The rôle of taxation is discussed separately in Section VI of this report.

B. RELATIONSHIP WITH ENERGY POLICY

8. It is first of all clear from the Council statements in paragraph 5 above that realistic energy pricing is regarded by all Member States as a **key element of energy policy.** This is explicit or implicit in all the five statements set out above. Correct pricing will clearly:

- further **energy efficiency and conservation** by ensuring that consumers' decisions are based on prices which take full account of the costs of energy supply;

- lead to effective decisions on **fuel choice,** again by ensuring that consumers take account of real costs in their investment and purchasing decisions:

- similarly, help to ensure **optimal allocation** of each particular fuel according to its value in each type of use;

- promote **security of energy supply** by assuring the necessary revenues to underwrite investments in production or long-term supply contracts.

9. It is also a clear corollary of the Council statements that **energy pricing should be based on energy and competition objectives and not (where there is a conflict) on objectives in other areas of economic or social policy.** This is not, of course, to say that other important objectives in fields such as social, industrial, trade or transport policy should be set aside, but rather that they should **not** be pursued through introducing distortions in the energy market. Otherwise, it would not be possible to operate an effective energy pricing policy. Indeed, the lack of such efficient pricing would hinder the Community's industrial competitiveness on the world market.

C. OVERALL FINANCIAL VIABILITY

10. The statements set out in paragraph 5 above refer extensively to **cost** considerations. In all energy sectors a basic reference point for pricing must be that **revenues should at least cover costs.** Only if revenues are sufficient to cover costs, including capital charges, operating costs and an adequate rate of return on capital, will the supplying company normally be able to continue in business. There are, however, a number of cases in Member States' energy markets where revenues do not cover costs. In such instances, the relevant companies are kept in existence through government support or some form of market protection.

11. The main factor in determining revenues will of course be the overall **level of prices,** within which the prices to particular consumers will be differentiated according to supply conditions, etc. Energy companies may earn revenues from activities other than supplying energy to consumers, but these activities should, in economic terms, be treated as

separate businesses, each required to earn its own return. In all sectors of business, it is naturally important that energy suppliers should operate efficiently so as to keep costs down.

12. **Financial viability**, as a reflection of overall price levels, should therefore be one of the guiding principles for realistic energy pricing. The continuation of a financial deficit situation for more than a temporary period is clearly undesirable in any energy sector.

13. It has on occasion been suggested that a level of pricing which did **not** provide enough revenue to cover costs would be desirable on energy policy grounds. The purpose would be to bias consumer choice towards that particular fuel so as to displace in the short term a fuel (such as imported oil) which was viewed as less desirable. In the view of the Commission services's view, this is not a sound argument. The best way to achieve such an objective would be to impose a tax on the fuel regarded as less secure. The alternative of reducing the price of the more desirable fuel below cost could create a need to subsidise the industry which supplied it. It would also encourage consumption which would not have been economic if consumers were paying the fuel's true cost.

14. Within the overall principle of financial viability, however, there may be temporary periods in which financial losses have to be incurred. This can happen, for instance, in the very early years of establishing a new supply network, for example during the introduction of natural gas into a country or region. In such periods, there will be high capital investment and a shortage of premium outlets until the supply network is adequately developed. Even where these special circumstances do not apply there can be short-term situations in which losses are made, usually because sales have been lower than expected and planned for, eg: during an economic recession.

15. Such situations will always have to be judged case by case on objective criteria. The key considerations will be whether there have indeed been special circumstances or unexpected changes in market conditions which have led to the loss-making situation, and whether the government or company concerned has developed a plan to ensure a return to financial viability, including recuperation of accumulated deficits. In general, where there is already an established supply system, the persistence of a financial deficit situation for more than two years should be regarded as a cause for concern.

16. It is also generally accepted that prices should reflect **long run costs**. Since each unit of energy consumed will need to be replaced eventually by new supplies, the argument is that consumers should pay prices now which reflect that economic cost and therefore discourage wasteful use. This argument is generally advanced in situations where costs are likely to increase over time, which may not always be the case. Whatever view is taken of future costs however, the principle of financial viability should clearly still apply.

D. COSTS AND MARKET CONDITIONS

17. To achieve the objective that overall revenues should cover costs, including long-term costs, it evidently follows that **prices to individual consumers** should at least cover costs. As between different consumers, there will however be significant cost differences. A large consumer will, because of economies of scale, give rise to lower capital costs per **unit** of energy supplied than a small consumer. Similarly, unit costs will be lower where there is a fairly steady rate of offtake rather than large daily or seasonal variations. The Community's pricing principles recognise that these cost differences should be reflected in prices to individual consumers.

18. The pricing principles also refer, however, to **market factors**. In market terms, leaving aside any government price controls, the price which can be charged for supplying a particular fuel to a particular type of consumer will be limited by:

a) competition from other suppliers of the same fuel;

b) competition from alternative fuels.

19. Where the first type of competition exists then price levels will tend to approach costs plus a reasonable profit margin. Attempts to charge higher prices will be undercut by competitors in the same sector. Temporary situations may even arise in which the level of competition forces revenues down below costs, as in the oil refining sector in the past few years. But this type of situation will eventually be resolved by some companies going out of business or reducing capacity. Similarly, competition from other fuels which cannot be met without cutting prices below costs will inevitably lead to eventual withdrawal from that sector of the market. In a sector where there is effective market competition with other suppliers of the same fuel, therefore, prices will tend to be cost-related.

20. But where there is no competition from other suppliers of the same fuel, ie: in a sectoral **monopoly** situation, cost-related pricing will not be the automatic outcome. In these circumstances, the logical **commercial** reaction of the monopoly concerned would be to maximise its price levels up to a ceiling set only by competition from alternative fuels.

21. This is of course the classic question of **economic rent**, ie: the difference between the **cost** of the fuel concerned and its **market value**, or in other words the maximum price which can be charged for it without consumers switching to another fuel. In the competitive situation discussed in paragraph 19 a major share of that rent would be captured by the consumer. In a monopoly situation it could virtually all be captured by the supplier.

22. In a monopoly situation there will naturally be a certain tendency towards public authorities' intervention in pricing, for reasons of both energy policy and consumer protection. In many such cases, the monopoly utilities concerned will in fact be State enterprises. In market sectors where there is a positive margin between supply costs, on the one hand, and market value as determined by competition from alternative fuels, on the other, governments will have the flexibility to determine where prices should be set within that range. They may, of course, choose not to intervene, which would normally have the effect of prices rising to

the level of competing fuels. But in any case it will be important to ensure that there is no discrimination between consumers, (particularly those in comparable situations) that there is price transparency, and that energy policy aims are taken into account.

23. There will of course also be situations where the competition from alternative fuels is so strong that market value is **below** supply costs. In those circumstances, it is clear that the basic principle of at least covering costs should be maintained, ie: that monopoly suppliers should **not** continue to supply such markets. It is important to stress this point because a pricing practice which can arise in sectoral monopoly situations is that of **cross-subsidisation.** By charging some consumers prices which exceeded costs a monopoly supplier could of course generate surplus revenues. Without sacrificing overall financial viability, he could then afford to charge other consumers prices which did not cover costs, so as to fend off competition from other fuels or, in some cases, to further governments' social or industrial policy aims. This type of pricing practice would tend to distort energy costs to consumers and lead to misallocations of resources.

24. In summary, cost-related and market-related pricing will amount to the same thing where there is competition within a particular energy sector. In a monopoly situation, however, there is a more difficult choice to be made between these two options which will depend on particular circumstances and on energy policy aims. But even where an element of market-related pricing exists, the minimum principle that prices charged to individual consumers should at least cover costs still applies.

E. THE ENERGY SECTORS

25. The analysis of pricing practices must of course take account of the fact that market structure and costs vary substantially between the different Community energy sectors. **The evaluation which follows suggests that at this stage the priority areas for application of the Community's pricing principles should be the gas and electricity sectors.** But problems certainly exist also in the oil and coal sectors, which require further study. Individual companies and governments have drawn the consequences and are restructuring the refining sector.

1. Oil

26. In the **oil products market,** the basic level of costs is set by crude oil prices (largely determined by OPEC) plus freight, refining and distribution costs. In most Member States, an effective level of downstream competition exists, so that the overall level of prices will in general reflect costs plus a modest profit margin. In recent years, the margin over crude oil costs has even been negative for considerable periods.

27. Within overall price levels, the structure of prices for individual oil products is determined by inter-fuel as well as intra-fuel competition, ie: higher unit proceeds will be earned from products (eg: gasoline) where there is no substantial competition from alternative fuels. The question of cross subsidisation does not arise, however,

because costs cannot be assigned to individual products jointly produced with others in the refinery. Also the scope for adjusting individual product yields is limited in the short term and refining companies do not therefore have the option of substantially cutting down their sales of a particular product which earns a lower return. Over the longer term, however, greater changes in the yield pattern can be (and often are) achieved through investments in new conversion plant.

28. The key to realistic pricing in downstream oil products markets, therefore, is a climate of genuine competition between oil suppliers. There are clearly differences in the level of competition operating in particular Member States. Another source of difference is the existence of price control regimes in a number of countries. These too differ in intensity and criteria of application. It is of course fully justified that governments should have price control powers for use in oil emergency situations, but in normal market conditions there is a risk that continuation of price controls may introduce market distortions and damage the industry's performance.

29. The most appropriate principles for governments to follow in the oil products market therefore would seem to be:

i) **ensuring that competition between oil suppliers is maintained at a satisfactory level;**

ii) **avoidance of price control measures of a kind which prevent suppliers earning sufficient revenues to cover current costs and finance investment needs.** The latter are likely to be high in coming years because of the changing pattern of demand and new environmental legislation.

30. The Commission services are reviewing the oil product markets and price control regimes in the Member States. This review will compare consumer prices before tax over recent years for comparable sales of the same petroleum product in different Member States and will estimate the extent to which price differences are due to differences in costs and what part is played by official price control systems. The effects of the latter will be assessed under both crisis and normal conditions. In the light of this work, the Commission services will consider any necessary recommendations on steps required to improve the operation of the markets concerned.

2. Coal

31. Community coal production costs are, in general, higher than import prices of third country coal. In some Member States there is a degree of protection, allowing Community coal to be sold at prices covering production costs. But in general prices are aligned, under Article 60(2b) of the ECSC Treaty, on the price of imported coal which is at present the main competitor. In view of the resulting losses, the Community coal industry is receiving State aids under two Community systems which have had to be developed since 1965.

32. The Community aid system in favour of coke and coking coal for the steel industry, which is designed to maintain production for security reasons, has been prolonged for a further 3 year period until the end of 1986 (Commission Decision 759/84/ECSC).

33. As far as steam coal is concerned, the Community coal industry is receiving subsidies from national governments under the general system concerning financial aid (Commission Decision 528/76/ECSC). This system was initially introduced in 1965 to facilitate an orderly reduction in Community coal output. In 1976, the policy was amended to maintain coal production on supply security grounds. Social and regional policy considerations continue to play an important rôle. As the 1976 decision will expire at the end of next year, it will be necessary to review the arguments underlying this aid system. This analysis is being undertaken and a proposal will be sent to the Council.

3. Electricity

34. The electricity sector is capital intensive. In addition, the technical characteristics of the transmission and distribution aspects of the sector have led to the responsibility for these activities being entrusted to national or regional monopolies; these utilities are often the only producers as well. Notwithstanding these structural arrangements, electricity utilities are subject to some forms of competition. One form is own production by large industrial users, although these activities are often limited in practice. There is also competition in the heating market from other fuels.

35. In October 1981, the Council adopted specific electricity tariff recommendations including:

> "Electricity supply undertakings should ... cover their costs on the basis of the most objective allocation possible of such costs among the various categories of users.
>
> Electricity tariff structures should ... reflect the costs incurred in supplying the various categories of consumer.
>
> Tariffs based on the use to which electricity is put should be eliminated."[7]

36. These recommendations clearly embody the concept of **financial viability** other than in temporary exceptional circumstances (paragraphs 10 to 15 above) and the principle that **prices to individual consumers should at least cover cost** (paragraphs 17 to 24). There is no doubt that the references to costs in the first two recommendations embrace long-term costs, in the case of electricity largely determined by investment needs.

37. Applying these principles requires better appreciation of definitions and methodology. The Commission services and UNIPEDE, are completing two studies:

- a methodology for establishing the comparability of the financial and economic situation of different utilities, and
- a study of electricity pricing policies and transparency, including consideration of the relationship between consumer prices and costs of supply, in the context of the Council Recommendation on electricity tariff structures.

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[7] Council Recommendation of 27 October 1981 on electricity tariff structures in the Community (81/924/EEC), OJ N° L 337 of 24.11.1981.

4. Natural Gas

38. In the **natural gas market** also, there is a dominance of monopoly suppliers at regional or national level. Investment needs for the gas industry are important but a more crucial factor in the industry's finances is the price paid in respect of **long-term gas purchase contracts.** Specific natural gas price and tariff recommendations were adopted by the Council in April 1983, in particular that:

> "Natural gas prices for consumers should ... be as close as possible to the market value of natural gas in relation to the price of substitute forms of energy and guarantee sufficient proceeds to cover the cost of supply to consumers.
>
> Methods of forming natural gas prices should be designed to adjust to changes in the competitive situation on the market and to trends in costs and, more particularly, the cost to gas undertakings of acquiring gas.
>
> Prices should not be artificially low in relation to the market situation and to costs, thereby ... subsidising certain categories of consumption or certain uses and/or ... encouraging waste.
>
> Natural gas tariff systems should reflect as accurately as possible the structure of the supply and distribution costs for the various categories of supplies."[8]

39. The concept of **financial viability** is explicit in the first and second of these statements. The third and fourth make it clear that **prices to individual consumers should at least cover costs.** The reference to 'market value' in relation to substitutes reflects the policy option that, where market value exceeds supply costs for the utility, governments may choose to allow prices to rise to those of the alternative fuel, which will usually be an oil product. As discussed in paragraph 22 above this choice should be based on non-discrimination between consumers, particularly those in comparable situations, and take account of energy policy considerations. Governments will also need to consider whether it is in the public interest to generate surplus revenues through charging consumers higher market-related prices, given that energy price levels are probably already high enough to encourage energy efficiency.

40. The natural gas pricing principles also recognise the importance of **long-term costs** in referring to 'the cost to gas undertakings of acquiring gas'. In the case of EC countries, this cost is probably best represented by the price of imported gas from available supply sources in the region such as Norway, the USSR and Africa, although there is, in fact, no single common price for these sources. In recent years, such prices have been moving towards equivalence with oil products, allowing for distribution costs, but that tendency may change as a result of increased competition between potential external gas suppliers.

41. There is also a new and developing tendency in the EC gas market in the form of 'spot' sales to EC utilities at advantageous prices by external suppliers, notably the USSR. Such sales will of course allow the

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[8] Council Recommendation of 21 April 1983 on the methods of forming natural gas prices and tariffs in the Community (83/230/EEC); OJ N° L 123 of 11.5.1983.

selling countries to maximise the use of pipeline capacity and earn a better return on their initial capital investment. In the EC markets, these additional quantities of gas will usually be supplied by the utilities to large consumers, such as power stations and major industries, which can absorb them by displacing other fuels, eg: in dual-fired installations. It is, of course, important that such transactions between the utility and the final consumer should be consistent with the Communities' pricing principles.

42. There can of course be short-term attractions in such arrangements, both in terms of displacing oil and in keeping down utility and consumer costs. But the longer-term implications of this new pattern of trade will need to be closely watched. The Commission has drawn attention in its recent communications on natural gas, to the importance of supply diversification as far as natural gas imports are concerned, and this view has been endorsed by the Council. The evolution of such trade could eventually accentuate the level of dependence on particular external suppliers, which could in turn react both on the overall level of security and on the prices charged for such 'spot' or marginal sales.

III - INFORMATION ON PRICING PRACTICES

A. GENERAL

43. For the reasons explained in Section II.E above, this Section of the paper concentrates on the **natural gas** and **electricity** sectors. The situation in the **oil** sector will be considered further in the light of the Commission services' study proposed in paragraph 30. For **coal**, the next step will be a forthcoming study of subsidy measures under the ECSC Treaty.

44. Two clear principles have emerged from the preceding discussion which apply to both the gas and electricity sectors:

i) **financial viability**, ie: revenues from overall prices should at least be sufficient to cover costs, including capital charges.

ii) **cost allocation**, ie: prices charged to individual consumers should at least cover supply costs.

45. The following summarizes the information supplied by Member States in respect of these two principles. (For details, see Annex 1).

B. OVERALL FINANCIAL VIABILITY

46. All the governments have endorsed the principle that the gas and electricity industries should set prices at a level which not only covers their total costs, but also ensures a satisfactory return on capital assets.

47. In about half the Member States, however, there are gas or electricity companies - often State enterprises - which are facing financial difficulties because of inadequate revenues. There are of course problems in making comparisons because of variations in accounting practices. Nevertheless, it is possible to identify several different types of case.

48. One favourable category is made up of those companies which, with the tacit or active approval of governments, are now moving towards financial viability by means of price increases. In some cases, this is firmly in hand and in others negotiations to that end are currently underway.

49. The Commission services acknowledge that these instances where action is being taken to restore financial viability illustrate the growing importance Member States are giving to realistic energy pricing. It is however important that these efforts should not only restore financial viability, but also lead to the recovery of losses accumulated in past years.

50. In several other cases, however, utilities have not yet taken action to move towards viability or are even facing a deteriorating financial situation. A number of different causes can be identified:

i) adverse economic circumstances such as the impact on sales of economic recession, increases in the cost of fuel purchases, contract rigidities or dollar inflation;

ii) an early stage of development, for instance the construction for the first time of a national gas network. Such periods will be characterised by high investment costs and a lack of access to premium markets;

iii) tarification practices which may result in a financial deficit situation through greater emphasis on long-term rather than current costs, and because amortisation of capital assets is based on historical rather than replacement values;

iv) government policies requiring utilities to hold down price levels in order to take account of other social or counter-inflation objectives.

51. As far as the first two cases are concerned, the Commission servicesare conscious of such difficulties and has in Section II.C above recognized that temporary periods of financial deficit may be unavoidable. Nevertheless, it remains the case that situations in which revenues do not cover costs will be of concern not only to the Member State interested in achieving more realistic pricing but also to other Member States because of the competitive effects for their own energy consuming industries. The essential point is that the governments and/or utilities concerned should prepare and implement effective plans to restore financial viability and recover accumulated losses as soon as possible. The Council may wish to be kept informed of such plans and of their progress in restoring financial viability of the utility. The Commission would, in cooperation with the Member States concerned, prepare periodic reports on developments.

52. As regards the third case, the Commission services will pursue this type of problem with the utilities and/or governments concerned, with the aim of ensuring that obstacles to financial viability are removed. As has been mentioned in paragraph 35 above, the Commission services are now examining with UNIPEDE the structure and economic implications of electricity tariffs, including the question of amortisation. It will also invite the gas industry to take part in a parallel exercise.

53. Finally, the type of situation outlined in (iv) above is clearly in conflict with the Community's energy pricing principles, as approved by the Council. Policy objectives outside the energy field can and should be pursued by measures which do not hinder energy pricing and energy policy aims. The Commission invites the Council to reaffirm this view.

C. COST ALLOCATION

1. Electricity

54. All Member States' Governments have confirmed that tariffs are cost-related in the sense that for each category of consumer they reflect the appropriate supply costs as closely as possible. Different approaches are followed, amongst which tariff setting in accordance with long-term marginal costs is fairly widespread.

55. This price differentiation is, in the majority of cases, implemented through a published tariff system applying to all categories of consumers, including large consumers, and based on general criteria such as voltage, maximum power requirements, and the level and profile of consumption.

56. In a few countries tariff structures are now being modified, or have recently been modified, so as either to correspond better to new electricity production structures or to eliminate preferential rates previously granted to the minimum level of domestic consumption. In the opinion of the Commission services, these changes demonstrate the growing tendency to move towards more realistic pricing. Such efforts should continue to be pursued and the Member States are invited to keep the Commission services informed of developments of this type.

57. There are, however, still certain practices which raise questions about their compatibility with the pricing principles. In Member countries where State enterprises are responsible for electricity supply, non-energy objectives, for example in the social policy field, are still a hindrance to realistic energy pricing. The Commission therefore invites the Council to call upon all Member States to ensure that energy objectives are given priority in energy pricing.

58. In some other cases, particularly those where generally-applicable published tariffs do not exist, the information which has been received from Governments is not sufficient to allow the Commission services to assess conformity with the agreed pricing principles. But some cases certainly exist where preferential price terms are made available to large industrial electricity consumers. These cases need to be examined in depth. As a first step, the Commission services propose to carry out a study of electricity pricing to aluminium producers.

2. Natural Gas

59. In contrast to the electricity sector, where supply costs are the dominant factor in setting prices for particular types of consumer, the situation in the gas industry is much more heterogenous. In general,

prices take account both of supply costs and of competition with other fuels. The relative importance of these two criteria varies considerably amongst Member States.

60. In addition, Governments have notified the Commission of certain cases where the price of gas to domestic consumers has been held down for social reasons. These cases are clearly in conflict with the agreed pricing principles. As for electricity, the Commission invites the Council to lend support in eliminating such practices.

61. There are also specific pricing problems in major sectors of gas consumption, such as power stations and the petro-chemical industry.

62. A particular question of natural gas pricing arises in the **power station sector.** Council Directive 404 of 1975[9] requires the use of natural gas in power stations to be authorized by Member State governments only under specified conditions. Annex 1 lists a number of cases where natural gas is at present being consumed in power stations under these exemption provisions. It is not within the remit of this Communication to discuss the application of Directive 404, other than to note that it remains in force. But the question of the **prices** at which gas is supplied in such cases is, of course, relevant.

63. The general principles developed in Section II should, in the view of the Commission services, apply in respect of this gas usage. Details of current practices are set out in Annex 1 and these illustrate the range of prices charged. The Commission invites Member States to adapt these practices to the general pricing principles.

64. The pricing of gas to the **Petrochemical sector** and more specifically for the manufacture of ammonia is being reviewed by the Commission services. The Commission has completed its analysis in respect of such pricing in the Netherlands, and its services will be reviewing current practices with national authorities in several other Member States.

65. The Netherlands case concerned a two-tier pricing system for natural gas used in fertilizer production, related to whether or not the product was being exported outside Europe. Following a series of complaints by other Member States and industrial enterprises, the Commission informed the Dutch Government earlier this year that it had opened a procedure under Article 93(2) EEC in respect of this pricing system.

66. In the course of this procedure, the Dutch Government informed the Commission that Gasunie had abolished the two-tier price system and had introduced, from November 1983, a generally applicable tariff in respect of very large industrial users located in the Netherlands. This tariff is based on annual gas consumption of at least 600 million m^3, an offtake load factor of at least 90%, interruptibility at the supplier's sole discretion and at short notice, and acceptance of gas of differing calorific values.

67. After careful examination of technical and cost factors, the Commission concluded that this new tariff, which is part of the general structure of the Dutch gas tariff system and is not sectorally discrimi-

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[9] Council Directive of 13 February 1975 on the restriction of the use of natural gas in power stations; OJ N° L 178 of 9.7.1975.

natory, did not contain elements of State aid and, furthermore, was in conformity with energy pricing principles. The Commission therefore decided to close the procedure under Article 93(2).

68. In November 1983, the Commission wrote to other Member States asking for information on current pricing practices for feedstock gas supplied to the fertilizer sector. A summary of the replies is contained in Annex 1. The Commission services are examining these data in consultation with the respective Member States.

IV - TRANSPARENCY

69. Ministers have confirmed that maximum possible transparency is an important element in achieving a sound energy pricing policy. The Commission has striven in recent years to improve the transparency of energy prices in the different sectors, principally through the Pricing Bulletin[10] which has provided, in a structured manner, pricing information for various types of consumer in the different Member States. While this has been partially successful, there is still considerable progress to be made, particularly in key sectors related to large users.

70. In practice, better transparency can be achieved both by improved statistical information and by a more standardized means of setting tariffs charged for different quantities of fuel purchased. On the first point, however, there are difficulties in getting better transparency in the upper range of consumer use, arising from commercial considerations regarding secrecy surrounding the contracts. This is an important issue in achieving better transparency and the experience in different Member States indicates the potential for improvement.

71. The argument is made by some Member States that greater transparency inhibits the commercial behaviour and thus the profitability of particular enterprises. Yet in other Member States there is a wider range of transparency which appears to be compatible with the objective of profitable trading. The Commission services are of the opinion that, in line with the experience in the Member States with a more transparent structure, greater awareness of pricing does not conflict with commercial objectives.

72. Consequently, it invites the Council to confirm the need for greater efforts across the Member States to improve transparency. This can be achieved if relevant information is made available to the Commission services to enable it to reinforce the information provided in its Pricing Bulletin. This information will, of course, be published in a way which respects the confidentiality of individual clients and utilities. It is important to make progress in this area.

73. In addition to the regular series of pricing information, the Commission services are undertaking, and will continue to analyse, long-term trends in both the levels and the structures of prices for the different fuels.

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[10] Annex 2 analyses price trends over the period 1973-1984 in real terms, examines whether prices are converging between Member States and gives a comparison of relative real energy prices per unit of useful energy.

74. The second means of improving transparency relates to the different types of pricing **regimes** in operation in the Community. In general throughout the Community, domestic, small and medium-sized industrial consumers are, for gas and electricity, charged on the basis of published tariffs. Large consumers are, in some Member States, charged on the basis of generally applicable tariffs, with variations according to the offtake conditions, but in others price levels are set on the basis of confidential contracts. The justification for this latter pricing regime is often based on the argument that the particular conditions for different users are so heterogeneous that a tariff structure would not be appropriate. It is also feared that if there were a standard tariff structure, then consumers in different categories would continually request that their particular prices should be aligned downwards.

75. These are considerations which would obviously apply throughout the Community, and yet a number of Member States do operate a generally-applicable tariff system for larger consumers. The Commission services are not convinced by the arguments against operating such a system.

76. In an international trading community, it is, of course, important to remove any real or perceived barriers to trade in the interest of better overall economic performance. To the extent that there are, or are believed to be artificial factors offering competitive advantages, the environment within which trading occurs will be made more difficult by continual suspicion that competitors are benefitting from artificial pricing advantages.

77. To overcome these difficulties, the Commission invites the Council to consider the case for a new recommendation on pricing structures in addition to the existing gas and electricity recommendations. Specifically, this would lay down pricing guidelines for large consumer contracts taking account of the technical and cost characteristics involved. Once such standardized guidelines were in operation the transparency situation would be considerably improved, which in turn would increase confidence in the existence of fair trading conditions.

V - INTRACOMMUNITY TRADE

A. GENERAL

78. The account of specific pricing practices in Section III above has been concerned with the situation within particular Member States. The agreed pricing principles are, however, **Community** principles which should apply to energy trade between Member States as well as to sales within particular countries.

79. The aim should not, however, be to achieve price harmonisation throughout the Community. There will always be real differences in supply and distribution costs which will, for instance, benefit consumers of Dutch gas in the Netherlands as against other (indirect) customers for such gas in the South of Germany. In its earlier conclusions[11], the Council confirmed that any price differences which did not correspond to the guidelines it agreed must be clearly identified and, to the extent

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[11] Council Conclusion of 3 December 1981; see also § 5 above.

that they arise from differences in public policy, progressively reduced. **To preserve the unity of the common market, therefore, it is essential that prices for transnational energy sales should also be based on the agreed Community principles.**

B. INTRA-COMMUNITY ELECTRICITY TRADE

80. An extensive network of trans-frontier electricity interconnections has been built up over the years by the electricity utilities. Electricity trading, both in terms of mutual exchange and of net transfer, has continued to increase and has provided both security and economic advantages to the consumers.

The security aspect arises in most cases from the existence of spare transmission capacity, over and above that required for normal trading, which is available in the event of system or plant breakdown. Economies flow from electrical energy trading, whether on a mutual exchange basis at appropriate times depending on the demand pattern on each side of the frontiers or in net energy flows from cheaper production sources.

81. Whilst transfrontier trade is normally carried out between electricity utilities, it is nevertheless both logical and desirable that the prices for electrical energy transfers should be based on the energy pricing principles. In particular, prices should realistically reflect the costs of supply and should be such as to contribute to the continuing financial viability of the suppliers. Prices practised in this area are not currently transparent. The Commission invites the Member States to provide assistance in achieving transparency.

C. INTRA-COMMUNITY GAS TRADE

82. At present the major cross-border gas trade in the Community stems from the decision of the Netherlands Government some years ago to allow a proportion of its indigenous gas resources to be produced for export. Netherlands gas is currently supplied to five other Member States, specifically to Germany, France, Belgium, Luxembourg and Italy. Other intra-Community gas trade flows will develop in the next few years, for instance between Denmark and Germany, and between Ireland and the UK (Northern Ireland). But unless and until UK gas production rises to the point of providing an export surplus, the supply of Netherlands gas is likely to remain the dominant trade flow as far as Community gas resources are concerned.

83. Although the cross-border sale of Netherlands gas is in fact carried out by Gasunie, this type of trade should clearly be regarded as falling within the category of bulk sales by gas producers, in the same way as gas exported to the Community by the USSR, Algeria or Norway. The price charged for such sales will therefore tend to be influenced by the international (or regional) gas market situation at the time, and by the competition between alternative suppliers.

While the framework within which Community transfrontier sales operate will reflect this wider geographical range of sources, the two principles of realistic pricing and non-discrimination should continue to guide these sales.

84. Similarly, these principles apply to companies producing gas within the Community and selling either to utilities within their own country or those located in other Member States. Of course, the level of prices charged will differ, e.g. transmission costs, etc., but any major price divergence between internal and external sales by producers could lead to distortions of competition between industrial consumers in different Member States.

85. From the information The Commission services have available, it appears that the Dutch gas border price lies within an acceptable range of prices charged to large, and very large industrial consumers in that Member State.

D. TRADE BARRIERS

86. Realistic pricing is of course only one of the factors required to ensure an optimum pattern of energy trade between Member States. Access is another important consideration. In a number of recent Communications, the Commission has drawn attention to the need for an effective transnational **infrastructure** in the energy field. There appear to be no major difficulties as far as trade in oil and coal are concerned, but for **gas** and **electricity** The Commission services arestudying whether there is a case for accelerated development of cross-border gas pipelines and electricity interconnections.

87. Another factor which may be affecting the level and quality of intra-Community trade in gas and electricity is the existence of the national or local monopolies which control distribution and sales. It is not usually open to a particular consumer to seek supplies on better price terms from another utility or, for example, in the case of gas, directly from a gas producer. It is of course clear that the distribution of gas or electricity are natural monopoly areas, given the prohibitive cost of building duplicate facilities. But a monopoly of distribution does not automatically imply a monopoly of final sales. It would be feasible to divorce the two activities, at least partially, by requiring gas or electricity distribution companies to act as a **common carrier** for other suppliers, whether located in the same country or in other Member States. They would also of course continue to transport and sell gas or electricity themselves, but under such a regime the final consumer would be able to take advantage of competition between alternative suppliers. Powers to enforce a common carrier regime for natural gas were introduced in the UK in 1982, although it is too early to judge the effects of this innovation.

VI - ROLE OF TAXATION

88. The need to achieve the basic objectives of the energy pricing principles, i.e. realistic pricing, transparency and a contribution to the unity of the common market, requires that the rôle of taxation in this policy area should be clearly recognized as a very important element. This consideration normally applies to oil products since (other than VAT) taxes are not usually levied on other fuels. The Commission has drawn the Council's attention to the interrelationship between taxation and energy pricing principles, particularly in its Communication of September 1981 in

the specific area of taxation of petroleum products[12]. But the discussion on this document and also on the Commission's original 1973 proposal[13] on the harmonization of excise duties on mineral oils were both inconclusive.

89. The Commission reminds the Council of the five practical goals it proposed for oil product taxation in the 1981 Communication:

- agreement on the principle that target areas should be set for the tax burden for each major category of product (i.e. the minimum and maximum incidence in relation to the prices net of tax for all excise duties and VAT), so as to have a direct impact on their price structures which brings them more into line with energy objectives;

- a joint decision of the rate of progression of the overall tax burden (excise duties + VAT) towards the target areas and to achieve a better balance between excise duties and VAT. It would be necessary to ensure that changes in the tax burden remain at all times in line with target areas;

- a joint agreement on the need to adapt excise duties regularly, without however revising the level more than once a year;

- adoption of the principle of gradual abolition, following a timetable jointly agreed, of exemptions, subsidies and tax reductions for particular uses where there is no longer any valid reason for keeping them;

- a decision that the Council should review annually the trends in energy and particularly oil taxes (both structures and rates) to assess to what extent they contribute to achieving the objectives of economic and energy policy.

90. These goals remain relevant today. Their achievement depends, in particular, on tackling

- the diversity of tax structures in operation in the different Member States, and

- the lack of consistency in the rates charged under different tax headings.

91. The general harmonisation programme proposed by The Commission for taxes on consumption envisages in a first phase harmonisation of **tax structures** and in a second phase the harmonisation of **rates.** The importance of **structural harmonisation** for the energy sector is highlighted by the following examples:

Some Member States apply only the deductible value added tax at the normal rate to heating fuels and have suspended the levy of excise duty on those fuels, whilst the other Member States levy (non-deduct-

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[12] COM(81) 511: Taxation of Petroleum Products.

[13] COM(73) 1234 of 1 August 1973 on the harmonization of excise duties on mineral oils.

ible) excise duty on heating fuels plus VAT. So, it is only the non-business user of those fuels in the former countries who bear the tax burden. This can cause distortions of competition.

Another example of an important structural difference is where the same excise rate on gasoil is applied notwithstanding its use as motor propellant or as heating fuel, rather than the usual practice of subjecting the two different uses to different tax burdens.

92. Besides the differences in the **structure** of excise duties mentioned above, distortions of the energy market arise also from differing levels of VAT and excise duty **rates** on oil products. For automotive light oils, the VAT rates vary from 12% to 25% and the excise duties vary from 0,194 ECU/litre to 0,459 ECU/litre. For automotive gasoil, the excise duties vary from 0,044 ECU/l to 0,244 ECU/l. The excise duties on heating oils differ even more (from 0 to 88,3 ECU/l for heating gasoil and 0 to 50,00 ECU/l for residual fuel oil).

93. The incidence of tax has eroded through time in many cases. With the exception of heating oil, the incidence of tax on the different oil products has declined, in some cases substantially, over the period 1973-1983. There has therefore been a restructuring of the effective prices to consumers by the accident of inflation, rather than by any clear policy objective. The achievement of the overall energy objectives, particularly on oil dependency, could be influenced by this situation.

94. The Commission services areconscious that the rôle of taxation in energy pricing policy is complex, both in terms of intra-fuel competition and in competition between users of the same fuel in different Member States. But differences such as those outlined above would of course tend to override the effects of a realistic energy pricing policy. The Commission services aretherefore of the opinion that unless a new initiative is taken in the taxation area, the objective of a more effective pricing policy could be jeopardized.

95. Consequently, it invites the Council to endorse the important relationship between pricing policy and taxation and to agree that discussions should, as a first step, be reopened on harmonization of excise duties on mineral oil.

VII - CONCLUSIONS

96. In its previous discussions of energy pricing, the Council invited the Commission to study the application of the Community's energy pricing principles. The present Communication is the result of that remit and of the enquiries which have since been pursued with Member States. For reasons which are explained, The Commission services have concentrated its work **at this stage** on the gas and electricity sectors. The survey has revealed a number of transparency difficulties and has also identified some complex problems which will require further analysis. More work by The Commission services and Member States will therefore be needed to obtain a comprehensive picture of the situation. The Paper does however seek to highlight particular sources of difficulty which appear to merit Council discussion. These are:

i) situations in which the application of the Community's energy pricing principles is set aside in favour of other social or economic policy objectives;

ii) cases where gas or electricity utilities are failing to achieve or restore overall financial viability;

iii) the risk that market-related, rather than cost-related pricing by monopoly utilities could generate unnecessary surplus revenues:

iv) differences in pricing practices leading to discrimination between particular consumers;

v) situations in which monopoly utilities, through cross-subsidisation or other means, may be charging industrial consumers prices which do not fully cover supply costs;

vi) the need to further price transparency by improving access to information and by introducing guidelines for large industrial contracts;

vii) situations, particularly in the oil sector, where differences in taxation levels obscure the objectives of realistic energy pricing.

ANNEX 1

INFORMATION CONCERNING ELECTRICITY AND GAS PRICING PRACTICES IN THE MEMBER STATES

A. GENERAL REMARKS

1. For the reasons explained in Chapter II, this survey does not give a detailed desription of the pricing practices in the Member States. Rather it is a summary of information supplied by governments about electricity and gas prices which concentrates on the following two aspects: the financial viability of undertakings and the allocation of costs among the various categories of consumer. As the answers were fairly variable in scope, the information has been supplemented from other sources where possible.

B. FINANCIAL VIABILITY

2. The financial viability of undertakings, especially where long-term investment is a major requirement, depends on a number of factors, which vary in importance from case to case. For evaluation purposes, therefore, it is not enough to ask whether prices are high enough for a suitable profit to be earned. Other factors must also be taken into account, such as whether the rate of inflation is in calculating depreciation, the relation between share and loan capital with regard to capital costs, and the significance of the annual result in the context of the multiannual requirement for finance. The requisite criteria cannot all be given equal consideration here. The survey merely suggests, to the extent that data are available, that the relation between profit and turnover is the key ratio. All the information on profit and loss set out below relates to the net operating results, i.e. less interest payments and tax. There are still problems of comparabiliy, however, since the rules on compiling balance sheets vary in respect of other factors which influence the annual result, such as depreciation (at historic/replacement cost), the purchase price of the gas, and taxes on gas extraction. Any accurate evaluation requires these problems to be examined in detail, which it has not been possible to do in this inquiry.

I. Electricity

3. The **Belgian** Government stresses that the purpose of electricity tariffs is to ensure financial viability of the industry and pursuit of its investment programme without calling on aid from the public authorities. The fact that false depreciation costs of nuclear units under construction are particularly taken into account in the current period is to be seen in this conext. In 1982, generation and distribution combined showed a profit of FB 5 900 million, or 6.2% of turnover.

4. The **Danish** Government states that the rules on electricity tariffs, which are laid down in the Electricity and Heating Supply Act, provide electricity suppliers with a sound financial basis since they allow them to recoup all their costs through their prices, and still have a margin for future investment. The electricity supply industry is organized in a fairly decentralized manner, and an overall quantified estimate of its financial position is not available.

5. The **German** Government reports that a satisfactory profit and an adequate return on capital invested are a fundamental feature of Germany's private-sector electricity industry. Between 1977 and 1981 the industry recorded an average profit of 2.9% of revenue from sales to consumers and distributors.

6. In **Greece**, the DEI (Public Power Corporation) continued to revise its electricity prices, with increases in revenue averaging 25% in 1982 and 24% in 1983. However, only in 1982 was the increase appreciably higher than the rise in operating costs - high enough, in fact, for the undertaking to record its first-ever operating profit: DR 638 million, or 0.7% of turnover. In 1983 the Government expected the undertaking to break even, disregarding accumulated losses. With this improvement in its financial situation, the undertaking reckoned that in 1983 it would virtually achieve its objective of self-financing one quarter of its investment.

7. In **France**, EdF managed in 1983 to reverse the slide which had led it to accumulate operating losses totalling FF 13 500 million between 1979 and 1982. The French Government's provisional figures for 1983 indicate that the operating loss has been brought down to FF 4 600 million from the FF 7 900 million, or 8.4% of turnover, recorded in 1982. Two increases in the average price of electricity - 8% in April 1983 and 3.5% in September - contributed to this relative improvement.

8. A further increase of 5% on average, which came into effect in February 1984, ought, in the opinion of the Government to bring EdF's trading account for the current year into balance.

9. At the same time, the Government expects a higher self-financing ratio as a result (45% to 50% compared with 25% in recent years) and a lower burden of debt (FF 28 000 million in 1984 as against FF 40 000 million in 1983).

10. The French Government emphasizes that in the long run consumer prices must cover production costs. However, it also stresses the need to use prices as a means of controlling inflation.

11. In **Ireland**, the Electricity Supply Board (ESB), after two positive financial years, ended 1982/3 with a new loss of IRL 5.7 million, or 1% of turnover. This brought its cumulative deficit to IRL 14.1 million. Following the 1983 electricity price increase, however, the Irish Government feels that the ESB is now in a sound financial position: not only do its prices cover all its running production costs but they also leave a wide enough margin to finance 25% to 30% of the Board's new investment.

12. According to the **Italian** Government's information, ENEL's financial position has deteriorated recently, not only under the impact of the increases in fuel-oil prices and of the higher exchange rate for the dollar, but also because of the cost of servicing the undertaking's heavy debt. The main reason for this debt is that ENEL has undercharged for its electricity in the past. From 1976 onwards only, the financing of investment and the compensation of the old nationalized electricity undertakings have qualified for capital grants. In 1981, all such grants were worth 15.4% of fixed assets.

13. The tariff increases granted by the Interministerial Committee on Prices (CIP) in 1982 were too low to reduce the operating loss. This amounted to LIT 2 433 thousand million, or 18% of revenue, including contributions referring to the "thermal supplement".

14. In 1982, ENEL produced a four-part stabilization plan. In the first stage - 1982 - the liquidity crisis was resolved through tariff increases and Government grants. The second stage - 1983 - should see a return to self-financing after an interval of two years, as a result of revenue being well above costs. The third stage - 1984 - should result in a balanced trading account, provided the Government gives the go-ahead for a further increase in the tariffs to non-domestic users and continues to pay the grant. In the fourth stage, which covers a longer period, it is planned to restructure the sources of finance (self-financing, capital grants, and borrowing).

15. The **Luxembourg** Government reports that Cegedel charges enough to provide a sound financial basis for funding a major long-term investment programme through a combination of self-financing, loans and capital stock increases.

16. In the **Netherlands**, the electricity industry, which is fairly decentralized, is profitable overall. Quoting the Central Statistical Office's figures for 1979, the Government gives an average profit of 4.4% of turnover as the most recent overall result available. It estimates that this would be about 3% in 1982. There appears to be no provision for a general rise in electricity prices before the end of 1985.

17. The **United Kingdom** Government reports that electricity pricing reflects long-term marginal costs. It regards this practice as economically sound and consistent with Community objectives. In the last ten years the increase in average electricity prices has been greater than the rate of inflation - a trend which reflects, inter alia, the attempt to move from a policy of prices held down for non-energy reasons to a method of price setting which ensures that electricity undertakings are financially viable. Accordingly, electricity prices are determined by certain financial objectives and limits on external financing laid down by the Government. In 1982/3 the Electricity Council recorded an operating profit (current cost accounting) of UKL 332 million, or 3.6% of turnover.

2. Gas

18. The **Belgian** Government stresses that the purpose of its gas tariffs is to ensure that the industry is financially viable and can pursue its investment programme without calling on aid from the public authorities. In 1983, Distrigaz registered a net profit of FB 580 million, or nearly 0,7% of turnover, at an average purchase price of about FB 200 (4.5 ECU) per GJ.

19. A major problem is the growing share of the market being taken by relatively high-priced Algerian gas; at 6.5 ECU per GJ, this gas is 50% more expensive on average than Dutch and Norwegian gas. A temporary arrangement has been reached to cut back deliveries. Not until October 1985 will supplies now be stepped up to the 5 000 million m^3 a year originally agreed in the supply contracts. However, renegotiation of the Algerian gas contract is apparently being contemplated for late 1985.

20. The **Danish** Government says that the pricing rules in the Electricity and Heating Supply Act ensure that undertakings can be managed on a sound financial basis. It stresses, however, that the natural gas grid is still at a very early stage of development and that the fixed component of the two-part tariffs accounts for a smaller proportion of the total gas price than the fixed costs warrant. In accordance with point a.4 of the Recommendation on natural gas prices, this variant of the two-part tariff system is warranted since it reflects the local conditions applying during the development phase.

21. The **German** Government stresses that, as regards small domestic and industrial consumers, German gas undertakings are free to set selling prices provided that they are set within the published tariffs. As regards large industrial consumers and power stations, prices are the subject of individual negotiations which are determined by the competition from alternative forms of energy. Given such competition, the private gas companies will accept only a gas purchase price which allows them to sell to the end user under satisfactory economic conditions.

22. The **Greek** Government has sent no information on gas pricing since the Greek natural gas supply network is still at an early stage of development.

23. In 1983, **Gaz de France (GdF)** registered a record operating loss of FF 2 500 million. Despite an average increase in gas tariffs of 5% in February 1984, an operating deficit for 1984 as high as FF 4 000 million is not out of the question.

24. Several factors contribute to this deterioration: surplus stocks of gas - the result of excess availabilities - create a financial burden of FF 150 million a year; the rise in the dollar exchange rate continues to increase the cost of purchase; and the cost overrun of Algerian gas - an estimated FF 1 500 million in 1984 - has been borne by GdF alone since the beginning of this year.

25. As regards measures to reduce annual operating losses, or even recover the losses accumulated in the past, the French Government recognizes that in the long run prices must cover costs in their

entirety. At the same time, however, it stresses the need for competitive prices vis-à-vis competing forms of energy if gas is to maintain its share of the energy market.

26. The **Irish** Government states that the Irish Gas Board's finances are healthy, with revenue covering all the Board's currently supply costs and leaving a margin of between 25% and 30% to finance new investment. Purchasing its gas at around 1.1 ECU per GJ, the Board in 1982 recorded a net profit after tax of IRL 29.4 million, or 27.3% of turnover.

27. In **Italy**, the gas industry publishes uniform, nationwide tariffs and prices are monitored by the Interministerial Committee on Prices (CIP). The industry is organized in such a way that there are three different pricing systems. First, the prices agreed between SNAM (the transmission company) and the local distributors depend in part on a number of cost items including procurement, transmission, storage, distribution and load factor. In addition, prices are regularly adjusted in line with the ex-tax price of heating oil, subject to CIP approval. Prices for deliveries of local distributors to the domestic sector and small industrial users are determined under a procedure agreed by the CIP and the municipal undertakings which ensures that the latter make a profit. The prices are based on the quantities supplied. As for SNAM's direct sales to large industrial consumers, the variable component of the tariff is adjusted every month in line with the prices for a "basket" of heavy fuel oils, which the fixed component is adjusted for inflation once a quarter. In the case of interruptible supplies to power stations or other industrial users, the link with the movement in the price of fuel oil refers only to the high-sulphur content variety.

28. Taken as a whole, this pricing system guarantees, according to the Italian Government, that SNAM remains profitable (profits in 1983 were LIT 72 000 million). It should be mentioned, however, that SNAM receives financial support from the Goverment for importing Algerian gas, support which is due to expire in 1986.

29. In **Luxembourg**, gas transmission and distribution undertakings according to the Government finance the infrastructure which they need from their sales profits.

30. In the **Netherlands**, Gasunie, which is responsible for transmission and also sells direct to the largest users, recorded a net profit in 1983 of HFL 80 million, or 0.3% of turnover, on the basis of a purchase cost of around 3.8 ECU per GJ. Quoting the Central Statistical Office's published figures for 1979 - the latest results available - the Government gives a net profit of about 6.5% of turnover for the average of local distributors. In the Government's view, however, this overall figure is not wholly reliable, given the way the industry is organized: there are a great many link-up schemes between various communes, or with other types of public services.

31. The **United Kingdom** Government reports that the British Gas Corporation's prices take into account both prevailing market conditions, the longer-term cost of continuing supply including an adequate return on the capital invested. Two price increases were made in

1982 - one averaging 10%, the other 12%. In the 1982/3 tax year, British Gas recorded a net profit of UKL 188.4 million, or 3.2% of turnover, based on a gas purchase cost of 2 ECU per GJ.

C. ALLOCATION OF COSTS AMONG CONSUMERS

1. Electricity

32. **Belgium:** The Belgian Government emphasizes the fundamental principle whereby price structure must reflect the reality of the costs generated by each type of consumption as accurately as possible. Accordingly, the tariffs for direct industrial customers have been altered to take account of the introduction into service of nuclear generating units. In addition, the partial indexing of prices has been replaced by integral indexing, which includes a capital cost component. In 1982, however, industrial customers enjoyed an overall advantage of some FB 3 000 million, due notably to the impact of the nuclear sector being reckoned too soon and integral indexing being introduced only gradually.

33. **Denmark:** According to the Commission on Prices, which is notified of changes in prices and the conditions of sale, Danish prices do reflect the costs associated with the different categories of consumer and thus satisfy the requirements of Article 1 of the Council Recommendation on Electricity Tariffs.

34. **Germany:** The Federal Order on Electricity Tariffs (Bundestarifordnung-Elektrizität) requires that the principle of cost-related prices be followed: each consumer or group of consumers must bear the supply costs which he/it generates. Whereas the prices for deliveries to the domestic sector and small industrial users are published in tariffs which require the approval of the Federal or Land authorities, non-tariff sales to industrial consumers are not subject to such supervision. However, Antitrust Law represents an important means of abolishing discriminatory pricing. The Federal Government emphasizes in particular that any practice which is designed to tie an industrial consumer to a specific power station is regarded as infringing the principle of non-discrimination. Yet this principle does not prevent consumers with a high rate of capacity utilization from profiting from the favourable production costs of base-load power stations (brown coal and nuclear).

35. According to certain press reports, Hamburgische Elektrizitätswerke AG (HEW) charges one aluminium plant, for instance, 2.0 pfennigs per kWh - compare this price with the cost of just the fuel in the case of nuclear-generated electricity, which it is estimated will be at least 2.5 pfennigs per kWh in future. It is legitimate to wonder whether such a price covers all directly attributable costs (i.e. variable costs plus meter charges, etc.).

36. **Greece:** As with all energy sources, electricity prices are fixed by a ministerial committee (KYSYM) on a proposal from the Minister for Energy and take account of energy, economic and social factors.

37. The Government states that it attaches particular importance to whether the price charged to the aluminium industry is compatible with the principles laid down in the recommendation on electricity tariffs. The matter is currently being reviewed by the competent authorities.

38. **France:** According to the Government, tariff structures are designed to reflect the structure of the long-term marginal costs associated with the different types of consumer. Tariff structure changes are under review to see whether, as regards large industrial users, the penetration of nuclear generated electricity cannot be better expressed.

39. In January 1984, EdF and Pechiney Ugine Kuhlmann (PUK) signed an agreement, retroactive to 1 January, relating to the purchase by PUK of about 220 MW of nuclear capacity. The purchase price of this capacity reflects the cost of developing a major power station. PUK is to receive electricity at operating cost, excluding capital charges but including transmission costs, i.e. at a rate of 13 centimes per kWh. Some parts of the agreement are still provisional. It has not yet been decided, inter alia, whether this capacity will be a fraction of a particular power station or may be drawn from more than one. In the former case, PUK could be regarded as a self-producer and problems of discrimination could hardly arise; in the latter, however, with a contract period of 25 years, PUK would enjoy special conditions denied to other users.

40. **Ireland:** The Irish Government stresses that the Electricity Supply Board has gradually removed any element of cross-subsidization between the various consumer categories and that all tariffs cover at least the long-term marginal costs.

41. **Italy:** Prices are fixed by the Interministerial Committee on Prices (CIP) within a system of single national tariffs for each category of consumer. The Italian Government would draw attention to the fact that the tariffs for the various categories of consumer, are based on objective components such as voltage, subscribed demand and utilization rate.

42. **Luxembourg:** New tariffs were introduced on 1 January 1982 with a view to reflecting more accurately the distribution costs generated by the various categories of use. The quantity discounts available to certain medium- and high-voltage customers have been abolished.

43. **Netherlands:** Tariffs are determined jointly by electricity distributors and are approved by the Government. Their structure generally reflects the cost of supplying the various consumers. Where there are still minor exceptions to this rule, structures are gradually being adapted.

44. **United Kingdom:** With a view notably to avoiding discrimination between various categories of consumer, prices are linked to long-term marginal costs.

Further to the Government's request, the Electricity Council, assisted by independent experts, has examined the particular problems arising from possible changes in Bulk Supply Tariff (BST). The con-

clusion to this analysis recommend that the BST should continue to be based on long-term marginal costs and that a contracted consumer load scheme should be applied for a "test" period of three years. The scheme provides for substantial price reductions for consumers who are prepared to cut their demand by at least 25% for a period of 60 hours between October and March and has been favourably received by the large industrial consumers. It should help to restrain the upward trend in prices to this category of consumer to a considerable extent.

2. Gas

45. This section focuses first on the main points arising from the statements and general information submitted by governments to the Commission services before going on to discuss pricing in specific areas such as gas supplies to power stations and the chemicals industry.

(a) Country-by-Country Survey

46. **Belgium:** For supplies to the domestic sector and to small industrial users, gas tariffs include a system of indexing prices which takes account of all the various cost components. Large industrial users are supplied direct by Distrigaz in accordance with supply contracts. The calculation formula used in these contracts takes account, in addition to the cost components, of the competition from alternative forms of energy and distinguishes between "specific" and "non-specific" uses of gas - for the latter, residual fuel oil provides the alternative. Depending on the quantities taken off (reduction factor (K)) and the use to which the gas is put (conversion factor (P)) prices may range from 90% to 110%.

47. **Denmark:** With a view to developing a new natural gas supply grid, an amendment made in 1982 to the Supply of Heat Act specifically allows prices to be differentiated by the consumer, group of consumers or geographical area, provided "reasonable financial principles" are applied. Prices are subject to a ceiling aligned with equivalent fuel-oil prices.

48. **Germany:** The Federal Government stresses that price setting is the sole responsibility of the transmission and/or distribution undertakings. The Bundestarifordnung (BTO) Gas (Federal Tariff order) obliges undertakings to supply the domestic sector and (other) small consumers in accordance with published tariffs which include a heating-oil reference component. Gas is sold to industrial customers under individual contracts which take the prices of the various alternative forms of energy into account, to ensure that gas is competitive. The alternative energy source protects the industrial consumer against a monopoly gas price set at a level unwarranted by costs. In addition, Antitrust Law is regarded as an important weapon against any abuse of a dominant position.

49. **Greece:** No details were submitted by the Government of Greece, where the natural gas supply network is still in its infancy.

50. **France:** All firm sales from the transmission and distribution networks are covered by published tariffs based on the principle of fair treatment for all customers. The differences between the tariffs reflect the differences in the cost of the services provided. In addition, the tariffs are indexed-linked to the competing forms of energy, namely heavy fuel oil and French coal where supplies to industry are concerned.

51. **Ireland:** Ireland is in the process of developing its own indigenous production capacity with a transmission and distribution network to match. Under the circumstances, the Irish Government feels that Ireland's natural gas prices should take account of these special local conditions, as allowed by the Council Recommendation on natural gas prices. A strategy calling for uniformity in terms of prices and conditions of supply would not fit in with the gas policy objectives pursued, least of all with the need to sell enough to finance the heavy investment envisaged during this initial phase. Prices to local distributors and for direct sales to industry are linked to oil prices. As to the gas supplied to power stations, the price is set between the equivalent prices of fuel oil and coal.

52. **Italy:** One of the CIP's monitoring duties is to ensure that prices comply with certain energy policy criteria. As regards the domestic sector, there is the further criterion that the purchasing power of the less well-off must be protected. Prices for deliveries to industrial consumers reflect the cost differences resulting from the nature of the supply (volume, utilization time, etc.). They are also related to various grades of heavy fuel oil - gas bought under firm supply contracts which sells on average at approximately 15% above high-sulphur heavy fuel oil.

53. **Luxembourg:** The Luxembourg Government stresses the need for natural gas, in its various applications, to remain competitive with alternative fuels and is concerned at the prospects for further penetration of the market by this energy form. It wonders how far the recent practice of linking natural gas prices to oil prices is justified in the long term, assuming that oil will gradually leave the heating market as oil prices move further ahead of coal prices.

54. **Netherlands:** Gas prices, according to the Government, are based on the market value principle, which implies that the price of rival forms of energy is taken as the reference level.

55. This means that the price to small consumers is linked to the price of domestic heating oil, while gas prices to high-consumption customers are tied directly to heavy fuel-oil prices. In addition, when prices are rising fast, the rate at which gas prices are increased also depends on the situation in the branch of industry concerned as a whole. Horticulture is one example where prices have gradually been increased to much higher levels.

56. **United Kingdom:** The "realistic pricing" approach followed by the Government is designed to minimize any distortion which might occur if prices were too low (wastage of a limited energy source) or too high (inviting overcapacity on the supply side). Accordingly, it takes the market structure into account by maintaining that prices should reflect market pressures where reasonably open markets exist

or should reflect the cost of supply in all other cases. In addition, price differentiation is a function of cost criteria such as the quantity demanded and the regularity with which it is consumed.

57. For these reasons, the recent increases in natural gas prices varied from one sector to another. Between 1980 and 1983 British Gas raised its prices to domestic users by 10% more than the inflation rate each year. In some cases, however, these price increases have been accompanied by assistance towards heating costs in an effort to soften the impact on the less well-off. At the same time, prices for supplies to industry have been raised less sharply so as to reflect the cyclical fall in demand and the trend in the price of oil-product alternatives.

(b) Gas sales to power stations

58. Recent shifts in the energy market and unusual regional conditions have produced a tendency to burn more surplus natural gas in power stations. The information reproduced below, which has been brought to the Commission services's notice, shows that pricing practices for this kind of supply are fairly different. This brief survey does not take account, however, of some increased gas use in power stations in certain Member States, for which the Commission services has no detailed information as regards quantity or price.

59. In the **Netherlands**, Gasunie will be supplying SEP (Samenwerkende Elekriciteitsproduktiebedrijven) with 20 000 million m^3 of extra gas at a special rate between 1982 and 1987. The price will be aligned on that of imported coal in anticipation of the programme to convert three oil-fired power stations with a combined capacity of 1 653 MW to coal. This extra sale will compensate Gasunie for reduced sales elsewhere, especially on the export market.

60. In **Italy**, contracts concluded by SNAM and ENEL provide for the supply of natural gas as a temporary replacement for high-sulphur heavy fuel oil in a number of dual-fired power plants. Most of these contracts are interruptible. According to press reports, the gas price will be aligned to high-sulphur heavy fuel oil. In its Communication to the Commission pursuant to Directive 75/404/EEC, the Italian authorities argue that this arrangement was made inter alia because Italy's natural gas transmission and distribution grid has not yet been extended far enough to the north to absorb the increasing quantities of gas being brought in under the contract with Algeria.

61. In **Ireland** the Irish Gas Board has stepped up deliveries under its 1979 contract with the Electricity Supply Board on a number of occasions, as the Kinsale field has been reassessed, and in order to facilitate the investment needed to develop a distribution grid. After 1987 it plans to cut back sales to power stations substantially. At the moment, the Board sells gas to power stations at a price between that of fuel oil and that of imported coal. This thus fits in with the programme to convert oil-fired power stations to coal - a scheme which has already started at the Moneypoint plant.

62. In Denmark, an agreement in principle has been concluded between the national undertaking DONG, which is responsible for the transmission of natural gas, and certain electricity undertakings whereby 2 500 million m^3 will be supplied to four power stations during the period 1984-1991. Some of the gas will replace fuel oil, and some coal. By this means, DONG, which is in the initial stages of developing the country's natural gas grid, will be able to meet its offtake commitments vis-à-vis the North Sea production concessionaire, despite a fall in demand as a result of the recession. This transitory arrangement, designed for the special conditions of developing the supply grid, includes prices clauses which will discourage both DONG and the power stations from increasing the volume under contract. The Danish authorities regard this arrangement as economically sounder than the alternatives, namely diversion to exports or leaving the natural gas in the ground.

(c) Gas supplied to fertilizer manufacturers

63. The pricing of gas to the **petrochemical sector** and more specifically for the manufacture of ammonia is being reviewed by the Commission's services. the Commission has completed its analysis in respect of such pricing in the Netherlands, and will be reviewing current practices with national authorities in several Member States.

64. The Netherlands case concerned a two-tier pricing system for natural gas used in fertilizer production, related to whether or not the product was being exported outside Europe. Following a series of complaints by other Member States and industrial enterprises, the Commission informed the Dutch Government earlier this year that it had opened a procedure under Article 93(2) EEC in respect of this pricing system.

65. In the course of this procedure, the Dutch Government informed the Commission that Gasunie had abolished the two-tier price system and had introduced, from November 1983, a generally applicable tariff in respect of very large industrial users located in the Netherlands. This tariff is based on annual gas consumption of at least 600 million m^3, an offtake load factor of at least 90%, interruptibility at the supplier's sole discretion and at short notice, and acceptance of gas of differing calorific values.

66. After careful examination of technical and cost factors, the Commission concluded that this new tariff, which is part of the general structures of the Dutch gas tariff system and is not sectorally discriminatory, did not contain elements of State aid and, furthermore, was in conformity with energy pricing principles. the Commission therefore decided to close the procedure under Article 93(2).

67. In November 1983, the Commission wrote to the other Member States asking for information on current pricing practices for feedstock gas to the fertilizer sector. A summary of the replies is set out below:

- United Kingdom

H.M. Government have replied that British Gas Corporation negotiates individual contracts with all consumers who take more than 25 000 therms per year. For reasons of commercial confidentiality and the fact that BGC operates as an independent public corporation, H.M. Government is not in a position to give any information on individual contracts.

- Germany

The Federal Government, in their reply, state that gas supply contracts are matters of negotiation between private companies operating under private law. They do not have any information on the subject.

- Denmark

The Danish Government states that it does not supply natural gas to the fertilizer industry.

- Greece and Luxembourg

No reply has been received from either authorities.

- Belgium

Distrigaz grants a special tariff to the fertilizer industry based on the so-called border price, i.e. the price at which it purchases gas from abroad. As, however, this border price includes imports of non-Dutch gas which are priced at a higher level and certain minimum transportation charges, the Belgian fertilizer industry, although it gets its gas supplies at favourable prices compared to the rest of Belgian industry, pays a higher price level than that prevailing in the Netherlands. A recent press article suggests that a new pricing arrangement for fertilizer feedstock has been entered into.

- France

The French Government, in its reply, sent the Commission a contract between Caz de France and a French fertilizer producer (la Société Chimique de la Grande Paroisse). This contract allows for minimum quantities at a basic price, with a formula involving quantity discounts for larger amounts. In a recent press report, it was stated that French gas tariffs for fertilizers were aligned on the prices charged in the Netherlands.

- Ireland

The Irish authorities, in their reply, indicate that there is no standard industrial price tariff for gas supplies. Each contract is negotiated individually. There are no quantity discounts. They also state that there is a contract between the Irish Gas Board for the supply of natural gas to Nitrogen Eireann Teoranta. The volume in the contract covers 52 million m^3 per annum, the supply is interruptible. Deliveries commenced 1 April 1979. The agreement is to continue in force for a 20-year therm from 31 December 1979. There is no provision for renegotiation of contract prices.

- Italy

The Italian authorities have advised that preferential natural gas prices apply to all fertilizer manufacturers indiscriminately, but only in respect of products intended for the Italian market. Consequently, Italian export sales of fertilizer either inside or outside the Community are not manufactured under special conditions which give them a competitive advantage. As the selling price of fertilizer on the Italian market is set subject to government control, the authorities argue that the gas price follows increases in the price of fertilizer and not vice versa.

In conclusion, the Italian Government's view is that current practices are not contrary to either competition or state aid rules (Articles 85, 92 EEC).

68. the Commission services is continuing to explore these cases with the appropriate authorities in the Member States.

ANNEX 2

STATISTICAL ANNEX

SUMMARY

Real energy price trends in the Community in the post 1978 period differ widely according to fuel and market. In general, **oil prices** have increased by more than other fuels.

Residual fuel oil for industry and domestic heating oil have increased by about 80% in real terms since 1978. Only **industrial gas** prices (which are often indexed to the fuel oil equivalent) have matched this rate of growth. Industrial coal and coke prices have barely increased in real terms since 1978 whilst **industrial electricity** has only increased by about 20% in real terms. In useful energy terms, **industrial gas prices** seem to be extremely competitive with **residual fuel oil**, but the differentials favour **coal** over **oil** in industry.

In the **Transport Sector**, **gas diesel oil** has increased by more than motor spirit prices which have been more or less constant in real terms for the last four years. In useful energy terms, **gas diesel oil** is **cheaper** than **motor spirit** in all Community markets in 1984 - the same situation as in 1978.

In the domestic sector, **domestic gas oil** prices have increased by far more than other fuels. Measured in **useful energy**, **gas** is still seen to have a competitive edge over **gasoil**, but the margin is narrowing. The straight domestic **electricity:gasoil** relation still favours gasoil, but this gap is also closing.

As for **price dispersion** in Community energy markets, price dispersion has **decreased** for all fuels except electricity. Strong change is noted for all oil products - particularly fuel oil and also for coal and coke. Gas price dispersion has only slightly decreased in the post 1978 period.

COMMUNITY ENERGY PRICES - STATISTICAL ANNEX

1. This Statistical Annex is concerned with three aspects of energy pricing in the Community. Firstly, the trend of real energy prices in the post 1973 and 1979 oil shock periods, broken down by major market and by fuel; secondly, an analysis of energy price dispersion in the European Community by fuel and by sector; thirdly, relative real energy prices per unit of useful energy for competing fuels in the major markets have been compared.

2. The analysis has been mainly carried out at Community level. This involves a series of choices on how to obtain a "Community price" for a particular fuel or market. For example, choices have to be made whether to use simple average prices or weighted prices; purchasing power standards or ECU as a "numeraire"; prices inclusive or exclusive of taxes; choices of typical and representative consumer categories, etc. The following parameters describe the choices made for the analysis:

- Domestic and transport sector prices include all taxes, whereas industrial prices exclude VAT.

- Prices were evaluated in real terms by converting into constant 1982 purchasing power standards (i.e. at 1982 prices and exchange rates).

- For **Graph 1**, weighted prices were used for the Community, based on the fixed 1982 structure of energy consumption in the European Community.

- Prices are January prices of each year.

- Consumer categories and fuels chosen were as follows:

INDUSTRY	TRANSPORT	DOMESTIC
- Residual Fuel Oil (max 24000t/year)	- Gas/Diesel Oil (pump price)	- Domestic Heating Oil (delivered price)
- Natural Gas (418600 GJ/year)	- Motor spirit (pump price)	- Gas(125,6 GJ/year)
- Electricity (10 GWh/year)		- Coal
- Coal & Coke (max 50000t/year)		- Domestic electricity (20000 kWh/year)

(In the domestic market, the analysis focuses on energy used for heating).

GRAPH 1 - REAL ENERGY PRICE TRENDS IN THE COMMUNITY (1973-1984)

3. Explanation

For **Graph 1** prices were calculated as follows: a price per Gigajoule (GJ) (net calorific value) is calculated for each fuel for each Member State in constant 1982 purchasing power standards (at 1982 prices and exchange rates). These prices are then weighted according to the fixed 1982 structure of energy consumption in the Community to form a Community "real" energy price for each fuel in each market, which is tracked overtime.

4. Results

The graphs show that not only have **real oil prices** tended to increase by more than other fuels, but they have also risen more in the industrial and domestic heating markets than in the transport sector.

Overall this is not a surprising result since, for example, in a period of two years (end 1978 to beginning 1981) the average fob import cost of crude oil into the Community increased by more than 150% in nominal terms and this was reflected into the product markets. Although nominal crude oil prices then held until 1983, the devaluation of the ECU against the dollar guaranteed that the Community's oil prices have remained high in real terms.

Electricity prices, however, have increased since the 1978 index year, but only by about 15% in real terms in both the domestic and industrial sectors.

Electricity prices show the lowest growth in the domestic sector. Among the most important reasons for this more moderate upward trend are the increasing share of the Community's electricity generation covered by nuclear and imported coal which, ceteris paribus, tends to flatten the costs of producing electricity.

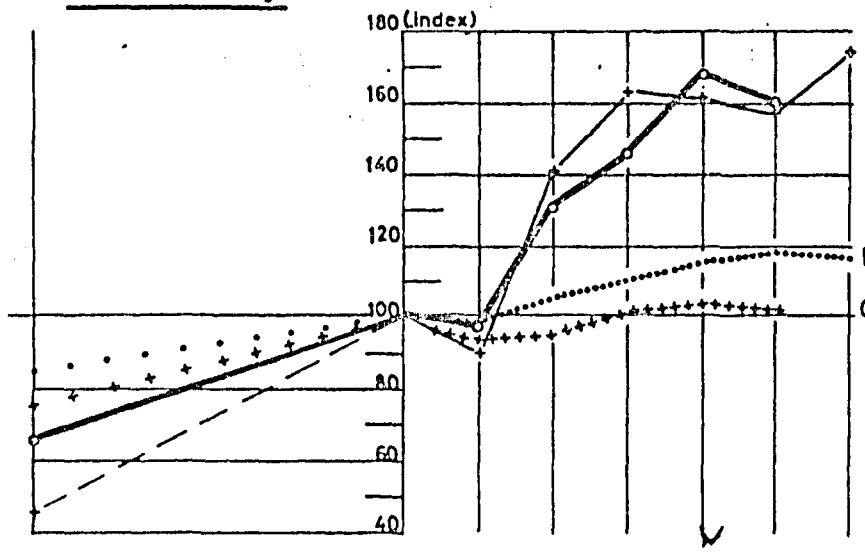
Coal and coke prices to industry by 1983 have not increased since 1978 and were data available for January 1984 would probably show a fall. This reflects the state of the international coal market where severe competition has tended to depress prices. The trend of **gas prices** depends on the type of market. In the industrial market, natural gas prices followed residual fuel oil prices (due to gas price indexing formulae linking gas to RFO equivalent). In the domestic sector, the Community's weighted gas price has increased by 40% since 1978 - but this is some 40% less than domestic gasoil.

Finally, the transport sector shows that gas/diesel oil has increased by more than motor spirit. Indeed, the Community's weighted motor spirit price appears to have been constant over the last four years.

Graph 1

EUR-10 : REAL ENERGY PRICE TRENDS (1978=100)

1. Industry



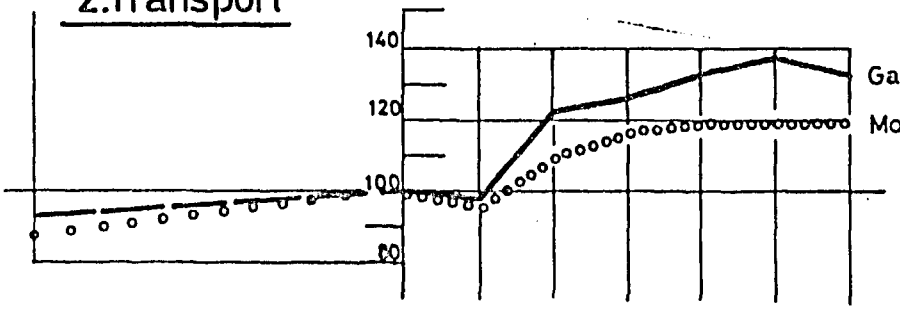
Residual fuel oil (max. 24 000 t/year)

Natural gas (48 600 GJ/year)

Electricity (10 GWh/year

Coal + Coke (max 50 000 t/year)

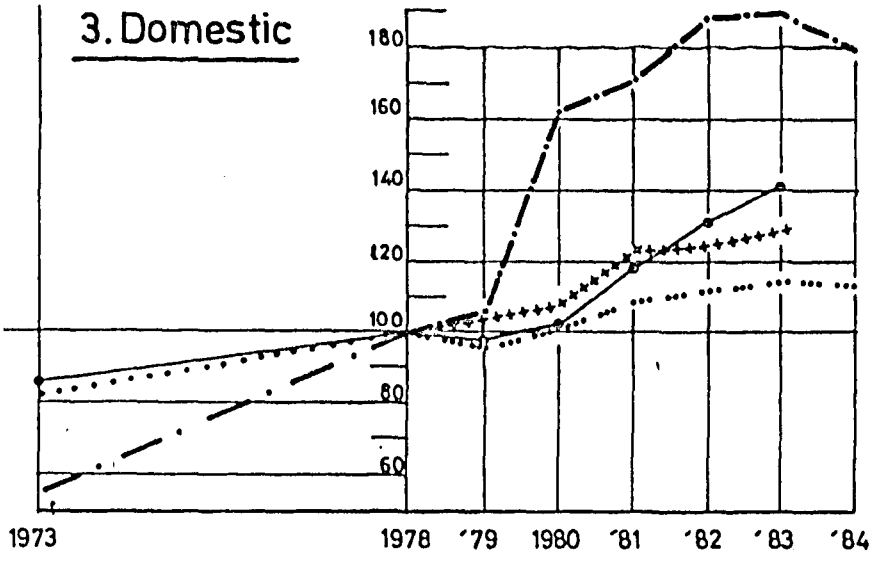
2. Transport



Gas/Diesel oil (pump price)

Motor spirit (" ")

3. Domestic



Domestic gasoil (delivered price)

Gas (125,6 GJ/year)

Coal

Domestic electricity (20 000 KWh/year

GRAPH 2 - REAL ENERGY PRICE DISPERSION IN THE EUROPEAN COMMUNITY (1973-84)

5. Explanation

For Graph 2 (Real energy price dispersion in the European Community), the normalized standard deviation for each fuel is plotted over time (1973-1984) as a measure of the "dispersion" of prices in the Community energy markets. The mechanics are simple: the Member States' prices for a particular fuel represent a sample. The standard deviation of this sample divided by the mean of this sample yields the normalized standard deviation for that fuel, which is plotted for each year. The interpretation of this is that the nearer a curve approaches zero, the less dispersion there is in the prices of that particular fuel among Community Member States. Likewise, the higher the curve above zero, the more the price dispersion or "spread" of prices there are in the Community. This does not imply, per se, that movement towards higher price dispersion is necessarily undesirable. It could represent the impact of real cost differences or policy measures (taxation, etc.).

6. Results

Graph 2 contains 4 graphs, one for each fuel.

(i) **OIL**

Since 1978, real oil energy price dispersion in the European Community has decreased for each of the four products (i.e. prices are less spread out). A particularly strong decrease is noted in the fuel oil market (ex VAT). For domestic heating oil, most progress was made in 1979, and the degree of dispersion has been more or less constant since. The two transport fuels have shown similar rates of dispersion since 1978, although in recent years gas/diesel oil price dispersion is increasing. Broadly speaking, these oil trends could be due firstly to Member States oil pricing regimes becoming more market related and secondly that the share of excise taxes has decreased as oil prices have increased.

(ii) **NATURAL GAS**

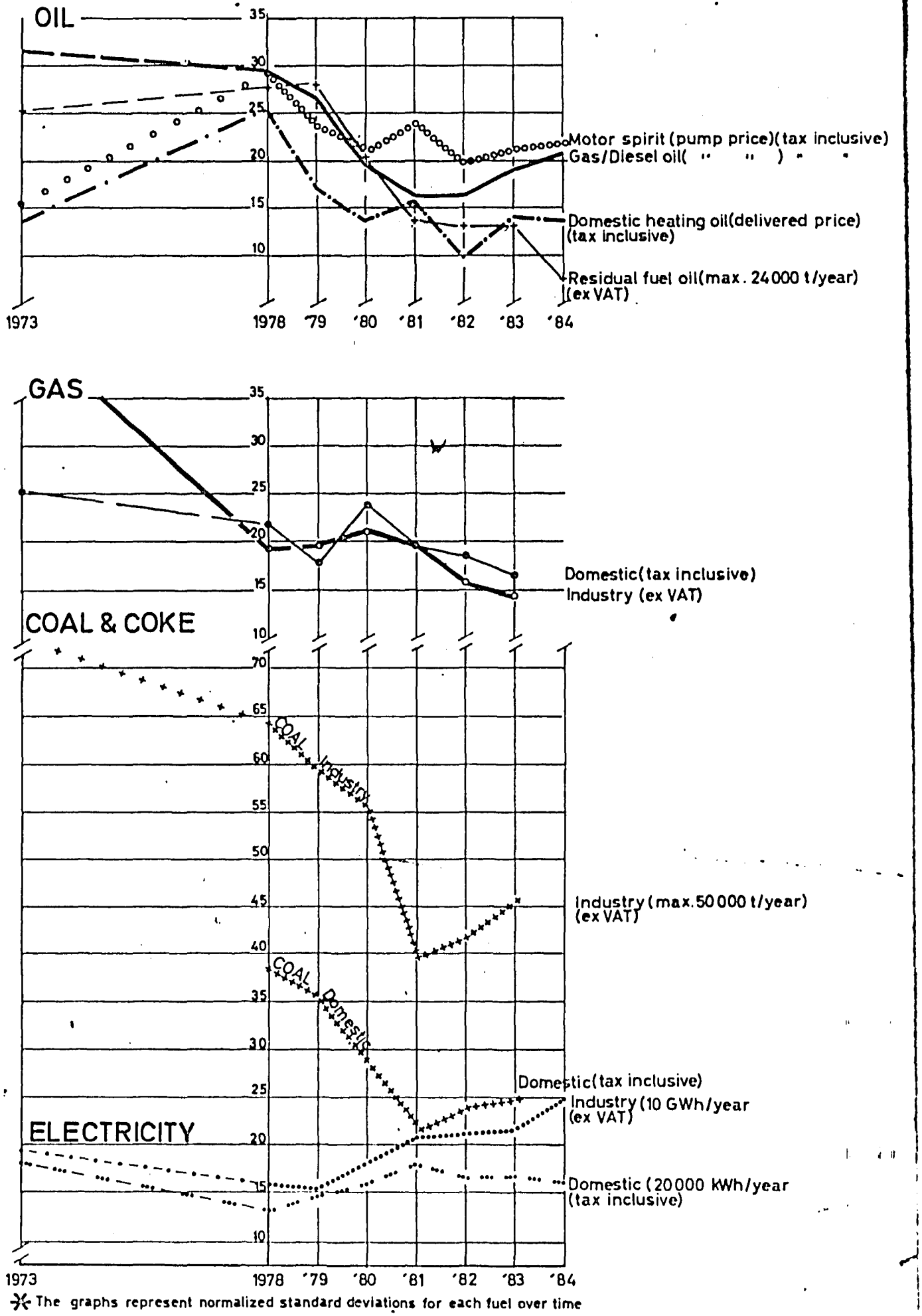
Progress has been slower in the natural gas sector since 1978 than in oil (above), although price dispersion at the 1978 starting point was lower than for oil. Price dispersion has decreased by a similar amount in both the industry and domestic sectors. In the gas markets, there are two effects which could be of importance. On the one hand, no excise taxation working against lower dispersion, but on the other moves towards more homogeneous import prices and EC producer prices.

(iii) **ELECTRICITY**

In contrast to both oil and natural gas, real electricity prices in both the industrial and domestic sectors are more spread out in 1984 than in 1978. The rate of increase of price dispersion is higher in the industrial market than in the domestic market. In the domestic market, dispersion has been more or less constant for six years. The

Graph 2

EUR-10: REAL ENERGY PRICE DISPERSION*



* The graphs represent normalized standard deviations for each fuel over time

main reason for this can be found in the different electricity generating structures in the Member States - which vary from low cost nuclear and imported coal stations to high cost oil firing plant.

(iv) **COAL & COKE**

Most progress is noted in this sector - and particularly in the industrial segment.

GRAPH 3 - RELATIVE REAL ENERGY PRICES PER UNIT OF USEFUL ENERGY

7. Explanation

Graph 3 concerns the measurement of relative energy prices in useful energy terms for competing fuels. This means that the price of a particular fuel per GJ etc. is converted to form a price per unit of useful energy. The yields of each fuel in each market differ. For example, the useful energy yield for fuel oil is 70%, for domestic electricity 95%, etc. The analysis here is at selected Member State level. In each market, the relevant oil price per unit of useful energy is set equal to 100. If the resulting curve is greater than 100, this means that the competing fuel is more expensive than **OIL** per unit of **USEFUL ENERGY**. If the curve dips below 100, the competing fuel is cheaper than **OIL**.

8. Results

Graph 3 contains a series of graphs for each market sector (industrial, transport, domestic). In each case, an appropriate oil product price acts as the "numeraire" (= 100) allowing judgments to be made on interfuel competitivity with oil.

(i) **INDUSTRY**

Apart from Italy, coal and coke prices to industry by January 1983 were considerably lower than fuel oil per unit of useful energy. This was not the case in 1973 or in 1978 (except for France), and the fuel oil threshold price was crossed "downwards" by coal/coke around 1979/1980. In the larger markets coal/coke prices to industry in January 1983 were only 70-80% of the fuel oil equivalent. However, it is not only simple price differences of different fuels that determine demand for each fuel. For example, the capital and handling costs of using different fuels are not the same and these along with price influence both the choice of fuel use where dualfiring is possible and the substitution of one energy form by another the longer term.

As for the **relation of gas prices to RFO**, mixed trends are noted. In France, the Netherlands and the United Kingdom, gas has considerably improved its relative price to fuel oil since 1978. In Belgium, much smaller improvement for gas is noted, whilst the latest information available for FR Germany and Italy is 1982.

It is also interesting to note that the straight **electricity/fuel oil** ratio still considerably favours fuel oil in all Community markets - although the advantage to fuel oil has about halved since 1978.

(ii) TRANSPORT

In all Community markets, automobile diesel oil is cheaper than motor spirit when measured in useful energy terms. This was the case in 1978 and it remains the case in 1984. The average price advantage for diesel fuel over premium gasoline in 1984 in the Community was about the same as in 1978.

(iii) DOMESTIC

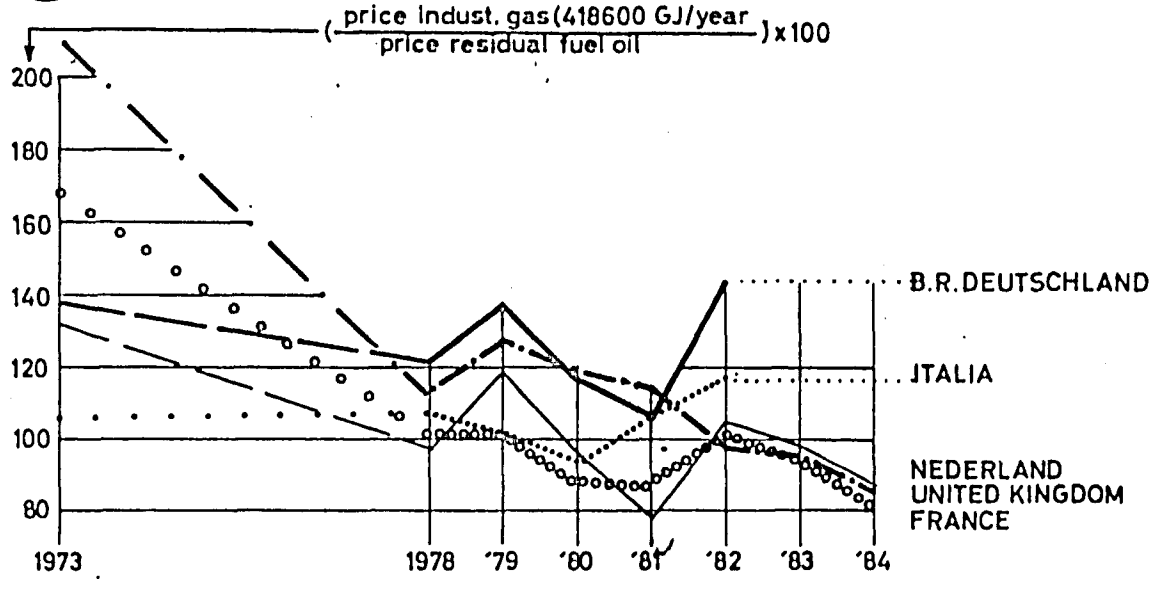
Two comparisons are made in the domestic sector. Firstly, domestic gas is compared to heating gas oil. Apart from Belgium where the two prices are at about "parity", natural gas is seen to be considerably cheaper than gasoil for domestic heating in the Community's major markets. This is particularly true in the United Kingdom and the Netherlands (the Community's main gas producers). However, the very favourable situation existing in 1980 in both the former countries in favour of gas has since slightly eroded.

Secondly, domestic electricity prices (20000 KWh/year) are compared with heating gasoil. Here the conclusions are the opposite of gas. Namely, the price of gasoil (and therefore gas as well) is cheaper in every Community market than electricity for heating - although this simple price advantage for gasoil has steadily decreased since 1978.

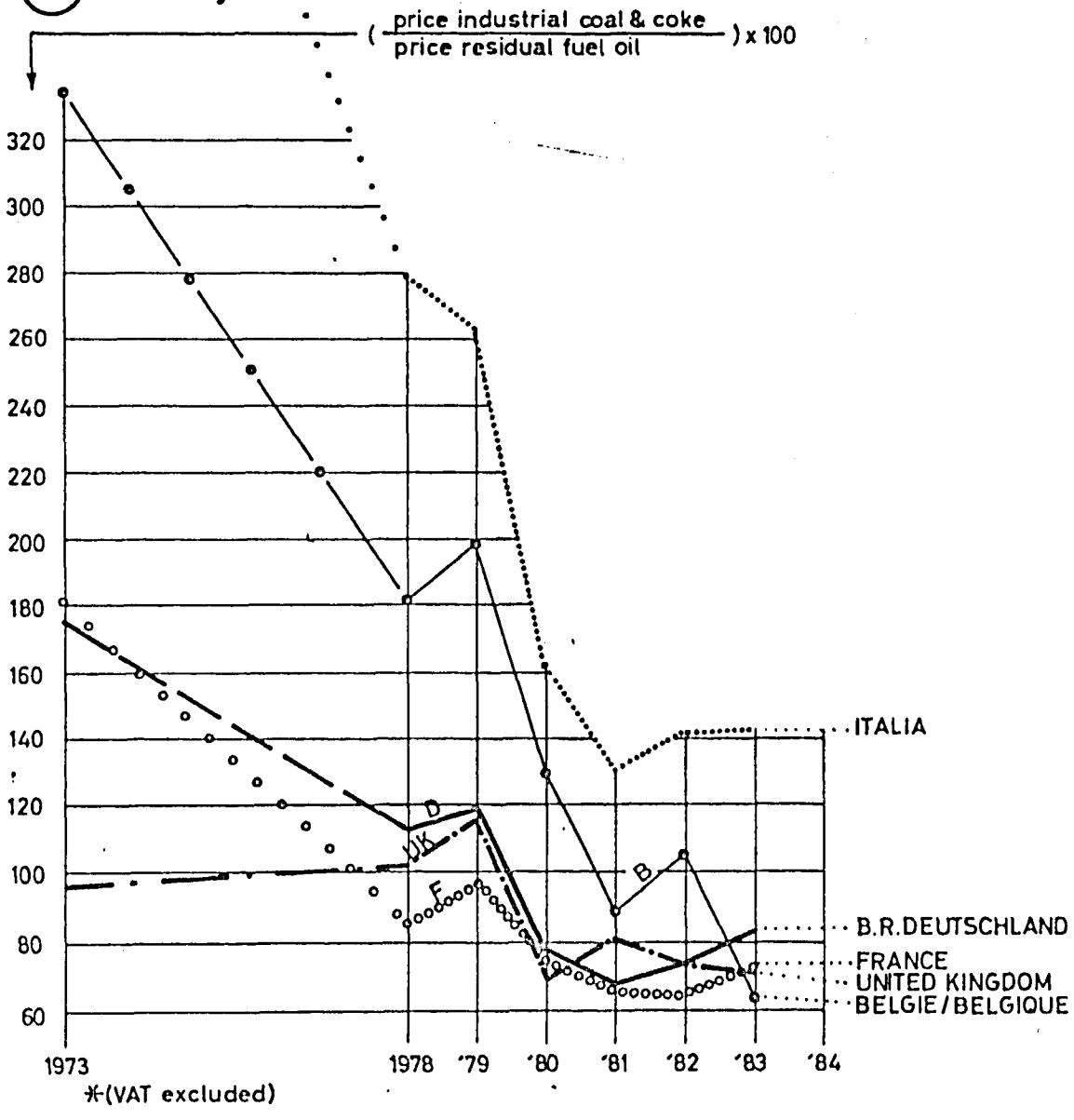
RELATIVE REAL ENERGY PRICES/UNIT OF USEFUL ENERGY IN THE MAIN ENERGY CONSUMING SECTORS AND MARKETS IN EUROPEAN COMMUNITY

Graph 3

(1) Industry*



(1) Industry*

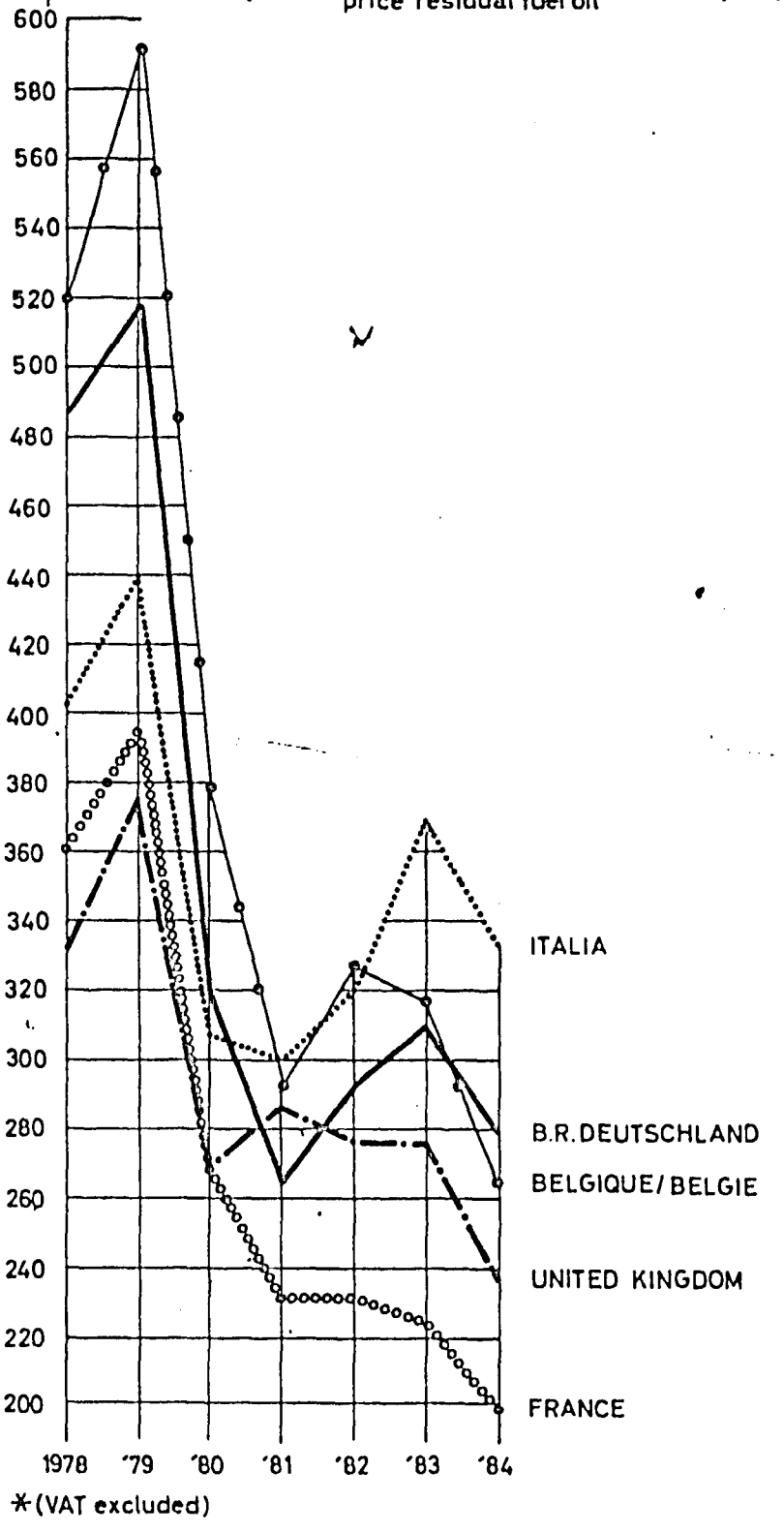


*(VAT excluded)

Graph 3
continued

1. Industry*

$$\left(\frac{\text{price indust. electricity (10 GWh/year)}}{\text{price residual fuel oil}}\right) \times 100$$

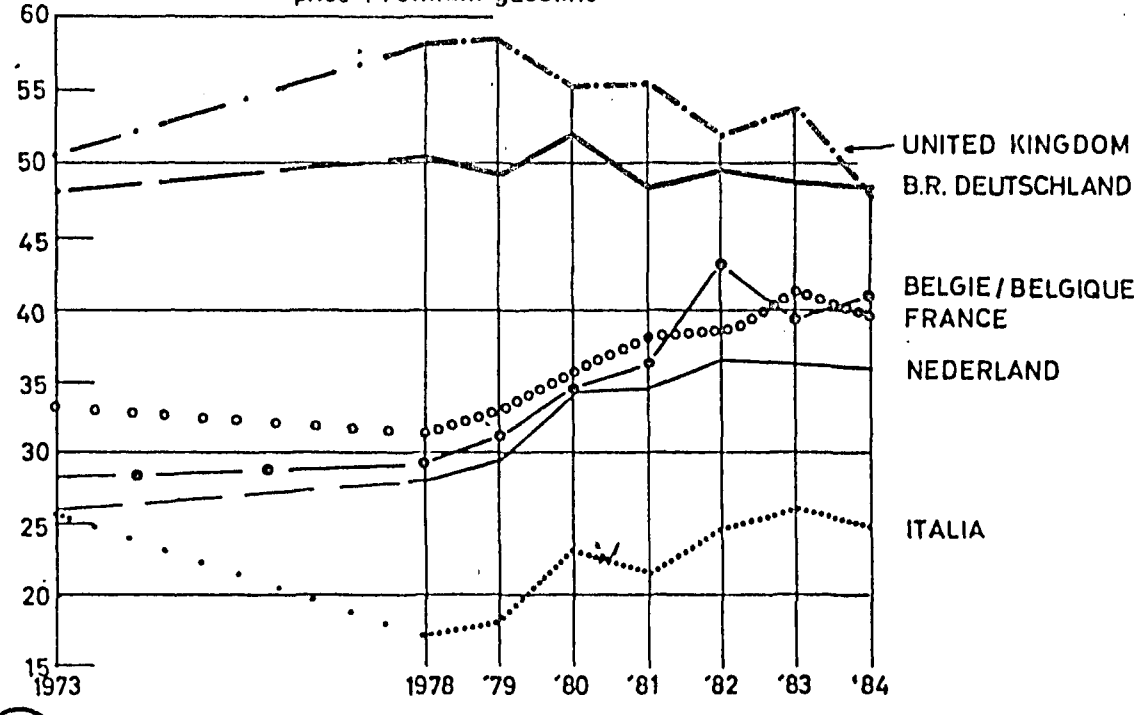


*(VAT excluded)

Graph 3
continued

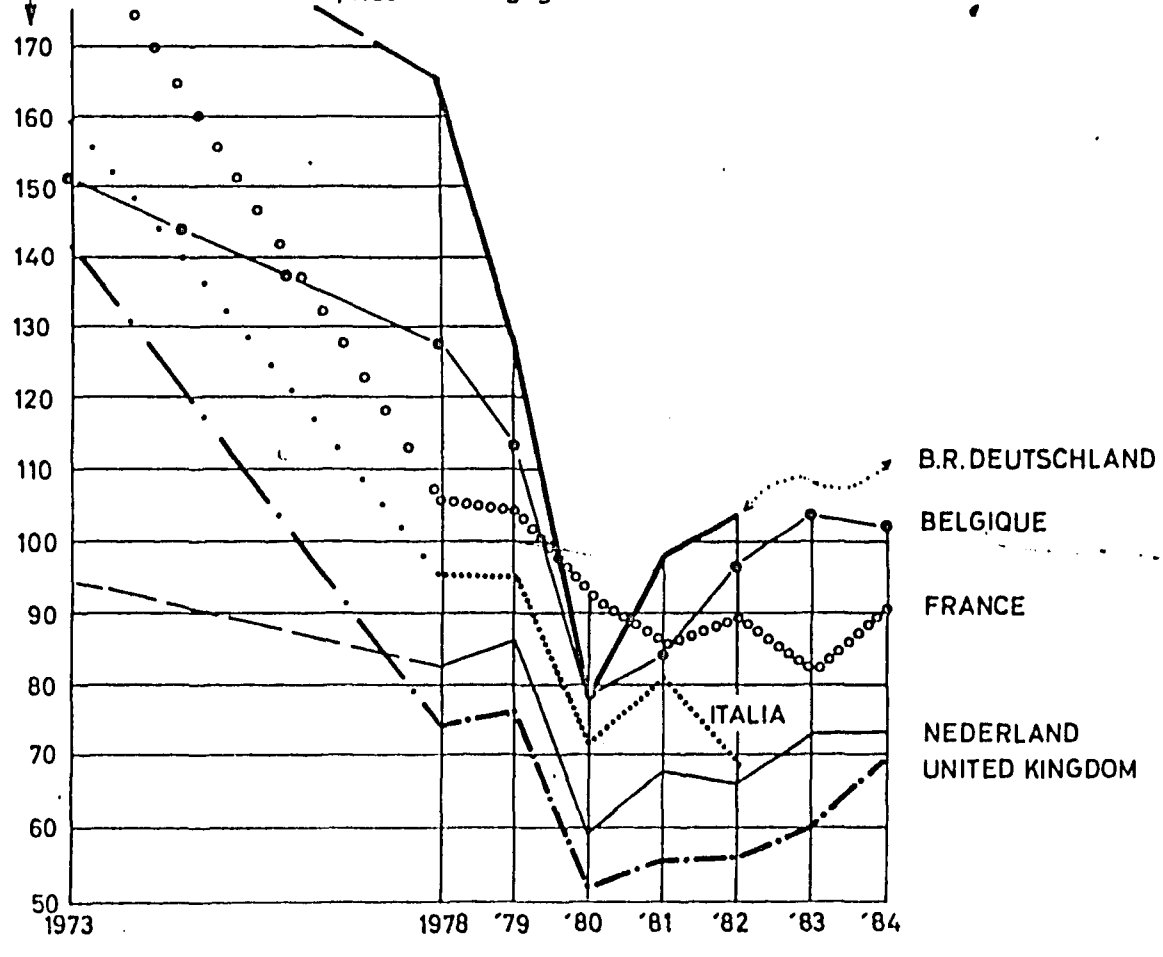
(2) Transport*

$$\left(\frac{\text{price Automotive Diesel}}{\text{price Premium gasoline}}\right) \times 100$$



(3) Domestic*

$$\left(\frac{\text{price Domestic gas (125,6 GJ/year)}}{\text{price Heating gasoil}}\right) \times 100$$

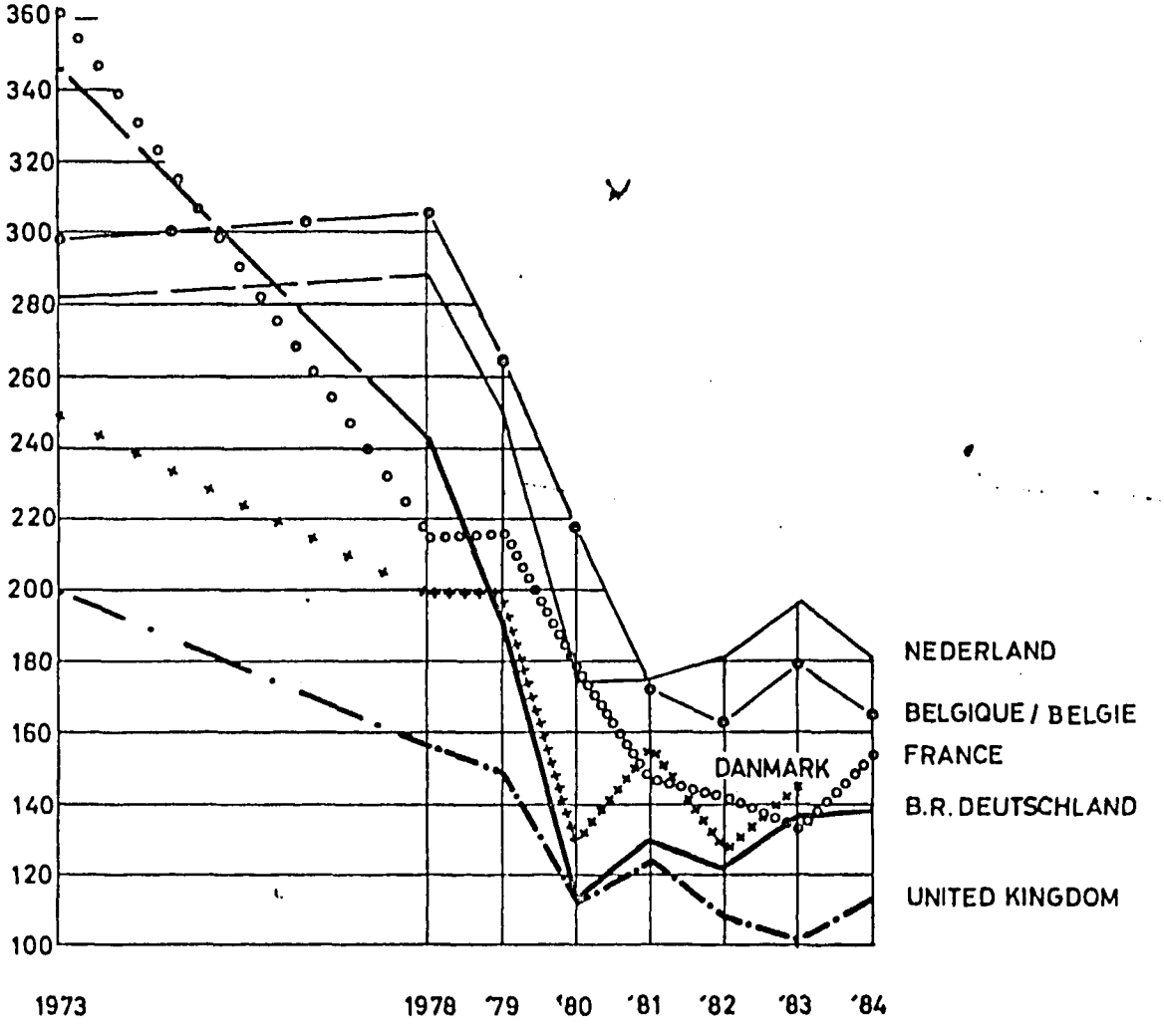


* all taxes included

Graph 3
continued

(3) Domestic

$$\left(\frac{\text{price Domestic electricity (20000 kWh/year)}}{\text{price Heating gasoil}}\right) \times 100$$



prices all taxes included