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Second investigation into  
supplies of coking coal and coke  
for the steel industry  
of the  
Community

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## Preface

1. The Commission of the European Communities presented in Spring 1969 an investigation,<sup>1</sup> which was to serve the Council as an orientation document regarding the problems of supplies of coal and coke to the Community steel industry. The document contained an analysis of the worldwide trends in steel production, coke-oven management and coking coal supply, both in the past and in the future. It basically presented structural information and also outlined and explained the situation of the Community in its relationships with the rest of the world.<sup>2</sup>

Taking as a basis the results of this investigation, the Council gave its approval to a Community system of aid for coking coal and coke for the Community steel industry.<sup>3</sup>

The Commission of the European Communities published on 19th December 1969 Decision No. 70/1 in respect of coking coal and coke.<sup>4</sup>

According to Article 13 of this Decision, these aid measures were to continue until the 31st December 1972.

2. It was the problems in respect of supplies of coal and coke which in 1969/1970 confronted the world steel industry - at that time undergoing exceptionally rapid expansion - which made it necessary that the specific problems of procurement of supplies of raw material for this branch of the economy be further investigated.

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- 1) Document No. 4200/XVII/69: "Investigation of the problem of coking coal and coke for the iron and steel industry of the Community." Printed as a brochure in the Energy Series, No. 2.
  - 2) To enable him to get a better understanding of the text of the present report, the reader is referred to brochure No. 2 in the Energy Series.
  - 3) At its Session of the 15th December 1969.
  - 4) Official Bulletin of the European Communities, Year 13, No. L2, 6 January 1970.

In September 1971 the Commission published<sup>1</sup> a memorandum on the "General Objectives of the Iron-making Industry of the Community" for the years 1975 to 1980. This study is predominantly concerned with predicting the steel requirements and the supply of raw materials for the steel industry. The problems of supplies of coal and coke were examined, mainly as connected with the requirements of the steel industry, for a period up to 1975.

The Organization for Economic Cooperation and Development (OECD, Paris) had by September 1971 prepared a report (drawn up by an ad hoc working party) on "The problems and prospects of the coking industry in the OECD countries".<sup>2</sup> The predictions contained therein for the OECD countries and the world as a whole also cover the period up to 1975. Among the points covered are the total coke requirement (steel industry and other coke users) and the problems of obtaining supplies of coal for the coking plants.

The ECE (United Nations, Geneva) prepared by Autumn 1971 a report (drawn up by an expert from the Coal Committee) on the "Long-term prospects of the market for coking coal and coke." This investigation too covered the period up to 1975, dealing with supplies of coking coal and coke (steel industry and other coke users) to West and East European countries, as well as the USSR and the USA.

In addition to the specific investigations of the coking industry or the supplies of coke for the steel industry of the world, a general investigation was also carried out by the Commission of the European Communities, entitled "Investigation of the problem of supplies of coal and of coal production in the Community".<sup>3</sup> This document contains indications of the present situation of the coal-mining industry and of the problems of developments up to 1975.

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- 1) Official Bulletin of the European Communities, Year 14, No. C 96.
  - 2) The document now exists in its final form, but has not yet been published.
  - 3) Commission of the European Communities; document No. 3541/1/XVII/70.

Finally, the Commission of the European Communities is at present preparing an investigation into the entire long-future trend in the energy economy of the Community up to the year 1985<sup>1</sup>. The steel industry of the Community is included among the different energy-consuming sectors, and in particular predictions are made of future coke requirement for this sector.

3. The multiplicity of investigations within a relatively short period of time, each devoted to the same set of conditions, could lead one to conclude that the problem of coking coal has been exhaustively dealt with already and that it is therefore unnecessary to devote any further consideration to the special position of the Community steel industry. This is however not the case. The special position of the Community has not been set out in detail in those investigations which were carried out either on a fairly wide - or even on a worldwide - basis. This is in particular true in respect of the immediate and long-term effects of the exceptionally rapid expansion of the world steel industry during 1969 and 1970, which modified the basic data with respect to the world coal market as a whole, and consequently had similar effects on the possibilities of supply for the Community. The development trends in the coking coal market in the Community in these two years were characterized by stresses which were followed in 1971 by a sudden slackening, with all the unfavourable effects for the coal producers of the Community.

New factors which have affected the position of the potential coal suppliers outside of Europe - the opening-up of new coal deposits in third countries which have offered their production surpluses on the world market, the introduction of new safety regulations in the US coal-mines or of legislation regarding pollution of the environment, the degree of activity in investment in mines and coke-ovens etc. - have brought about short-term, significant changes which are irreversible, and which will not be without effect on the future supply position of the Community.

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1) Prospects for the long-term supply of energy for the Community (1975-1980-1985). Commission of the European Communities.

Apart from the above changes in the economic framework of Community supplies of coking coal, the existing interrelationships between the coal and steel industry required to be analysed, and it is necessary to make a proper assessment of the experience gained since 1967 in the application of Decisions No. 1/67 and 70/1.

Finally, it must be borne in mind that four new member countries will be joining the Community, and that this will introduce new factors by which the problems of the coal industry must be assessed.

4. For all these reasons, it has become necessary to produce a new report on the special problems of Community supplies of coking coal. As a basis for the assessment of future trends and development we have taken the period up to the year 1980, since it is possible to get a clear view of this period and to maintain the uncertainties in the estimation operation within acceptable limits.

In formulating the present report and in establishing the figures, due attention has been paid to the previously-mentioned studies. The statistical data in respect of past achievements cover only the period from 1968 to 1970/1971 - a period of marked expansion of the market for the steel industry. The series of figures therefore begin with 1967, carrying on in this way from the last statistical data given in the Commission's study entitled "Investigation of the problem of coking coal and coke for the iron and steel industry of the Community".

Special attention has been paid to the four new member countries, who will join the Community by 1973, Great Britain, Norway, Ireland and Denmark. This is because the structure and importance of the ECSC will be but little affected by the accession to membership of Norway, Ireland and Denmark, but Great Britain's membership will introduce a considerable extension of the basis of production of coal and steel.

Chapter IPresent state of and potential technical development  
in iron- and steelworks and coke-oven techniques

5. Among the known processes - some of which are still being developed - for the reduction of iron ore, only the blast furnace is restricted to the use of solid coke. Consequently, future coke requirements depend not only on the trends in steel production, but also on the proportional contribution which the blast furnace technique can keep for itself in competition with other processes. In addition to this, the development in the specific coke consumption per ton of crude iron affects the trend in coke requirements.

A large number of new technical processes for smelting iron ore have been developed; they are in various stages of development and application. The extent to which they will in the future cause a reduction in the scale of application of blast furnace technique in steel production is primarily dependent on economic factors; this is equally true of the trend in the figure for coke consumption per ton of crude iron (specific coke consumption).

In addition to this, new scientific information and the general progress of scientific knowledge will exert an effect on trends in coke requirements.

6. Blast furnace technique, which is closely connected with coke production, preparation of the burden and converter technique, has at its disposal a highly-developed battery of processes. Plants with a daily output of more than 8,000 tons of crude iron are in operation; 10,000 ton/day plants are planned or being constructed. All the other new production processes are at the present moment either operating as pilot plants or as small production units (1,000 t/day and less).

It is therefore not surprising that crude iron is still virtually produced exclusively by the conventional process, and that all the other new processes are of purely local significance.

Although the development of the blast furnace has progressed considerably, it is still far from being finished. Suitable measures to increase the efficiency and economics of the process (which are already known, but still not generally applied) include improvements in burden preparation, the use of replacement fuels, the enrichment of the oxygen in the blast, increasing the blast temperature, increasing the pressure in the blast furnace, and production of a part of the reduction gas outside the blast furnace. A further potential reserve of efficiency could be tapped by constructing larger blast furnaces.

7. The other processes for the reduction of iron ore have therefore considerable difficulty in competing with the blast furnace technique, although some of them have already been developed and operated for some decades. The advantage of these other processes lies in the fact that without exception they use cheap fuels, so that theoretically they promise savings in processing costs. Moreover, in most of these processes the specific investment costs are lower than with the blast furnace process (including the coking plant).

Assessment of the prospects of the blast furnace process as against other methods within the Community has hitherto always led to a judgment decidedly in favour of the blast furnace. All the approved investment projects in the steel industry which have come to the notice of the Commission, reaching up to the year 1975, and connected with production of crude iron, are almost exclusively concerned with new blast furnaces. In general terms, the expected working life of a blast furnace is 15 years.

8. In assessing the developments likely after 1975, we must start from the point that there will exist a choice between the blast furnace and some other process for the replacement of obsolescent plant and for the construction of new capacity. As things look today, it is not very likely that around 1980 a process will be able to offer such economic and technical advantages over the blast furnace that it would lead to abandoning a "young" installation composed of a coking plant, blast furnaces and converter plant, to replace it with a combination of e.g. direct reduction plant, electric furnaces and a power station.

Whether a new line of approach will offer itself depends primarily on the economic conditions, and in particular on the development of the ratio between the coke price and the price for other reducing agents. The progress in scientific knowledge and in technology seems to be predictable, but this is not to say that surprises may not occur. A disadvantage of the newer types of process is however that they have hitherto been investigated in or operated as relatively small plants only. Even were there to arise a major economic reason for installing new capacity on the basis of a newer type of process, it must nevertheless be expected that a fairly long period of time would elapse before these methods achieve orders of operational magnitude which can play a major part in the steel supply pattern.

Thus, even if, bearing the above points in mind, new smelting techniques were to be applied in the future, it can be stated with certainty that as far as 1980 the blast furnace will maintain its dominant position.

9. The trend in the specific coke consumption per ton of crude iron is also primarily governed by economic factors. The intensity of efforts to reduce coke consumption is very largely dependent on the price ratio between the heat provided by the coke and the heat available from the replacement energy source.

In the past this stimulus was strong enough to cause a reduction in the specific coke consumption on average throughout the Community from 883 kg per ton of crude iron in 1960 to some 550 kg by the beginning of 1972. The technical possibilities of reducing this figure even further exist. The extent to which they will be applied is governed by economic factors.

Consequently, in this consideration of future trends it can be taken as certain that the figure for specific coke consumption will be even further reduced. In the memorandum "General objectives for steel", the figure assumed for 1975 was a specific coke consumption of 500 kg/t of crude iron. For 1980, experts reckon that this figure will be 430 kg/t.

10. In the Community blast furnaces the coke used - except for trials - is exclusively coke made in horizontal-chamber furnaces. The approved investments in the coking sector known to the Commission cover only conventional coke-ovens with horizontal-chamber furnaces up to 1975. The installation of a 300 t/day pilot plant for production of hot briquettes can be left out of account here. It is difficult to predict whether, and to what extent, new processes of coke production will come into application.
11. The further development of the conventional coking process has made considerable progress in recent years. Starting from a more precise knowledge of the processes occurring in the coke oven during carbonization, various measures and developments have been applied or introduced, and they lead to the expectation that there will be a continuing increase in efficiency both in existing plant and in particular in newly-built plants. This will bring about a considerable reduction in the high specific investment expenditure for conventional coke-oven plant.

It is at this moment not possible to get a clear idea of the requirements in respect of quality of the feed coal. Whereas on the one hand

it is hoped by the application of suitable measures (such as e.g. pre-drying or pre-heating, better grinding to size, refinement of the mixing technique etc.) to broaden the range of coals which can be used for coking, on the other hand it cannot be considered impossible that the new generation of high-performance coke ovens will impose more stringent requirements of the quality of the feed coal; in addition to this, even heavier demands on coke quality might be made by the steel industry. In general however we can start from the point that the range of coking coal or coking blends capable of being charged in horizontal-chamber furnaces will change only slightly up to 1980.

12. In contrast to all this, the new types of coking process are either not at all, or only to a small extent, dependent on good coking coal. The use of these new methods would reduce the requirement of coking coal to a corresponding extent and would therefore be particularly beneficial at points where there is a shortage of coking coal and/or there is a major price differential between the coking coal and the coal used for power-raising purposes. Assuming that all the technical problems which still exist are solved and that efforts to transfer the new coking processes from the technical pilot scale to the industrial scale are successful, any investment commitments which may have to be decided on for the new construction of industrial scale large coke ovens will depend on whether the economic stimulus resulting from a differential in price or costs between the coal charged for power-raising and normal coking coal is sufficiently high to justify changing over from the proven and completely reliable horizontal-chamber furnaces. It is still not possible to give any reliable judgment with respect to the advantage, frequently assumed in the past, of using one of the standard-sized cokes produced by the new sorts of process as against the normal furnace coke of variable size consist.

13. Finally, it can be demonstrated that the new scientific and technical knowledge in respect of foundry and blast furnace technique obtained in the last few years have not led to any fundamentally different conclusions with regard to

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future trends of technical development from those already set out in 1969 in the document entitled "Investigation of the problem of coking coal and of coke for the iron and steel industry of the Community".

Up to 1980 - and probably beyond that date - coke will be the basis for the smelting of iron ore. Undoubtedly rationalization measures in blast furnace plants will lead to further reductions of the specific coke consumption per tonne of crude iron. Whether this will in the future also lead to a reduction of the total coke requirement of the Community steel industry will depend on the trend in the output of crude iron.

Chapter II

The quantitative problems of supplies of  
coke and coal to the steel industry in  
the recent past and in the long-term future

A. World trends in the production of crude steel and iron

1. Expansion of the market 1967-1970

1.1. Steel production

14. In the past 20 years - from 1950 to 1970 - world steel output has risen from an initial figure of 188 million tonnes by 406 million tonnes to almost 600 million tonnes. Although steel production is subjected to certain special market-governing factors, which can give rise to deviations between the trend in steel output and in the gross national product, there is undoubtedly in the long term a relationship between steel production and economic growth. Consequently, the trend in world steel production over the past 20 years has followed anything but a rectilinear course; there have been phases marked by particularly strong thrusts of expansion, as well as phases which could be considered as periods of slackness. During these slack phases there occur either absolute reductions in steel output, or the rate of growth figures are low. The trends in the different countries vary very widely indeed.

As will be shown later in this document, these alternating phases in steel production result in particularly difficult problems of adaptation on the part of the suppliers of coal or coke.

In respect of world steel output, these alternating situations are generally characterized by periodical differential rates of growth; genuine recessions - i.e. reductions in world steel output - occurred between 1950-1970 only in the years 1954 and 1958.<sup>1</sup> If we divide the past 20 years into four periods each of 5 years, we see that world steel output developed as follows:

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1) Provisional figures show that the world production of crude steel had fallen from 593.8 million tonnes in 1970 to 575 million tonnes in 1971.

(In millions of tonnes)

	<u>World steel output</u>	<u>Increase</u>
1950	187.8	
1955	271.2	+ 83.4 (= + 44.4%)
1960	339.4	+ 68.2 (= + 25.1%)
1965	457.7	+118.3 (= + 34.9%)
1970	593.8	+136.1 (= + 29.7%)

Although the percentage increase for the five-year period 1965/1970 is only 29.7% (= + 5.3% annual average), the absolute world production of crude steel rose exceptionally strongly, namely by 136 million tonnes. If this five-year period is further broken down into two parts - 1965/1966 and 1967/1970 - we see that of this total increase of 136 million tonnes almost 100 million tonnes occurred in 1967/1970. In these three years, world production of crude steel rose from 498 million tonnes to 594 million tonnes, i.e. by 19.2% (see Table 1). An increase of that order in three years has only once occurred before in the history of the world steel industry, namely in 1962/65.

15. The increase in production of around 100 million tonnes in the period 1967/1970 breaks down by countries as follows:

	<u>Increase</u>	
	In millions of tonnes	In %
Japan	31.1	50.0
Community	19.3	21.5
Soviet Union	13.7	13.4
USA	4.1	3.5
Great Britain	4.0	16.5
Other free economy countries	13.0	24.7
Other state economy countries	10.3	21.0
Total	<u>95.5</u>	<u>19.2</u>

The breakdown shows that the trend was different in the different countries. The strongest expansion was that of the Japanese steel industry. The Community steel output - with an increase of some 19 million tonnes (= 21.5%) - increased relatively more quickly than total world steel output. If it is expressed in absolute figures, the increase in steel production in the Community was greater than that in the USA and the Soviet Union together. Steel output in the USA, the Soviet Union and in Great Britain rose in each case at a rate below the world average.

16. The Community steel production and that of the candidate countries for 1970 was as follows:<sup>1</sup>

	In millions of tonnes
Community of the Six	109.2
Candidate countries:	
- Great Britain	28.3
- Norway	0.9
- Ireland	0.1
- Denmark	0.5
Total Community of Ten:	<u>139.0</u>

With a production of 139 million tonnes of crude steel, the enlarged Community would have been the largest steel-producing unit in the world in 1970; this would have represented 23.4% of world output.

17. The Community steel output per head of population in 1970 was 580 kg, and in Great Britain some 500 kg. The relatively lower figure for Great Britain was basically explained by the following factors:

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1) See Table 2.

- the intensity of exports of the steel industry of the Community of the Six varies in the individual years around 15 to 20%, while in Great Britain it varies around 10%.
- the general economic growth in Great Britain for 1954 to 1970 was considerably slower than in the Community, so that the domestic steel consumption level rose quite slowly.

Steel output in Norway, Ireland and Denmark is relatively unimportant, by reason of the completely different industrial structure (small steel markets), and of the geological and natural conditions (insignificant deposits of coal and iron ore).

## 1.2. Crude iron production

18. The trend in crude iron production is closely linked with steel production. The ratio between crude steel and crude iron can, it is true, vary in individual years, according to the trend in the availability of scrap; the long-term trend in the relationship between steel and crude iron is fairly constant. During the market expansion period 1969/1970, world output of crude iron rose by 20%, and world output of crude steel by 19.2%.

In consequence, the world output of crude iron is affected by the following factors:

- in the short term, crude iron production is subject to alternating market conditions;
- over the past 20 years, it is only in 1954 and 1958 that a reduction in world output of crude iron can be detected; all the other years exhibit rises of different magnitude;
- from 1965 to 1970, the world production of crude iron rose by about 100 million tonnes; of this growth, 71 million tonnes occurred exclusively in the years 1967 to 1970 (see Table 1).

During the last 20 years, a similar marked increase in world output of crude iron in a three-year period occurred only in the period 1962/1965.

19. The increase in world production of crude iron by 71 million tonnes in the period 1967 to 1970 breaks down by countries as follows:

	<u>Increase</u>	
	In millions of tonnes	In %
Japan	27.9	69.6
Community	14.6	22.2
Soviet Union	11.1	14.8
USA	3.8	4.8
Great Britain	2.3	14.9
Other free economy countries	7.5	18.3
Other state economy countries	4.0	10.8
Total	<u>71.2</u>	<u>20.1</u>

The percentage increases correspond - with two exceptions - approximately to the increases in steel production:

- In Japan, 1967/70 output of crude iron rose considerably more markedly than the output of steel.
- In the group of "Other state economy countries" the increase in crude iron production was considerably lower than the increase in crude steel production.

The increase in Community crude iron production - 14.6 million tonnes - for 1969/1970 corresponded to the increase in the USA and the Soviet Union together.

20. For 1970, the crude iron production of the Community and the candidate countries was as follows:

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	In millions of tonnes
Community of the Six	80.5
Candidate countries:	
- Great Britain	17.7
- Norway	0.7
- Ireland	-
- Denmark	0.2
	<hr/>
Total, Community of Ten:	<u>99.1</u>

With a crude iron production of almost 100 million tonnes, the Community of Ten would in 1970 have been the largest crude-iron-producing unit in the world; its share in world production would have been 23.3%.

21. As is the case with steel output, the crude iron production of Norway and Denmark is insignificant; Ireland produces no crude iron. The crude iron output of Great Britain per head of population was relatively lower in 1970 than in the Community. Certain factors affecting the level of steel output have already been listed. An additional factor in respect of crude iron production is that the relationship between crude steel and crude iron in the Community is different from that in Great Britain. The ratios for 1970 were as follows:

	Crude steel	Crude iron
Community	1	0.74
Great Britain	1	0.63

This means that the crude iron production of Great Britain, as against that of the Community, is relatively still further below the steel production figure. The significance of this is that Great Britain uses less crude iron per tonne of steel.

## 2. Forecast of trends in steel and crude iron production up to 1980

22. As mentioned in the preface, several investigations into the problems of supplies of coal and coke for the steel industry were prepared in the years 1970/71. These studies are concerned not only with analyses of the past or present, but also contain estimates of future trends in development. The results of these predictions regarding future developments in the production of steel and crude iron are reproduced in Table 3 annexed.

The figures given in this Table are intended to provide a comparison of the various forecasts made for the years 1975 and 1980 and clearly show the extent to which it is necessary to review, in the light of new estimates, the figures given in the original "Coking Coal Report" (investigation No. 1; see footnote in Table 3); this could in certain circumstances lead to changes in the figures for coal and coke demand.

This investigation cannot make a critical comparison of these forecasts. Although we must not underestimate the fact that the specific problems of the supply of coking coal or coke to the steel industry of the Community and Great Britain are firmly embedded in the larger framework of world steel production and of the world market for coking coal - the trends and structure of which are affected by all the world steel producers - the considerations which follow will be restricted to the Community and the candidate countries.

23. The comparative lists of figures in Table 3 show that the estimates made at the beginning of 1969 in the "Coking Coal Report" of steel and crude iron production in general were lower than the estimates made at a later time in other

investigations, According to the calculations made in the memorandum "General objectives for steel 1975", the crude steel production for 1975 will be 137 million tonnes and for 1980 165 million tonnes. In respect of crude steel, the difference for the Community would be 20 million tonnes<sup>1</sup> in 1975 and some 40 million tonnes in 1980. In respect of crude iron production in the Community, the differences come out at 17 million tonnes in 1975 and 30 million tonnes in 1980.

The calculations given below were based on the figures quoted above. To what extent these differences will involve modifications to the estimates for coal and coke demand given in the "Coking Coal Report" will be examined later.

24. Estimates for 1975 for Great Britain and the other three applicant countries are available in an OECD study published in 1971 (compare footnote 1. III to Table 3). Extrapolations for the 1980 figures were made in respect of Norway, Ireland and Denmark. According to a statement made by the British Minister for Trade and Industry on 8 May 1972, the maximum production of crude steel in Britain in 1980 is likely to be 36 million t.

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<sup>1</sup>In investigation No. II (General Objectives for steel 1975) two hypotheses - a median and a higher figure - were given. The difference of 20 million tonnes is calculated against the median hypothesis of a total steel output of 137 million tonnes.

With all due reservations in regard to the uncertainty in respect of further market development, the crude steel production of the enlarged Community could therefore develop in the following manner:

(Maximum values; in million tonnes)

	Actual figures			Estimates		
	1967	1970	1971 <sup>(1)</sup>	1972	1975	1980
Community of the Six	89.9	109.2	103.3	105.0	137.0 <sup>(2)</sup>	165.0
Great Britain	24.3	28.3	24.5	25.5	32.5	36.0
Norway	0.8	0.9	0.9	0.9	1.3	1.5
Ireland	0.1	0.1	0.1	0.1	0.1	0.1
Denmark	0.4	0.5	0.5	0.5	0.7	0.9
Community of Ten	115.5	139.0	129.3	132.0	171.6	203.5

(1) Provisional

(2) Median hypothetical figure.

Consequently, in the year 1980 the production of crude steel of the enlarged Community could reach an order of magnitude of 200 million t.

The corresponding figures for the future development of crude iron production would then turn out as follows:

(Maximum values; in million tonnes)

	Actual figures			Estimates		
	1967	1970	1971 <sup>(1)</sup>	1972	1975	1980
Community of the Six	65.9	80.5	75.7	76.5	102.6 <sup>(2)</sup>	120.5
Great Britain	15.4	17.7	15.5	16.2	22.5	24.0
Norway	0.7	0.7	0.7	0.7	1.0	1.2
Ireland	-	-	-	-	-	-
Denmark	0.1	0.2	0.2	0.2	0.4	0.5
Community of Ten	82.1	99.1	92.1	93.6	126.5	146.2

(1) Provisional

(2) Median hypothetical figure.

Both these tables show that the production of crude steel and crude iron in the Community will undergo a rising trend, with corresponding effects on the future development of requirements of coal and coke; calculations covering these points will be presented in what follows.

B. Trends in coke demand and in meeting the demand

1. Trends in the problems of coke supplies during the 1967-1970 expansion of the market

1.1. The increase in demand for coke

25. The world consumption of coke for the operation of the blast furnaces rose in the period 1967/1970 by 30 million tonnes; the breakdown of this total quantity by the major steel-producing countries is as follows: (see Table 4)

Japan	+ 12.4 million tonnes		
Community	+ 6.0	"	"
USSR	+ 4.5	"	"
USA	+ 2.0	"	"
Great Britain	+ 0.9	"	"

26. Since the world consumption of coke for blast furnace use rose between 1967 and 1970 by 30 million tonnes, it can be assumed that the total coke consumption of the world steel industry (blast furnaces, including sintering plants) rose by some 35 million t. Precise statistical data on this point are not available. If we compare this increase in consumption with the rise in world coke production (= + 35.9 million tonnes; see Table 4), it will be seen that it is solely the steel industry which has influenced the trends in the coke markets in the individual countries. On the world market as a whole, we see that the total quantity of coke consumed by the steel industry in 1970 can be estimated at 80% of total coke production.

27. Rationalizing advances in the foundry techniques are causing a continuous reduction in the consumption of coke per tonne of crude iron produced (see Table 1). In 1969/1970 the crude iron production of the Community rose by 14.6 million t, while the blast furnace coke consumption rose by only 6 million t. Despite the boom conditions of the time, which made calls upon all the available reserves of capacity for the production of crude iron - presumably without any special attention to the coke consumption rate of these reserve capacities - this falling trend in specific coke consumption has continued. It should however be pointed out that in the last ten years the rate of decrease in the specific coke consumption has clearly slackened. In the market conditions of the period 1962/1965, this reduction was still as high as 110 kg, while in the period 1969/1970 it was only 40 kg. In other words, the increase in production of crude iron in 1962/1965 was 17.7% for a coke consumption figure only 1.4% higher than before, whereas in the period 1969/1970 the 22.2% increase in crude iron production was accompanied by a 14.7% rise in coke consumption.
28. These figures show that for the same rate of growth in the crude steel/crude iron production, the corresponding increased demand for coke currently leads to entirely different orders of magnitude from those which occurred seven or eight years ago in similar market conditions. Consequently, viewing the situation with hindsight, the increase in coke demand from the world steel industry - a figure of 30 million tonnes in the period 1967/1970 - is a unique phenomenon in the history of the coking industry to date, which (as will be shown below) in its turn imposed at that time heavy stresses on the supply position.
29. The steel industry requires coke not only for its blast furnaces, but also for its sintering plants and for other uses. In 1970 Community consumption for these additional applications was some 5 million t.

## Coke consumption:

in blast furnaces	46.9 million tonnes
in sintering plants	4.7 " "
for sundry uses	0.4 " "
Total	<u>52.0 million tonnes</u>

Deliveries to the steel industry in the Community were 52.8 million t. This quantity corresponds to 78% of total coke supplies to all consumer categories, namely 68 million t (see Table 5).

30. The candidate countries - Norway, Ireland and Denmark - consumed in 1969 a total of 1.8 million tonnes of coke (see Table 8). The coke consumption of these countries is relatively low by reason of the low production of crude iron; only 0.6 million tonnes go to the steel industry.

The coke demand structure of Great Britain breaks down in a similar manner to that of the Community, as can be seen from the following table for 1970 (excluding gasworks coke):

	Community		Great Britain	
	million tonnes	%	million tonnes	%
<u>A. Deliveries to consumers</u>				
Steel industry				
Blast furnaces	46.9		10.8	
Sintering plants and other applications	5.1		1.0	
Changes in stocks	+ 0.8		-	
Total deliveries to the steel industry	52.8	77.6	11.8	70.2
Coke-ovens' own consumption	0.9	1.3	0.9	5.4
Other industries	6.5	9.6	1.1	6.5
Domestic heating, concessionary supplies	7.3	10.7	1.5	8.9
Sundry	0.5	0.8	1.5	9.0
Total inland deliveries	68.0	100.0	16.8	100.0
<u>B. Export</u>	2.8		0.4	
Total	70.8		17.2	
<u>C. Coke imports</u>	- 0.8		-	
Deliveries from inland sources	70.0		17.2	
<u>D. Stock movements, statistical differences</u>	+ 0.2		- 0.6	
<u>E. Coke production</u>	70.2		16.6	

31. The total coke requirement of Great Britain (excluding gasworks coke) rose between 1969 and 1970 from 15.0 to 16.8 million t, i.e. by 1.8 million t. The increase in requirement was relatively low by reason of the low rise in consumption of the steel industry, which was only 0.7 million t for the period 1967/1970. This was in part due to the level of crude iron production, which rose by 2.3 million t, and in addition to a reduction in specific coke consumption of approximately 40 kg.
32. In Great Britain and in the Community the consumption of gasworks coke is declining rapidly. In 1970, the Community consumed some 2.7 million t (almost exclusively in the Federal Republic of Germany) and in Great Britain the figure was 2.0 million t (excluding coke breeze), the major share being for domestic heating.
33. The effect of the recession in steel production can be expected to be that the total coke requirement of the steel industry of the Community for 1971/1972 will be some 7 to 8 million t below the figure reached in 1970.

#### 1.2. Meeting the increased demand for coke

34. Considerable difficulties arose, especially in the second half of 1970, in covering the coke demand of the Community steel industry - which had risen very rapidly - these difficulties being due to the lack of flexibility in supply. Only by considerable efforts was it possible to cover the coke requirements of the steel industry in the period from 1968 to 1970, by drawing upon the existing stockpiles of coke, by using coke-oven capacities to the limit, by increasing the restricted possibilities of imports and, not least, by neglecting certain groups of coke consumers.

35. Overall, the Community demand for coke rose between 1967 and 1970 by 4.2 million t (see Table 5). Since however the coke demand for the steel industry rose rapidly by 6.4 million t, there was obviously a reduction of demand from other groups of consumers of 2.2 million t. This reduction is basically attributable to household use. However, it is not true that the entire reduction in coke consumption is a genuine falling-off of demand, i.e. a substitution of other sources of energy. Particularly in the Federal Republic of Germany, there were in 1970 genuine problems of a shortfall of supplies, and certain coke markets were deliberately neglected, while intensive negotiations had to be made to coordinate the demands of the steel industry with those of other consumer groups, especially for domestic heating. This occurrence shows the poor degree of adaptability of supply; moreover, it also underlines the importance attached by the coke consumers to the provision of a sufficient overall supply, even if this involves only a few hundred thousand tonnes, representing only a fraction of one per cent of total demand.
36. Covering the coke requirements of the Community steel industry for 1967/1970 was achieved to only a small extent by means of a change in the pattern of consumption; the major part of the increase in demand had to be covered by increasing coke supplies.
37. The first possibility of increasing available supplies lay in drawing on the stocks available at the end of 1967. As the Table below shows, the coke stockpiles held at the pithead coking plants and at independent coke ovens had been almost entirely disposed of by the end of 1969.

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End of year	(in 1000 tonnes)	
	Stockpile tonnages at all Community coke-ovens	Of which: pithead coking plants and independent coke-ovens
1967	5,223	4,909
1968	2,308	1,986
1969	828	433
1970	1,294	748
1971	some 6,500 to 7,000	..

By the summer of 1970, the stocks at pithead coke-ovens had dropped to 200,000 t, i.e. below the working stock level.

At the end of 1970, the first signs of a slackening of steel demand were visible, accompanied by a slight rise in coke stocks, which became stronger during 1971, leading to total stocks of 6.5 to 7 million t by the end of 1971. In the space of no more than four years, the coke stocks had been liquidated and then brought up again to a level above the old 1967 position.

38. The coke stocks at the foundry coking plants remained constant at a level of some 0.4 million t. The total stock of coke held by the steel industry did however not fall off during the 1968/1970 cycle, but rose, from 1.7 million t at the end of 1967 to 3.2 million t at the end of 1970. The variations in demand were thus entirely covered from pithead and independent coke-ovens. To this extent the coke stocks held by these two groups of producers are of great importance in ensuring continuity of supplies in times of varying market demand.
39. The second possibility of covering the coke requirements in the Community lay in increasing output. It was possible to mobilize a certain reserve of elasticity among the producers by increasing the degree of utilization of existing capacities. Reducing the coking time made it possible to raise the degree of utilization of capacity of the coking plants from 88% in 1967 to 99% in 1970. The resulting increase in production was achieved without any additional investment.

The increase in coke production from 64.1 million t in the Community (1967), by 6.1 million tonnes, to a figure of 70.2 million t (1970, see Table 5) is entirely attributable to the increased utilization of existing capacity. New capacity completed during 1968/1970 in France, Germany and Italy totalled only 2 million t. The effect of this was, however, cancelled out by closures of coke-ovens in the Netherlands and in the Federal Republic of Germany of a similar total capacity, namely 2 million t, and this took place in 1968 alone.

The achievement of 99% utilization of coke-oven capacity in 1970 does not constitute a normal situation, but shows that the producers were prepared to go to the most extreme action possible to avoid a coke shortage. In the Federal Republic of Germany, the closure of a gasworks in southern Germany, planned for 1970, was postponed, to ensure that coke supplies for domestic heating were not threatened. A similar case has been reported from Belgium.

40. The possibilities of covering Community coke demands by increasing coke imports from third countries were very restricted, as can be appreciated from a glance at the world pattern of coke production.

Even when there was a worldwide expansion of steel production, which raised the coke consumption in blast furnaces by 30 million t and increased world coke production by 35 million t (1967/1970), world trade in coke grew by only 3 million t (see Table 6). If we subtract from this increase in the volume of coke trade the rise in exchanges of coke within the Community (+ 1.5 million t) and within the state economy countries (+ 0.7 million t), then the real volume of world trade in coke between 1967 and 1970 underwent a rise of only some 1 million t. Once again we see, as had already been stated in the "Coking Coal Report 1969", that there is no such thing as a genuine world coke market; what is more, there are as yet no signs that this will develop to any great extent.

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To overcome the shortage of coke in the Community, efforts made in 1969/1970 to increase coke imports from third countries frequently led to what were, from the economic point of view, grotesque events. The import of coke (including coke breeze) in the Community developed as follows:

1967	152,000 t
1968	158,000 t
1969	932,000 t
1970	798,000 t

The main importing countries in 1970 were the Federal Republic (401,000 t) and Belgium (141,000 t); France and Luxembourg did not import any coke from third countries.

The main supplying countries in 1970 were Great Britain - 220,000 t, the USA - some 250,000 t and Canada - some 80,000 t. The remaining 250,000 t were imported in small and very small lots from the following countries: Switzerland, Denmark, Spain, Argentine, Egypt, South Africa, India, USSR, Czechoslovakia, Hungary and various others. The quantities of coke delivered by these countries in 1970 represented 0.3% of the total coke consumption of the Community. It was not possible to cover this minute fraction of demand by recourse to the world coke market. The solution - very definitely an emergency measure - was to search very actively for coke in individual countries; this led to the inclusion in the above totals of such out-of-the-ordinary suppliers as Argentine, Egypt and India. This is a sufficient indication of the importance of being able to completely cover coke demand. Since the coke intended for the steel industry is a source of energy which cannot be replaced by some other material, no effort was considered too great to obtain very small quantities & exorbitantly high prices - 60 to 70 units of account per tonne - were paid.

42. The exchange of coke within the Community changed between 1967 and 1970 both in scale and in structure (see Table 7).

The magnitude of the exchange rose by 1.5 million t. The Federal Republic of Germany became considerably more important as a supplier, coke deliveries from that country rising by almost 3 million t. This represented a share in the total quantities exchanged rising from 69% in 1967 to almost 90% in 1970. As against this, coke deliveries from the Netherlands dropped to 0.4 million t, as a result of the closure of the Mauritz and Emma coking plants, which had an annual capacity of 1.4 million t of coke.

The increase in coke orders between 1967 and 1970 came primarily from the Benelux countries (+ 1.8 million t).

43. The problem of covering the coke demand in Great Britain for the period 1967/1970 was essentially different from that in the Community. Including the gasworks, the total inland coke requirement for Great Britain fell from 21.3 million tonnes to 18.8 million tonnes. This trend is solely governed by the decreasing demand for gas coke for domestic heating. Under the pressure exerted by the increase in the consumption of fuel oil and natural gas for domestic heating, the production of gasworks coke dropped from 6.3 million tonnes in 1967 to 1.9 million tonnes in 1970 (excluding coke breeze).

If we leave gasworks coke out of account, it will be seen that the inland requirement for coke-oven coke rose between 1967 and 1970 by 1.8 million tonnes to a figure of 16.8 million t; of this, only 0.7 million t went to the steel industry (compare Table 8<sup>1)</sup> with the table given on Page 22), since steel production rose only relatively slightly.

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1) Figures for 1970 were not available for Norway, Ireland and Denmark.

The production of coke-oven coke in Great Britain followed demand and rose from 15.6 million t in 1967 to 16.6 million t in 1970. Small discrepancies between production and demand were covered by withdrawals from stock. To this extent, Great Britain was not affected between 1967 and 1970 by the serious problems of coke supply which were faced in the Community.

44. In respect of production of coke-oven coke, Great Britain has a completely different market structure from that of the Community; the following table gives a comparison for the year 1970:

	Community		Great Britain	
	mill. t	%	mill. t	%
Coke production in				
pithead coking plants	40.6	57.8	4.0	24.1
foundry coking plants	24.8	35.3	11.4	68.7
independent coking plants	4.8	6.9	1.2	7.2
Total	70.2	100.0	16.6	100.0

Whereas in the Community it is the pithead coking plants which predominate in the total production pattern, in Great Britain the foundry coking plants constitute the largest producing group. The British foundry coking plants were able in 1970 to cover almost 100% of the total coke requirement of the foundries (11.8 million t). As a result, the British steel industry buys only relatively small quantities of coke from pithead coking plants and independent plants. In actual fact, the 13 pithead coking plants operated in Britain were in 1970 producing foundry coke in 6 coking plants, domestic heating coke in 6 plants and blast-furnace coke in only one plant.

It was not necessary to import coke to cover any possible shortages in supply.

45. The remaining candidate countries - Norway, Ireland and Denmark - exhibit another, completely different pattern of coke supply (see Table 8). Only Norway produces coke-oven coke; in Ireland and Denmark, only gasworks coke is produced. The low level of coke production in Norway and Denmark is far from being adequate to meet the relatively low demand. Consequently, these countries have to rely substantially on coke imports, which constitute far more than 50% of total coke requirements. The quantities involved are yearly import amounts of 0.6 to 0.7 million t, primarily drawn from Great Britain, the Community and the USSR.

The entry of these countries into the Community is not likely to raise any new problems in respect of coke supplies.

46. Considering the effect of the accession of the candidate countries, Table 9 gives a survey of exchanges of coke within the ten countries. For 1970 it is clear that the major exchanges in coke took place among Community countries; between the latter and the candidate countries, supplies of coke delivered are relatively low. Coke exchanges in 1970 would have risen as a result of the formation of the "Community of Ten" to a "statistical" level of only 10.3 million tonnes, from a base figure of 9.6 million t.

## 2. Forecast of the problems of coke supplies up to 1980

### 2.1 Trends in the demand for coke

47. The shape of total coke requirement in the Community is governed, in the long-term future up to 1980, by two trends:

- falling-off in coke demand for thermal applications;
- a slight increase in coke demand for the steel industry.

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All the predictions regarding the Community coke demand, made since the "Coking Coal Report for 1969", take these two factors into account. The results of these estimates are given in Table 10; the methods of calculation used in the different investigations will not be repeated again here. Sinter coke is included in the estimates.

In making a comparison of the predictions for the Community for 1975 or 1980, the following observations may be made:

- the total coke consumption envisaged in the "Coking Coal Report for 1969" for the year 1975 - a figure of 65 million t - is lower than the figures obtained in the estimates contained in any of the studies prepared after 1969. In general, the most recent investigations gave estimates for Community coke requirement of just under 70 million t.
- in 1975, the difference is 5 million tonnes of coke, this being considerably lower than the difference in estimating the production of steel or crude iron (see above, Pages 17/18). This is due to the fact that the new investigations contain lower estimates than the "Coking Coal Report for 1969" for the specific coke consumption per tonne of crude iron and for the coke consumption for thermal applications. Expressed in terms of total coke consumption, this gives rise to a compensating effect, which results from the differing bases used in the calculations.
- Only one investigation gives a figure for 1980, and this predicts that the total coke requirement for the Community between 1975 and 1980 will remain constant<sup>1)</sup>.

48. The following indications are needed to assist the interpretation of the more recent estimates of Community coke requirements:

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1) "Prospects for the long-term supply of energy for the Community (1975-1980-1985)". Commission of the European Communities. Working Document, No. XVII/327/71.

- Even if the new estimates for 1975 or 1980 were to lead to higher results than those given in the "Coking Coal Report for 1969", the fundamental observations contained in this Report regarding the future problems of supplies of coke or coal for the Community retain their validity.
- In respect of the future, the starting-point taken is that the total Community coke requirement in the decade 1970/1980 will settle down to a trend level between 65 and 70 million t. Consequently, bearing in mind the coke requirement of 70 million t in 1970, it is not impossible that a slight downward trend may set in.

49. According to the tables on page 19, Britain's production of steel and pig iron in 1980 is estimated at 36 million and 24 million t respectively.

With a reduction in the specific coke consumption per tonne of pig iron from 621 kg in 1970 to 500 kg in 1980, the blast furnace coke consumption would work out at 12 million tonnes, as against approximately 11 million tonnes consumed in 1970. Since the British balance-sheet of coke consumption (see Table on page 22) in 1970 still contains some 4 million t of coke-oven coke (without gasworks coke) which was used for thermal purposes and can be expected to undergo a downward trend, it can legitimately be assumed that there is hardly likely to be any increase in the total coke consumption of Great Britain in the future - i.e. up to 1980.

In the light of this, the future developments in Great Britain will therefore be determined by the same factors as those which are effective in the Community.

50. For Norway, Ireland and Denmark it is not possible to provide detailed estimates of coke requirements; it is possible only to present a probable trend. If we assume that in the

future these countries will not erect new steel production centres on the European scale, and that the demand for coke for thermal purposes (industry and domestic heating) will fall off, it is to be expected that the total coke consumption of these countries (1.7 million t in 1969) will fall off in the long term.

## 2.2. Meeting the future demand for coke

51. The experience gained in dealing with the problems of covering coke requirement in the Community during the high-demand period of 1968/1970 make it possible to draw the following fundamental conclusions for the future:

- every care should be taken to ensure that the entire coke demand posed by the national economy should at all times be fully covered. Supplying the Community demand for coke should be considered as a coherent whole and even fractions of one per cent of the demand which cannot be covered can give rise to difficulties and set up strains which can extend to the whole coke market;
- the possibility of drawing coke from third countries is virtually non-existent; there is no such thing as a world coke market.

Consequently, the future provision of the amounts of coke required by the enlarged Community can only come from its own sources. On the one hand this implies that the function of reserve coke stocks and of the degree of utilization of capacity of the coking plants as a buffer between demand (which varies with market conditions) and the production potential must be guaranteed; on the other hand, the coke-oven capacities must be designed to fit the long-term trend in coke demand.

52. In respect of the reserve stocks of coke, a total quantity of the order of magnitude of some 7 to 8 million t would be adequate for the Community, to absorb the variations in demand resulting from changes of market conditions in the steel industry or the economy as a whole.

This is however true only if in addition the degree of utilization of coke-oven capacity can be modified in the short term. Coke stocks of 7 to 8 million t at the beginning of a period of increasing demand can therefore be considered adequate only if at the same time there is a reserve of at least 10% in the degree of utilization of the coking plant.

53. In connection with the increase in steel production in the Community, the investments made by the steel industry have risen to an exceptional degree:

(millions of units of account)

	Total investments in the Community steel industry	Of which: for foundry coking plant
1967	730.2	11.5
1968	802.1	13.7
1969	1,038.7	31.1
1970	1,687.9	61.7
1971	2,182.0	121.0
1972	2,601.0	153.0
1973	1,915.0	122.0

For the years 1967/1971, the actual investment expenditure has been given, while for 1972/1973 the sums indicated were planned expenditure as at 1.1.1972 for those two years.

Some items will undoubtedly be deleted from the planned expenditure for 1972/1973 in the light of the market recession which began in 1971. Nevertheless, it can be observed that the figures given above<sup>1)</sup> give evidence of the beginning of a structural regrouping of Community steel production, this trend being likely to become reinforced very considerably after 1973 and to have decisive effects on the conditions of Community coke supplies.

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1) The breakdown of the total figures according to the different geographical regions of the Community is contained in "Investments in the coal and steel industries of the Community", report on the enquiry 1971, page 56.

The re-orientation of the investments will lead to the following structural changes:

- the erection of new large-scale complexes of steelworks in coastal areas of the Community, i.e. along the North Sea, along the English Channel and in the Mediterranean. Thus there will be a change in the concentration of sites, due to the more favourable conditions in respect of supplies of the raw materials.
- the new coastal steelworks are without exception not planned to buy in coke; on the contrary, foundry coking plants will be built. Consequently, the coke consumed will be manufactured by the steelworks themselves, and the coal will be ordered from the Community or from third countries according to the market conditions obtaining.

54. In comparison to the marked increase in investments for foundry coking plants, the investments for pithead and independent coking plants are expanding relatively more slowly.

(millions of units of account)

	Investments for foundry coking plants	Investments for pithead and independent coking plants	Total
1967	11.5	14.0	25.5
1968	13.7	21.2	34.9
1969	31.1	14.4	45.5
1970	61.7	21.1	82.8
1971	131.0	41.0	172.0
1972	153.0	53.0	206.0
1973	122.0	36.0	158.0

The share of pithead coking plants and independent coking plants in the total sum of coke-oven investment was 55% in 1967; according to the existing plans, this figure will drop to 23% in 1973.

55. As a reaction to the strains in coke supplies which occurred in 1969/1970, and under the influence of the new planned steelworks, there is a marked rising trend in the investment in coking plant.

Thus there arises the question as to whether the future long-term development of the total coking capacities and the geographical structure of these capacities will coincide with the long-term development in Community coke demand.

The data regarding investment plans up to 1972 are not sufficient to give an answer to this question. The Community coal and steel undertakings do however report to the Commission, in addition to the financial expenditure on investment two years in advance, their investment plans in the form of quantitative data. This latter information refers to developments in capacity and is given five years ahead. Planned closures are, however, reported to the Commission only shortly before they occur.

56. On the basis of the information obtained under the above system (position at middle of 1971) regarding the extensions or closures of coking plant capacity, there would be obtained a mathematical increase in total capacity from 70.7 million t at the end of 1970 to 90.1 million t at the end of 1976 (compare Table 11). These figures lead to the following reflections:
- It cannot be assumed that the Community coking plants can appreciably increase exports of coke to third countries (2.8 million t in 1970) in the future<sup>1)</sup>; consequently, the long-term development in coking plant capacity must be essentially kept in step with the trend in Community coke requirement - a figure expected to reach a maximum of 65 to 70 million t in 1980 (see above, page 32).
  - A total coking plant capacity of 90 million tonnes annually at the end of 1976 (see Table 11) would be far too high, even if a maximum requirement of 70 million t of coke be taken as starting-point.

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1) This is also true of the enlarged Community.

With a coke output of 70 million t, the degree of utilization of capacity would be no more than 77%. In periods of normal or decreasing demand for steel, the degree of utilization of the coking plant would however fall off in the future to below 70%, resulting in considerable price rises. On the other hand, degrees of utilization of 95 to 99% are possible for short periods, as the events of 1969/1970 proved.

In the light of the foreseeable development in demand, it would therefore seem that a coking capacity in the Community of some 75 million tonnes per year would be completely adequate for the decade 1970/1980. The obsolescence of some of the coking plants - reference was already made to this in the "Coking Coal Report for 1969" - will consequently lead to large-scale closures. The new plants which it is planned to build will at the same time exert rationalizing effects.

57. The figures in Table 11 clearly show that the shift of the steel industry to the coast will lead to a restructuring of the coking capacities of the Community. If the Community steel industry goes over to an increased extent to the erection of foundry coking plant (+ 19 million tonnes annually 1971/1976), it must be assumed that the foundry coking plants of those steelworks which also buy in coke will, in fact, set about producing coke at full utilization of capacity<sup>1)</sup> and that there will be a corresponding considerable reduction in the orders from the steel industry

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1) It is not impossible that the planned capacities for foundry coking plant are greater in the aggregate than the requirements of the steelworks in question, so that certain quantities of coke would be available for external sale.

for bought-in coke (coke from independent or pithead coking plants). The traditional supply pattern for coke within the Community would be altered. Thus the pithead coking plants, particularly those in the Federal Republic of Germany, would also be markedly affected by this restructuring.<sup>1)</sup> If all the new pithead coking plants planned are in fact built (+ 6.7 million tonnes annually up to 1976), then obsolescent plant with a total capacity of at least 12 million tonnes per year would have to be closed (figures based on the existing capacities of 1970); this would simultaneously have an effect on overall capacity and would bring about a degree of rationalization.

58. The future meeting of the coke requirements of Norway, Ireland and Denmark will raise no special problems between 1970 and 1980. Since the demand is likely to decrease, the coke supply pattern might change if the accession of these countries to the Common Market were to cause them to break their links with their suppliers in the USA and the USSR and to draw from Community sources. This will be a matter which will be determined by price relationships. Such changes would however not create major difficulties for the Community, since the quantities involved would be relatively small.
59. In Great Britain too, there are no signs of problems in respect of supply of coke requirements. One can start from the point that the British steel industry will plan the capacities of its foundry coking plants in such a way that almost its entire internal

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1) The pattern of supply which has obtained hitherto is shown in Tables 5 and 7.

requirement of coke will be covered. A slight increase in the capacities of the foundry coking plants does therefore seem probable, to the extent that the figures regarding the estimated supplies of steel or crude iron up to 1980 are found to be correct in the event (see above, Page 19 and Page 32). As against this, the production of coke by the British pithead coke ovens and independent coking plants will probably decrease, since these coking plants produce coke for thermal applications (frequently for domestic heating), and this grade is subjected to competition from fuel oil and natural gas.

60. The conclusions which may be drawn with respect to the development of coke requirements and the covering of these requirements are as follows:
- As a result of the increase in crude iron output in the period from 1968 to 1970, the coke requirements of the Community underwent an exceptionally high increase. Strains arose in covering the demand, since there is no such thing as a world coke market and the flexibility of Community coke supplies was slight, despite the stocks of coke available at the beginning of the increase in demand.
  - In Great Britain, during 1968 to 1970, there was a relatively lower increase in the demand for coke due to the smaller increase in steel output, so that no appreciable difficulties arose in covering demand.
  - For the future, up to 1980, the Community and the candidate countries can expect that coke demand will remain constant, in spite of further reductions in the specific coke consumption of blast furnaces. The demand must be covered from the Community's own resources; a restructuring of the coking industry in the Community is already beginning to show itself, with coke output from pithead coking plants falling off and the output of foundry coke ovens rising.

C, Trends in coke-works requirements of coal and in the supply pattern

1. Trends in the problems of coal supplies during the period 1967-1970

1.1. The increase in the demand for coal

61. As Table 4 shows, the world coking coal demand for coking plants has risen from 428 million t in 1967 by 48 million t, reaching 476 million t in 1970 (= + 11.3%). The rises in coking coal demand in individual countries were as follows:

Japan	+ 17.9 million t
Community	+ 8.1 million t
USSR	+ 5.7 million t
Great Britain	+ 1.3 million t
Other free economy countries	+ 6.4 million t
Other state economy countries	+ 9.0 million t
	<hr/>
Total	+ 48.4 million t
	<hr/> <hr/>

As can be seen from the orders of magnitude involved, the increase in demand for coking coal in Japan and the Community constitutes more than one-half (26 million t = 53.7%) of the increase in world coking coal demand between 1967 and 1970. Thus the demand for coking coal in Japan and the Community has a decisive effect on the trend in the world coking coal market.

62. The increase in coke-works requirements of coking coal in the Community during the period 1967/1970 was a major factor in determining the development of the market for all types of coal (see Table 12). Deliveries of coking coal to the coking plants rose by 8 million tonnes from 84 million tonnes, reaching almost 92 million tonnes in 1970. In addition, the steel industry took a further 1.5 million t of hard coal for the sinter plants and for other production uses. All other coal consumer sectors - with the exception of power stations - suffered reductions in sales, so that the total coal consumption of the Community dropped by some 7 million t in the period 1967/1970. As a result the orders for coke-works coal increased its percentage share in the total Community coal market from 40% to almost 45%.

63. A major part of the increased Community demand for coking coal came from the Federal Republic of Germany, where the demand for coal for carbonization rose by almost 5 million t in 1967/1970. In the Netherlands, the demand for coking coal dropped considerably as a result of the closure of the Mauritz and Emma coking plants (see Table 13).

The pattern of the types of coal used for carbonization has shifted, with the result that there is a greater use of coals of groups V and VI. With the increase in total coal demand of 7.5 million t (1969/1970), the use of the coking coals (coal Groups V and VI) rose by 8.5 million t, accompanied by a reduction in the quantity of "diluting" coal (i.e. coal added to the coking coal to reduce its swelling power) and high-volatile coal of around one million tonnes. The preferential use of good coking coal of these both groups (1) led to an improvement in the ratio between coal charge and coke yield of 1 : 0.759 (1969) to 1 : 0.764 (1970). This improvement in coke yield rate alone made it possible to raise coke output by almost 450,000 t.

64. In parallel with the increased overall consumption of primary energy in the Community the falling-off in coal consumption led to a reduction of the share of coal in the total energy balance from 30.3% (1967) to 22.5% (1970). For 1972 it is expected that there will be a further reduction to 19%.

65. The balance-sheet of primary energy consumption for the individual candidate countries - and also in comparison with the Community - varies very widely (see Table 14).

The figures given in this table reflect the very different natural conditions governing energy supply and energy requirements. In broad outline, the following features can be observed:

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1) The proportion of coal Groups V and VI in the total amount of coal charged for carbonization rose from 93 to 95%.

- In Norway, hydroelectric power has the largest share in total energy consumption; as a result, the dependence on imports is lowest by comparison with the other countries.
- Denmark is almost 100% dependent on imports for its energy supply; petroleum represents almost 90% of the total consumption of primary energy.
- Ireland too is to a large extent dependent on supplies of energy from outside, by reason of its very low domestic supply base.
- In Great Britain, the share occupied by hard coal in the overall energy market is around twice as high as in the Community, and in consequence dependence upon imports is considerably lower.

66. The pattern of coal consumption in Norway, Ireland and Denmark can be seen from Table 15. The coking coal requirement of these three countries for gasworks and coking plants was very nearly 1 million t in 1969. In addition, hard coal is used in relatively small quantities for industry and for domestic purposes. Only in Denmark are relatively larger quantities (2.9 million t = 74% of total coal consumption) used in power stations.

67. The changes in coal requirements in Great Britain between 1967 and 1970 manifest the same trends as those occurring in the Community (compare Table 16 with Table 12). The demand for coal for coking plants and power stations rose, while marked reductions in demand occurred in all other consumer sectors, and the total coal consumption figure fell off by some 10 million tonnes between 1967 and 1970.

Although all this evidence shows a certain degree of conformity between the trends in Great Britain and in the Community, there were differences in order of magnitude:

- The increase in demand for coking coal for the coke-works was 8 million t for the Community in 1967/1970, as against only 1.3 million t in Great Britain.
- The gasworks in Great Britain called for 10 million tonnes less coal in 1970 than in 1967, while the reduction in the Community was only 0.8 million t.
- The power stations in Great Britain increased their coal consumption by 9 million t to approximately 77 million t; the corresponding rise in consumption for the Community power stations was only 1.3 million t.

68. The coal consumption of Great Britain and the Community differs both in absolute figures and in pattern of consumption (see Table 17). The determinative factor in these differences is the considerably greater quantity of coking coal carbonized in the Community (almost 92 million t, as against 25 million t in Great Britain). This difference by itself demonstrates that the problems of supplying the demand for coking coal have hitherto played an entirely different part in the Community from that played in Great Britain.

A further characteristic structural difference is that in Great Britain the quantity of coal used for power raising in 1970 was some 15 million tonnes higher than in the Community. The proportional share of power station coal in the overall consumption of coal in Great Britain in 1970 was almost 70%, so that it occupied a far more important place than in the Community (27%).

Finally, if we compare the total amount of coal transformed into secondary energy, it will be seen that in the Community almost 82% of the total consumption of coal is offered in a processed form, while the figure for Great Britain is 71%.

## 1.2. Meeting the demand for coal

69. Covering the coal demand was a difficult problem for the Community in the years 1967 to 1970, but - in view of the fact that there is a

world coal market, this took place in much easier circumstances than those surrounding the problem of covering coke requirements, since there is no such thing as a world coke market.

70. World output of hard coal rose in the period 1967/1970 by some 200 million t, reaching a figure of 2,150 million t (compare Table 4).

If the changes that have taken place in the world coal market are examined from the structural angle, i.e., separately in respect of the free-enterprise countries and the state-trading countries, it emerges that although during the period 1967-70 the production increase in the state-trading countries provided a valuable contribution towards meeting the increased requirements of coking coal in the free-enterprise countries, it by no means reached the quantitative level of the contribution from the latter countries themselves. The production increase in the State-trading countries was achieved mainly in China, the USSR and Poland.

Overall coal output in the free economy countries was stagnant, but during the period 1967/1970 significant restructuring took place between the different countries. Those countries which are the biggest buyers on the world coal market reduced their own output, whereas those countries which are the major world market suppliers has raised their production. In the most important buyer countries on the world market - the Community, Japan and the other free economy countries of Western Europe - output of hard coal dropped from 427 million t in 1967 to 366 million t in 1970, a reduction of 61 million t. The major coal exporters - USA, Canada and Australia - increased their output by 53 million t from 550 million t to 603 million t.

71. The increase in the specific demand for coking coal in Japan and the Community, together with the reductions in output in these countries, have led to a considerable extension of world coal trade. The increase in international coal traffic between 1967 and 1970 was about 30 million t (see Table 18).

Japan had the greatest share in this increase in the volume of international coal trade, with an increase in imports of 26 million tonnes (see Table 19). The Community raised its imports of coal from third countries from 24.3 million tonnes to 31.2 million tonnes, i.e. by 2.9 million tonnes.

These numerical relations show that the increase in coking coal demand in the free economy countries on the world market, and consequently the trends in the world market conditions, were almost exclusively governed by Japan and the Community. The major free economy suppliers offering quantities of coal on the world market were USA, Canada and Australia.

72. To obtain a clear picture of the "true" world market for coal, the figures for international coal exchanges (see Table 18) have been modified by eliminating those transfers which cannot be validly considered as sales of coal on the world market; these are:

- exchanges of coal within the Community,
- exchanges of coal between the COMECON countries,
- deliveries of coal between the USA and Canada.

After subtraction of these exchanged quantities, which total some 70 million t annually, we arrive at the figures given in Table 20 for the "true" world coal market. Compared with world coal output the market for coal on the world scale is relatively small, and represents only 5%. Nevertheless, the expansion of the volume of coal trade - required to cover the rapidly rising coke requirements of the Community and of Japan - from 70 million t (1967) to 107 million t (1970) was of considerable significance. The problems of diversifying the sources of supplies of coal and of elasticity of supply were, as a result, fundamentally different in the case of coal from what occurred with coke.

It can be estimated that approximately 75% of the total coal sales on the world market are made up of coking coal.

Table 20 also clearly shows that the state economy countries are self-sufficient in supplying their coal needs; i.e. they do not buy any coal on the world market. On the other hand, the state economy countries supplied the world market in 1970 with some 27 million t of coal, representing approximately 25% of the total world market quantity.

73. Against the background of the worldwide developments in the coal supply pattern described above, there were specific problems in respect of covering Community demand during the years 1967 to 1970.

First of all it should be pointed out that during 1970 some 125 million t of coking coal were produced (Groups V and VI), in the Community, of which 73 million t (Groups V and VI) were carbonized; this means that 52 million t of cokable coal were burned<sup>1)</sup>; the corresponding figure for 1967 is 64 million t. With a decreasing output of coal (9 million t) as a result of the falling-off in general use of coal for heating, then, as a purely mathematical operation, a change in the market structure has released 3 million t of coking coal to increase the amount transformed into coke.

74. The covering of the increasing coal demand was facilitated in the Community by the presence of stocks which were held at the end of 1967 and had been very largely cleared by the end of 1970.

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1) Compare Table 21 with Table 26 and Table 13.

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<u>End of year</u>	<u>Total stocks</u>	<u>In millions of tonnes</u> <u>Of which: saleable coal</u>
1967	28.9	21.0
1968	21.2	12.7
1969	11.2	4.7
1970	7.3	2.5
1971	12.8	..

During the steel "boom", 20 million t of coal were made available from stock over three years. In addition to this, in the Federal Republic of Germany 4 million t of the coal stocked in areas near the point of consumption were sold. Had these stock quantities of the order of 25 million t not been available, it would have been impossible to cover the increased demand of the period 1969/1970, since these quantities could not in the short term have been drawn either from the current production or from the world coal market. The importance of the stock reserves as a factor in reconciling demand and supply is thus made very clear; three things are involved:

- maintenance of output, so avoiding short-time working and redundancies;
- short-term increases in demand in the coking sector can be covered;
- compensation for lost output arising during periods of increased demand for coal as a result of previous closures of pits.

Had the stock reserves of the Community in 1967 been only 2 to 3 million t higher than they actually were, difficulties such as those which arose in 1969/1970 in obtaining supplies on the world market would undoubtedly have been avoided.

75. As the following survey shows, it was not possible to raise the Community coal output appreciably in answer to the short-term increase in the demand for coking coal, even though extra time was worked at the pits.

	Trend in output		Number of collieries		Output per manshift	
	Million t (t = t)		Number 2)	Change against previous year (number)	kg	Change against previous year
	Output 1)	Change against previous year				
1965	224.2		243		2,461	
1966	210.2	- 14.0	215	- 28	2,611	+ 150
1967	189.5	- 20.7	186	- 29	2,827	+ 216
1968	181.2	- 8.3	167	- 19	3,065	+ 238
1969	176.9	- 4.3	153	- 14	3,265	+ 200
1970	170.5	- 6.4	148	- 5	3,442	+ 177
1971	164.8	- 5.7	139	- 9	3,510	+ 68

1) Including small pits.

2) At end of year.

The reaction to the increase in demand for coking coal did not therefore consist of an increase in production, but in a noticeable slowing-down in the reduction of output or in pit closures. This is related to the subsidy policy and to the general energy policy of the Member Governments. It is clearly not possible in this connection to change the plans and principles applied by the Member Governments each time to suit changed market conditions for short periods, in particular if it is to be expected in the long term that the market potential of Community coal <sup>will</sup> shrink even further. The economic measures taken by the Member Governments have aimed not so much at increasing output as much rather easing the possibilities of obtaining coal supplies on the world market.

The coal-mining industry itself was not in a position to increase current production by technical measures. It was impossible to obtain an increased output by means of increased productivity, although such an increased output would have corrected the effect of the pit closures, particularly in France, Belgium and the Netherlands. By 1969 the degree of mechanization had already reached 90 to 95%. New technical measures intended to continue rationalization

in other sectors (powered supports, improving the layout of the mine workings, automation, etc.) have indeed been begun, but are not yet applied widely. It seems doubtful whether it would be possible to reach again the early high rates of increase in output per manshift of 7 to 8% annually in the period from 1958 to 1968, if further major pit closures are carried out.

76. Because of the fact that the output of the Federal Republic of Germany contains a high proportion of coking coal, and that total production was maintained constant between 1969 and 1970, there was a relatively low reduction in the Community output of coking coal in comparison to the other types of coal (see Table 21). The proportion of coal of Groups V and VI in the total Community output rose from 70.7% in 1967 to 73.3% in 1970, although the absolute figure for production of coking coal dropped.

By reason of the varying development of output in Community countries, the Federal Republic of Germany occupies an increasingly important position as a supplier of coking coal for the coking plants. The breakdown of Community coal used for carbonization is as follows:

	1967		1970	
	Million t	%	Million t	%
German coal	55.3	74.2	61.0	78.3
Belgian coal	6.2	8.3	5.5	7.1
French coal	11.7	15.7	11.3	14.5
Netherlands coal	1.3	1.8	0.1	0.1
Total Community coal	74.5	100.0	77.9	100.0

77. Since the inland Community availability of coal did not suffice to cover demand, the Community was compelled to draw to an increased extent on the world coal market. The additional demand on the world coal market began in 1969, i.e. only after the stocks had been exhausted. In 1970, <sup>when</sup> every possibility of

obtaining additional quantities of Community coal had been exhausted, there was a correspondingly greater increase, during which the Community coal imports rose by almost 30% (= 7 million t) as against 1969 (see Table 22). Even if we can say that the world coal market has a certain degree of adaptability to short-term changes in demand, nevertheless the events of 1970 showed that a massive rise in Community demand of 7 million t and in Japan of 10 million t in one year stretches this adaptability to the limit (17 million t equals an almost 20% increase of volume of the actual world trade in coal; see Table 20). The number of producers supplying the world coal market is very small, and their output potential is governed by technical and natural conditions which preclude any easy short-term modifications in output. This played a particularly important part in 1970 in the production of the United States.

78. The increase in Community demand of 7 million t (increase in 1970 as against 1969) was covered from the following countries:

(Million t, see Table 22)

USA	+ 3.5 = + 29.0
Poland	+ 2.0 = + 41.6%
Other countries	+ 2.0 = fourfold

The coal import structure of 1970 shows that half the total coal imports of the Community came from the USA. Poland increased its deliveries appreciably and in 1970 covered some 20% of the total coal import requirement.

It is true that between 1967 and 1969 the British coal-mining industry increased its deliveries to the Community by 1.6 million t, but in 1970 deliveries had to be restricted, since certain quantities of the coal designated for export had to be used to cover Britain's own domestic demand.

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The deliveries of coal from the USSR - mainly <sup>to</sup> France and Italy - are made on the basis of long-term contracts within the frame of bilateral trade agreements; these deliveries are therefore relatively inelastic.

One thing which characterizes the Community supply situation, as well as the possibilities of obtaining supplies on the world market, is the fourfold increase in coal imports from "other countries" (1970 compared with 1969). This item comprises additional requirements of 2 million t, representing 1% of the total Community coal requirement. Just as with the coke supply situation (see above Page 27), in the Community coal supply sector too, an intensive search was made in 1970 on the world market and in those countries which - with the exception of Australia and Canada - can hardly be considered as traditional suppliers on the world market. In 1970 the Community imported 2.6 million t of coal from "other countries":

Australia	0.7 million tonnes
South Africa	0.8 million tonnes
Spain	0.4 million tonnes
Canada	0.2 million tonnes
Turkey	0.1 million tonnes
Sweden	0.1 million tonnes
Norway	0.1 million tonnes
Sundry	0.2 million tonnes
<b>Total</b>	<b><u>2.6 million tonnes</u></b>

The urgency of providing supplies to cover demand is indicated not only by this list of supplying countries, but also by the fact that during the Summer of 1970 individual consignments of coking coal were paid for at prices ranging from 30 to 35 units of account per tonne cif Europe. About half of the 2.6 million t referred to above is coking coal (see Table 23).

The development which affected coking coal imports in 1970 must appear to be a unique phenomenon by reason of the fact that quantities of cokeable coal of the order of magnitude of several

tens of millions of tonnes were burned in Community power stations. The prime reason for this is the coal consumption structure of the Community (in particular in the Federal Republic of Germany). Specific measures of assistance in the provision of power station coal, long-term supply contracts and arrangements for priority supplies are incompatible with an elastic market-controlled "redeployment" between the individual coal consumer sectors or between the individual energy sources. This was found to have particularly deleterious effects on the short-term expansion of supplies of coking coal for the Community. It cannot be too often emphasized that coking coal, as an item in the total coal supply requirement, can be replaced by other types of coal only to a restricted extent; 80% of the coke produced from this coal is bought by the steel industry, where again it cannot be replaced. Finally, the variable market conditions governing steel production raise problems in respect of a continuing adaptation of supplies of coking coal to demand.

79. The main part of the coal imported into the Community from third countries - 75% - is made up by coals of Groups V and VI, but only half of the imported quantity was actually used in coking plants. Between 1967 and 1970 there was no major change in this situation (see Table 23). The increase in coking coal imports was some 5 million t.

80. Internal Community exchanges of coal were only slightly modified as a result of the increase in demand of 1969/1970 (see Table 24). The reduction in quantities of coal exchanged - from 20.1 million t to 17.8 million t - is not an indication of market-governed changes in demand. These modified figures are attributable to the fact that the internal Community exchanges of boiler and domestic heating coal dropped off, while exchanges of coking coal increased.

In 1970, of the 17.8 million t obtained by internal Community exchanges, 10 million t (= 56%) was carbonized in coke-ovens (see Tables 24 and 26).

81. The comparative tables of figures (Tables 24 and 26) show that the increase in coal requirements for the coke-ovens (1970 compared with 1967) was covered as follows:

Increase in indigenous coal charged in coke-ovens	+ 2.5 million t (= + 3.8%)
Increase in Community coal charged in coke-ovens, these quantities being obtained by internal Community exchange	+ 0.9 million t (= + 9.9%)
Total Community supplies	+ 3.4 million t (= + 4.6%)
Imported third country coal	+ 4.1 million t (= + 41.0%)
Total increase in coal charged in coke-ovens	+ 7.5 million t (= + 8.9%)

The use of imported coal also increased relatively strongly; the proportion of imported coal in the total amount of coal charged in coke-ovens rose from 11.7% (1967) to 15.2% (1970) (see Table 27).

82. Developments in the coal economy of Great Britain between 1967 and 1970 were not the same as those which occurred in the Community. While in the Community, demand was covered from inland coal resources and from imports, the problem of adaptation in Great Britain was very largely dealt with by means of inland sources alone, so that it was only at the end of 1970 that it became necessary to have recourse to imported coal (see Table 16).

One important fact observed is that the demand for coking coal in Great Britain expanded at a relatively slow rate, and that the stockpiled reserves of coal were not so much used to cover the market-governed problems of adaptation between 1967 and 1970 between supply and demand, but served much rather as a temporary palliative to strongly diverging trends between supply and demand.

83. The coal consumed in British coking plants was exclusively British coal, and the pattern developed as follows:

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	(In millions of tonnes)		
	<u>1967</u>	<u>1969</u>	<u>1970</u>
Amount of coal charged in:			
Pithead coke-ovens	6.1	6.2	6.0
Steelworks coke-ovens	15.6	17.5	17.2
Independent coke-ovens	1.8	1.7	1.8
	<u>          </u>	<u>          </u>	<u>          </u>
Total	<u>23.5</u>	<u>25.4</u>	<u>25.0</u>

The slight market variations in coal demand were relatively easily dealt with in the framework of the overall balance sheet of the British coal supplies (see Table 16).

It was rather more difficult to solve the problem resulting from diverging trends between output and coal demand. The figures for the two years were as follows:

	(In millions of tonnes)	
	<u>1967</u>	<u>1970</u>
Production	177.6	147.1
Sales (including export)	168.4	160.0

British coal output, which in 1967 was still some 10 million tonnes higher than the sales, fell off in three years by 30 million tonnes, so that in 1970 it was 13 million tonnes below sales, which had fallen by only 8.4 million tonnes in the same period of time. To cover this discrepancy, recourse was had to the stockpiled reserves, the pattern being as follows:

	(In millions of tonnes)
<u>End of year</u>	
1967	28.1
1968	28.4
1969	18.8
1970	7.2
1971	10.4

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Since the reduction in output is irreversible and the stockpiled reserves had been largely disposed of by 1970, the British Government had to decide in the autumn of 1970 to lift the decades-old ban on coal imports; it would not have been possible to fill the yawning gap between output and sales other than by importation of coal.

Directly after the lifting of the ban on imports, 0.1 million tonnes of coal were imported into Great Britain in December 1970 (see Table 16). In 1971 the total imports jumped to 4.4 million t.

84. The 30 million t reduction in British output was partly deliberate, and partly the result of several unfavourable factors working in conjunction.

Year	Number of producing collieries (1)	Output per man and shift (2) kg
1967	438	2,993
1968	376	3,278
1969	317	3,384
1970	299	3,481
1971	293	..

- 
- (1) In each case at the end of March  
(2) Underground workings only.

The rate of pit closures was such that in 1968/1969 a total of 120 collieries were closed to restrain production and to adjust it to demand. The closure rate then slowed down considerably, and in 1971 only a further six pits were closed.

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In addition, the output per man and shift rose in 1969/1970 by only 100 kg approximately each year, whereas in the preceding years increases of from 200 to 300 kg had been achieved annually. This is primarily the result of the fact that British pits are now more than 90% mechanized. In addition, the number of shifts lost by absenteeism rose.

85. Whereas Community hard coal is obtained entirely from underground workings, 6% of British output comes from opencast workings.

	(In millions of tonnes)		
	<u>1967</u>	<u>1969</u>	<u>1970</u>
Underground production	167.7	146.5	136.7
Opencast production	7.2	6.4	7.9
Recovered products	2.7	2.7	2.5
Total	<u>177.6</u>	<u>155.6</u>	<u>147.1</u>

The proportion of coking coal in the total British coal production is considerably less than in the Community.

(In millions of tonnes; 1970)

	Great Britain (1)		Community	
	mill. of t	%	mill. of t	%
Anthracite	4.0	2.7	18.9	11.1
Coking coal	61.2	41.6	124.8	73.3
Boiler coal	81.9	55.7	26.5	15.6
Total	147.1	100.0	170.2	100.0

(1) Estimated; only data for underground production were available as a basis for the breakdown of production by type of coal.

The coking coal covers Groups V and VI. Of the quantity shown for Great Britain, namely 61.2 million t, only some 6.2 million t belong to Group V (free-swelling coking coal) and 55 million t to Group VI (coking coal with a volatile content of from 30 to 40%).

86. The fact that British coal production figures contain only relatively small quantities of free-swelling coking coal, but large quantities of boiler coal, has led to speculation as to the effects which Britain's entry into the Community will have. It is in general assumed that the Community could supply certain quantities of coking coal to Great Britain, while Great Britain would sell boiler coal to the Community. The possibility of such an exchange of coal after Britain's entry will depend not only on price relationships, but on the British demand for high-grade coal to be used for blending in coke-oven charges. Hitherto, the Community has not exported any coal to Great Britain, but buys British boiler coal at a rate of 2 to 3 million t annually.

Table 28 is a summary of coal exchanges between the Community and the four candidate countries. It is clear that the volume of exchanges of the Community would, instead of being 17.8 million tonnes for 1970, have been from a purely statistical point of view 20.9 million tonnes, had the four candidate countries been included in the Community.

87. The pattern of supplying the coal demand in Norway, Ireland and Denmark can be seen from Table 15. Coal requirements are very largely covered by imports. Poland is the dominating supplier country. Of the total coal consumption of some 6 million t (1969, total for all three countries), 3.9 million t were supplied by Poland,

consisting almost exclusively of boiler coal; the remainder was supplied by the USA, Great Britain and the Community.

## 2. Forecast of coking coal supplies up to 1980

### 2.1 Trends in the demand for coal

It must be noted at the outset that in contrast to the preceding sections, which dealt with questions of the coal and coke supply during the period 1967-70, the following paragraphs constitute a long-term survey for the years 1972-80 and therefore should not be assessed from the standpoint of the economic situation prevailing in the spring of 1972. Furthermore, this section is concerned solely with the quantitative aspects.

88. In the world-wide context, there should be no doubt whatsoever that coking coal requirements will increase up to 1980. This hypothesis must be our starting-point, since the coke requirements of the world steel industry will rise, and will probably more than balance out any falling-off which may occur in the demand for coke for heating applications. Thus the overall coke demand will rise, and in consequence of this the quantity of coking coal required for carbonization will increase.

Estimates regarding the increase in world coal demand for carbonization purposes can be drawn up for the period ending in 1980 only on the basis of predicted trends. It is not possible to foresee precisely the possible future developments in steelworks technique in all the steelmaking countries of the world or to quantify the economic problems which the steel-producing industry will be faced with in the coming decade and which will determine the level of production. World developments up to 1980 can therefore be predicted only in broad outline, and can lay no claim to any degree of accuracy. The future trends in the world coal supply pattern will at least give a broad indication of the specific supply situation of the Community.

89. If we assume that world steel production in 1980 will have tended to rise to some 850 to 900 million t, and world production of crude iron to 600 to 630 million t, then the specific coke consumption - a maximum of 500 kg per tonne of crude iron - would give rise to a world blast-furnace coke requirement of 300 to 315 million t. With the 1970

blast-furnace consumption of coke of 250 million t (see Table 4), this would mean an increase in consumption of 60 to 70 million t.

If we take into account the fact that the requirement of coke for heating purposes will fall off, we can then roughly estimate an increase in total world coke demand of some 60 million t for the period between 1970 and 1980. This quantity of coke would correspond to an increased coking coal requirement of some 80 million t.

As against the original position in 1970 (see Table 4), the world production of coke would rise from 342 million t to some 400 million t; the amount of coking coal charged would increase from 476 million t to some 550 million t in 1980.

90. The trend in world coking coal consumption indicated by these figures will not in fact move in the same direction in all countries; the underlying assumptions are not of equal weight or uniform everywhere. Not only will the pattern of steel production develop differently in the individual countries, but the technical characteristics of ore treatment, coke production and coke requirements will vary too. In spite of these fluctuations and uncertainties, we can establish for the period up to 1980 the following basic trends:
- In those countries in which steel is already a major factor in the national economy, the rate of increase in steel production (expressed as a percentage) will be lower than those in which the steel industry plays only a subordinate part or even has to be developed from scratch.
  - The state economy countries will use only their own resources to cover their increasing coking coal requirement and will not make calls upon the world market for supplies.
  - Of the free economy countries, those who have no indigenous coal supplies or whose supplies are inadequate will expect to obtain the extra quantities to cover the increase in demand on the world market for coking coal. Japan is the most important country in this category.

- In those countries which have their own resources of coking coal, it will be the future trends in output which will govern whether and to what extent they - even if their coking coal demand remains constant - will require to obtain additional quantities of coking coal on the world market in the future. Under this heading we have the Community, and Great Britain might well also fall into this class in certain circumstances.
- It is not likely that there will be any alteration of the geographical structure of coking coal demand on the world market as a result of the shift of the crude iron or steel facilities from the present sites to the countries which are suppliers of iron ore, at least not before 1980.

The remarks made above make it clear that the world coking coal market will broaden in the future. Precise predictions on this point will depend largely on the geographical distribution of the new steel production capacities installed up to 1980.

91. In contrast to the rising trend in world coking coal demand, it is not expected that coking coal requirements will increase in the Community in the period up to 1980. This observation refers to the prognosis of coke demand or coke production which indicates that the upper limit value for 1980 would be a figure of some 70 million tonnes (see above Page 32). Consequently, the coke-oven demand in the Community would be a maximum of some 92 million t of coking coal, i.e. the same quantity as in 1970.

The fact that the coking coal requirement may remain constant must not be allowed to mask the probability that in the decade 1970/1980 there will probably be within the Community a restructuring of coking coal demand; while this will, it is true, not modify the total requirement, it will nevertheless be capable of influencing both the Community coking coal market and the world market. If the shift of location to the coast planned by the steel industry and the construction of new steelworks coking plants comes to pass

(see above page 35 and Table 11), then it can be expected that the demand for Community coal will fall off and be replaced by a call for additional supplies from the world market. On the assumption that the new steelworks coke-oven capacity planned up to 1976 (19 million tonnes/year of coke; see Table 11), some 12 million tonnes/year will probably be installed at the coast. At a utilization factor of 90% for the available capacity, the annual coke production in the coastal coking plants would have to be some 10 to 11 million t, with a coking coal requirement of some 14 million t. Should it not be possible in all cases to supply these quantities of coking coal from Community production, for reasons of competition with imported coal, then to that extent there would be a decline in the demand for Community coal. The possibility cannot be excluded that the new coastal coking plants will decide to use imported coal exclusively if the conditions governing the supply thereof are more favourable in the long term. On a purely arithmetical basis, the result in the most extreme case would be a doubling of the import requirement for Community coking plants from 14 million to 28 million metric tons (see Table 26).

Any further increase in imports of coking coal into the Community would in the long term result only:

- if in the period up to 1980 the output were to be cut back more rapidly than required by the falling-off trend in the demand for Community coal,
- if the coal import licence system were abandoned, and the steel industry left free to obtain its supplies as it judges best, at the lowest possible prices for coking coal on the world supply market. This would however presuppose that the state aids to Community coal were not raised to a level which would permit Community coal to be sold at world market prices.

92. As set out on Page 32, it is expected that up to 1980 Great Britain will experience an increase in demand for blast furnace coke, but it is likely that the total coke requirement will remain constant;

accordingly, the amount of coking coal charged in the coke-ovens would remain unchanged at 25 million t.

Whether and to what extent there will be variations in demand in the future, within the framework of the constant coking coal requirement for Great Britain, cannot be predicted for the period up to 1980. Should it happen that, as in 1970, the long-term trend in output runs at a lower level than demand, an additional call upon the world market for supplies would be inevitable, as was shown by the trend in coal imports in 1971. Great Britain would then constitute, in addition to the Community countries and Japan, a new buyer on the world market.

## 2.2. Meeting the future demand for coking coal

93. At the beginning of this section it must be emphasized that the problems of meeting the future world demand for coking coal are not governed by a possible exhaustion of existing reserves of coking coal; there are not even any technical obstacles to working the existing reserves.

The estimates made and published in various places have, it is true, given different figures, but it may be assumed that the prospecting work carried out to date has demonstrated the presence of reserves of the order of magnitude of several billion ( $10^{12}$ ) t of coal. Proven coal reserves are sufficient for several centuries. There is therefore no question of these reserves being exhausted by the year 1980 - or even by the year 2000 and beyond - even if the reserves of coking coal currently considered as economically workable are substantially less than the total reserves of coking coal. This is true both for the free economy countries and also for the state economy countries, which have ample deposits of coking coal on their own territory.

The known reserves of coal are very largely located in areas where coal is being extracted today.

The quality of coking coal from various sources does, it is true, vary in respect of sulphur content, ash content, caking capacity,

volatile matter content etc., but solutions are available for the problems caused by these variations in respect of carbonization and the use of the coke in smelting. This leaves the economic problem, in consequence of which differences in quality lead to price differentials on the market.

94. This then makes it clear that covering the future world requirements of coking coal will depend on the trend in output - i.e. on the pattern of maintaining collieries in production, pit closures and the construction of new collieries - and also on the future pattern of consumption.

So long as the production of hard coal is governed solely by economic considerations, the normal conditions of price competitiveness - and in consequence the economic viability of production - will be the factor which decides where coking coal is to be produced.

95. However, this market economy criterion cannot be the only yardstick for future cover of coking coal demand for all the individual countries. In actual fact the prerequisite conditions for free competition in a worldwide framework are not achieved everywhere. Institutional factors and political measures taken by the Governments hinder free competition. This is true both of the relations between free economy countries and the relations between free economy countries and state economy countries. The consequence for the Community is that the economic viability or non-viability of the production of coking coal is only one of several factors which must be taken into account in ensuring that the quantities of coking coal required in the future and up to 1980 are available.

In the present decade the Community faces the question as to whether the functional flexibility of the world market is adequate to ensure regular supplies of coking coal at appropriate prices. There is also the problem of reorganizing the coal-producing regions affected by pit closures. It is in this framework that we have to consider the problem of coking coal prices and of state financial aid measures to the Community coal-mining industry.

96. There are two main factors to be taken into account:
- the flexible adjustment of supply to short-term variations in demand;
  - the long-term organization of indigenous production capacities in the light of the trend in demand.

Both these factors govern the continuity of provision of adequate quantities of coal at any time.

97. The experiences of the years 1968 to 1970 (see above Page 43) make it necessary to ensure that those difficulties do not recur. Variations in market conditions on the steel market must be accepted as a fact. The solution of the problem is not to be found in eliminating variations in the coke requirement, but much rather organizing the supply of coke and coking coal in a very much more flexible manner by means of an anticyclical stockpiling policy, applied to the consumers as well as to the producers.

A further lesson of the 1968 to 1970 period is that the flexibility of the individual sources of supply varies.

The Community output of coking coal has a very low level of short-term adaptability. In the course of the long-term downward trend in production it is theoretically possible to carry out short-term modifications in the rhythm of pit closures in step with the market position. Within certain limits this will also be possible in practice, as was shown by the developments of 1969/1970, but the amount of play available for such measures is limited, since the plans for the economic reorganization of the coal-producing districts are drawn up by the Member Governments on a medium-term basis and it is therefore hardly possible to modify them as soon as they have begun to operate. The lower the level of output, the more difficult it will be to adapt it to the market requirements.

Thus the only remaining possibility of increasing the flexibility of supply of Community coal resides in the quantities of coal stockpiled, which can vary so widely that they represent a vital means of increasing the adaptability of supply. It would appear that a quantity of 20 million t would be adequate as a strategic reserve for the Community (compare the Table on Page 47). It could not however be expected that the Community coal producers should bear the entire burden of the variations in demand. The increase of the proportion of third country coal in the total amount of coal charged for coke oven use gives rise to the question as to the amount of elasticity which the world coal market can be expected to exhibit and how the consumers and/or importers of coal can be involved in the operation of maintaining the reserve stocks.

The circumstances of the world coal market in 1970 showed that the degree of adaptability is fairly wide, but that with an expansion of 20% in one year (see above Page 50) difficulties arose. The Community could have access to a highly flexible source of supply constituted by the world coal market, provided that the Community were the only customer calling for supplies from that market; however, the Community was in fact faced with a competitive demand situation vis-a-vis Japan, with the result that the short-term possibilities of obtaining supplies would be limited if the degree of market-governed activity in the steel industries of Japan and the Community - and possibly even of the USA - were to run synchronously, as may very well be expected by reason of the worldwide interrelationship of steel production.

98. A long-term organization of coking coal supply in accordance with the trend in demand constitutes a problem of production capacities and of output levels.

According to the Government plans prepared in France, Belgium and the Netherlands, and the estimated sales for the German coal-mining industry, the Community level of coal production will fall off even more in the future. The estimate of output given in the document "Investigation of the problem of coal supplies and coal production in the Community," quoted in Table 1 for 1975, envisaging a figure of

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143 million t is, in the light of more recent information, probably excessive; the Community's 1975 output level is more likely to be about 135 million t.

If, in the absence of detailed estimates, we extrapolate the trend in output between 1970 and 1975 to the year 1980, we obtain for 1980 a Community production level of some 100 to 110 million t (1). On the basis of the present structure of production, classified by types of coal, of this total quantity 75 to 85 million t will be coking coal of Groups V and VI. This quantity of coking coal will be sufficient to cover fully the demand from the coke-ovens. It can however be expected that this total quantity will not be used for carbonization, partly because in 1980 the steel industry will be making preferential use of imported coal in its new coastal coke-ovens and partly also because the power stations and other consumers will be burning carbonizable Community coal. If we assume the extreme case of the new steelworks coking plants drawing their entire coking coal requirement (14 million t, see above Page 61) from the world market, the overall consumption of coal for carbonization would develop as shown below:

	(In millions of tonnes)	
	<u>1970</u>	<u>1980</u>
Use of		
Community coal	77.9	64.0
Third country coal	14.0	28.0
Total	<u>91.9</u>	<u>92.0</u>

This means that out of a Community production of 100 to 110 million t, there would in 1980 still be some 35 to 45 million t available for other consumer uses.

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(1) An output of 110 million t is taken as the maximum level; a figure of 100 million t should be a realistic order of magnitude.

99. The production figure of 100 to 110 million t for the Community in 1980 is a statistical extrapolation of trends. The basic assumption made is that the set of economic data covering price relationships, financial aids and other subsidies will remain unchanged in the future. The relative competitive position of Community coal will - assuming maintenance of the present financial aids - not improve appreciably. The average production costs for Community coal - which reached a level of some 22 units of account per t in the first half of 1971 (see Table 29) - are the highest figures of all the Western coal-producing countries.

The devaluation of the US dollar and/or the revaluation of some Community currencies will probably reduce the average financial returns for Community coal in 1972. Since the returns obtained only partially cover the costs, the mining companies continue to require financial assistance. Whether the future level of output will in 1980 reach 100 to 110 million t is solely governed by the measures in aid taken by the Member Governments.

100. In assessing the future possibilities of supplying the Community from the world coal market, the following questions present themselves:

- what new production capacities will be built in those countries which are to be considered as the major suppliers to the world market?
- what quantities out of their total production will these countries offer on the world market?
- what quantities will the Community and other countries, in particular Japan, expect to obtain from the world market?

101. From a purely quantitative standpoint, the following two factors must be borne in mind in considering the future development of supply on the world coal market:

- It would hardly be possible to expand any further the import of coking coal from state economy countries in the future. In 1970 Poland supplied 6.6 million t of coal to the Community, some 5 million t of this being coking coal (see Table 22). Polish Government plans envisage raising the output by 1980, but by 1975 supplies to the Community should be at a maximum level of 9 to 10 million t, without any major increase thereafter, since Poland's internal demand is increasing and consideration must also be given to the requirements of other state economy countries. Coal supplies from the USSR (3.8 million t in 1970, see Table 22) will not increase in the future. In respect of energy supplied to the Community, the USSR has concentrated on the export of natural gas.
- South Africa has plans to expand its production and its exports to the world coal market. The plans for coal exports are extensive, since South Africa's production costs are at an exceedingly low level (see Table 29). The prerequisite conditions to develop exports will be created by building a transport system and loading ports. However, South African coal will have no effect on supplies of coking coal to the world market, since the coal is suitable only for boiler firing.

The above remarks lead to the conclusion that the increasing demand on the world market for coking coal can in the future be met only by increased deliveries from the USA, Canada and Australia.

102. It is difficult to give quantitative predictions of the future developments in production in the major coal-producing countries of the world. In some cases, mining companies' plans or unofficial forecasts are available, and these make it possible to detect certain trends. According to the information at present available to the Commission, the trend in coal production in the countries listed below will be as follows:

	(In millions of tonnes)		
	<u>1970</u>	<u>1975</u>	<u>1980</u>
USA	540.9	650.0 <sup>1</sup>	800.0
Canada	11.6	40.0	70.0
Australia	49.9	65.0 <sup>1</sup>	80.0
Poland	140.1	167.0	170-180
USSR	472.4		rising
China	371.5		rising
South Africa	50.8	..	100-150
Community	170.5	140.0	100-120 <sup>2</sup>
Great Britain	147.1		falling

<sup>1</sup>Interpolated values.

<sup>2</sup>Trend values.

103. The decisive factor in respect of the future supply on the world market of coking coal is the proportion of the production quantities listed above which will come on to the world markets. If, paying particular attention to the Community demand for coking coal, we take as a basis the level of export activity of the coal-mining industries of the USA, Canada and Australia, past events teach us that the exports of coal from these three countries have increased relatively more rapidly than the output itself; i.e., exporting has become more intense (see Table 30).

It is assumed that the export intensity of the United States coal industry remains constant and that, as far as Canada and Australia are concerned, contracts for export sales continue to develop as hitherto, then the coal exports from these three countries might run to the following pattern:

	(In millions of tonnes)		
	<u>1970</u>	<u>1975</u>	<u>1980</u>
USA	64.2	78.0	96.0
Canada	4.0	14.0	24.0
Australia	18.4	24.0	30.0
	<u>86.6</u>	<u>116.0</u>	<u>150.0</u>

The trend shows that supplies of coking coal on the world market could in the long term (i.e., up to 1980) be increased by at least 60 to 70 million t, if the additional demand for these quantities were present.

104. In accordance with the estimated increase in world demand for coking coal, reaching a level of some 80 million t by 1980 (see above Page 59), an increase of the available quantities on the world market alone of some 60 to 70 million t constitutes a relatively large amount, since it may be assumed that considerable proportions of the increased world demand for coking coal will be met from indigenous sources.

105. Whether the demand will exist for the additional quantities which could be available on the world market to the tune of 60 to 70 million t depends on the long-term import requirement and/or on the import policy of the major demanding countries, such as the Community and Japan. The extent to which Great Britain may in the future also come on to the world market as a new potential buyer of coking coal may be of significance, if - as is to be expected - British coal production is further reduced. No quantitative data

are at present available on this point, so that it is not possible to make any estimates of the covering of coking coal demand in respect of the use of imported coal or British coal<sup>1</sup>.

From the foregoing orders of magnitude it can be concluded that even if the increase in Japan's requirement for imported coking coal up to 1980 is taken as being 30-40 million t, the other countries that rely on the world market for their supplies are not likely to experience any shortages. Any additional increase in the Community's demand on the world market, such as might result from the construction of new metallurgical plant cokeries on the coast, could also be met.

106. As regards increased Community procurement of coking coal on the world market, the following considerations are important:

- The provision of subsidy aids for Community coal has led to the Community steel industry being supplied with Community coal at world-market prices. In view of this situation and bearing in mind the existing import restrictions on coal, the steel industry has hardly organized itself to obtain sources of coal supplies in the USA, Canada and Australia. Although the difficulty in obtaining such sources of supply must not be overlooked, the problems of obtaining smooth supply arrangements on the free world market in the future will be reduced if the steel industry were to undertake investments of its own, as has already occurred in respect of ore supplies. This would, it is true, presuppose a reorientation of the coal import policy and the parallel removal of the existing import restrictions.

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<sup>1</sup>In the world-wide context, the meeting of coking coal requirements in the other applicant countries - Norway, Ireland and Denmark, - is not likely to be of great significance.

- A massive short-term increase in the demand for coking coal on the world market would, as experience during the last boom has shown, give rise to adjustment problems on the supply side, since there are limits to all short-term elasticity of the world market. If these limits were exceeded, prices would be adversely affected.
- Developments in imports of coking coal must, moreover, be considered in close association with the Community production of coal, which, for reasons of regional industrial activity and social policy, could only be reduced by small annual stages.

107. As far as security of supply is concerned, an increase in the Community demand for coking coal on the world market does not occasion such acute problems as does, for instance, the procurement of crude oil from the Middle East or from North African countries. The purchasing of coal from countries such as the United States, Australia or Canada entails the same business risks as are accepted by the steel industry in respect of iron ore purchases from overseas.

Longer transport distances do, of course, entail greater risks. This is all the more true when - as in the case of coking coal - regularity of supply is all-important. A further factor is that metallurgical-plant cokeries do not keep large stock of charging coal. Furthermore, for technical and economic reasons, there is frequently a lack of intermediate storage facilities at the ports. Yet another difference as compared with iron-ore imports is that the iron ores obtained from non-member states is far superior in quality to that produced in the Community, whereas in the case of coking coal no quality considerations are decisive as regards resorting to imports. Lastly, it must be borne in mind that in the event of a short-term shortage of coal in the exporting countries, those countries might give priority to covering their domestic requirements and curtail their exports.

108. The final conclusion that can be drawn in respect of the trend in coal requirements for the coke-ovens and the meeting of this demand comprises in the following points:

- The Community coke-ovens are obliged to increase their coal consumption from 1968 to 1970 to a marked extent, since there had in particular been a rise in the steel industry's coke demand. Since the production of coking coal

in the Community fell off, supplies to cover the additional coal requirement were forthcoming from stockpiled reserves and from an increase in drawing on the world coal market. Certain strains did occur on the world market as a result, since the supplies offered by the main suppliers, such as USA, Canada and Australia, could not be raised to the requisite extent in a short time.

- Coal supplies for the British coke-ovens had caused no appreciable problems up to Autumn 1970; at the end of 1970 and during 1971 however, the falling-off in domestic coal production led to considerably increased imports of coal.
  
- In the worldwide context it is to be expected that the consumption of coking coal will rise until 1980, since the consumption of coke in blast furnaces will increase. In the Community and Great Britain, however, no increase is to be expected in coking coal demand between 1970 and 1980. In meeting the coal requirements, there will in the future arise within the Community structural changes which will produce a reduction in the amount of Community coal used in the coke-ovens, thus increasing the Community's demand for coking coal on the world market. Increases in production capacities are to be expected in the USA, in Canada and in Australia, if the producers in those countries are able to accept a long-term rise in the demand from the Community. Quantitatively, therefore, it should be possible to meet increased Community import requirements.

CHAPTER IIIThe problem - past and future - of price in the supply of coke and coking coal to the steel industryA. World market prices for coal

109. The world coal market is a typically imperfect market; it does not exhibit any uniformity of price, and the prices differ for technical and geographical reasons. True enough, there is some interrelationship between the prices, since the market is subject to the normal pressures of competition, but the competition is restricted and has a dynamic effect only in respect of small quantities, because considerable proportions of the coal sold on the world market are covered by long-term contracts in respect of quantity and price, and the conditions of these contracts are not capable of being modified in the short term. This peculiarity of the world coal market gives rise to the situation where the quantities of coal bought and sold outside the long-term contracts constitute the real strategic reserve which can be called upon to cushion the short-term problems of adaptation between supply and demand. The average prices listed in the available statistics mask the fact that the long-term contract quantities are subject to only moderate price changes, while the other short-term parcels are subject to considerable instability of price, this instability being to some extent affected even by random factors. The elasticity in the coking coal prices has hitherto been considerably weaker in a downward direction than upwards. In the period of high market pressure of 1969/1970, the export prices for US coal can be presumed to have risen to an extent greater than the rise in production costs, while in the slack market period of 1971/1972 no appreciable price reductions occurred.
110. The price differences on the world coal market stem mainly from the fact that the individual coal-supplying countries (USA, Canada and Australia) are situated at different distances from the centres of consumption in Japan and Europe, so that different freight costs have to be applied. This is also the reason for the variations in the market prices, which include the cost of freight.

111. The average cif prices for the entire quantity of coal imported into the Community (see Table 31) are, for the reasons given above, subject to marked differences in the individual Community member countries and also in respect of the individual suppliers. These differences result from the differential freight charges and also from the variable breakdown of the total quantities imported into coking coal, boiler coal and domestic heating coal, as well as from differences in quality.

Average cif import prices for  
coal from different supplying countries

Units of account/t

Coal from	1967	1968	1969	1970	1971 First half
USA	14.11	14.24	14.46	18.49	22.15
Canada	..	..	12.36	20.63	18.76
Australia	..	..	14.99	16.00	17.87
Poland	10.73	11.27	11.52	14.09	17.38
Great Britain (1)	14.81	12.40	12.94	14.63	15.63
USSR (2)	17.94	17.27	16.41	18.48	23.99

(1) Primarily boiler coal.

(2) Primarily anthracite.

The above statistical data - broken down by importing countries in Table 31 - show a clear rising trend. The increase in supplies from the USA, Australia and Poland between 1967 and 1970 lies between 50 and 60%.

From the summer of 1971 onwards, there was a general tendency for prices to settle down; at the beginning of 1972, there were individual cases of price reductions, but these cannot be taken as indicating the beginning of a general trend towards lower prices.

The average cif import prices listed above do not reveal the specific trend in import prices for coking coal. The Commission has received information regarding the cif prices for American coking coal (as provided for by Decision No. 70/1) from the importers; according to this information, the Community obtained its supplies of US coking coal at the following cif prices:

Beginning of 1970	17.50 units of account
Middle of 1970	20.00 units of account
Beginning of 1971	23.60 units of account
Middle of 1971	23.90 units of account
Beginning of 1972	23.65 $\text{g}$

The import prices for coking coal exhibit the same rising trend as the cif import prices for the overall coal imports into the Community, but they lie at a higher level.

112. The reference to prices for American coal indicates that US coal is to a certain extent a price leader on the world market. This is the result of the quantitative share of US coal in the world market, which - although it is now steadily decreasing since the entry of Canada and Australia on to the world market - still accounted for some 45% in 1970 (see Table 20). The corresponding percentage for 1960 was some 60%. Coal from the USA constituted about 50% of the total quantity of coal imported into the Community in 1970 (see Table 22).

If, in the light of this, it be accepted that at least in the past US coal has acted as a price leader, the question arises as to the causes of the increases in the US coal price in the period from 1967 to 1971; the answer to this question would also explain the price trend on the world market.

In an analysis of this kind it is difficult to distinguish between costs and prices, since information on production costs in the US coal-mining industry is not available. What is certain is that considerable rises in costs have occurred in the US coal industry, since the increase in output per manshift is slowing down<sup>1)</sup> while wage rises have accelerated; moreover, the introduction of new safety regulations in the US coal-mining industry has imposed new burdens.

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1) In 1970 the output per manshift in the American coal-mining industry actually fell off slightly.

If we look at the figures in Table 29 in the light of the developments in production costs, it is clear that the "ex pit price" for US coal of 5.00 \$ (1967) had risen to more than 7.00 \$ (1971), i.e. by 40%. Assuming a similar profit in each case, these production costs must therefore have risen by 2.00 \$ per tonne.

113. In the "Coking Coal Report 1969" the figure given for the probable increase in production costs in the US mining industry as a result of wages and more intensive safety measures was some 1 to 2 \$/t. The actual development led in 1967/1971 to an increase of over 2 \$/t, and further cost increases in the future cannot be excluded. It is uncertain whether future wage rises and increasing materials costs can be absorbed by rationalization measures; in addition to this, there are developments in respect of general anti-pollution measures which are difficult to quantify, but which could lead to further cost burdens (restoration of opencast sites, restriction of SO<sub>2</sub> emission).

By reason of the considerable uncertainties regarding developments in these cost factors it is impossible to give quantitative forecasts regarding the cost trend in the US coal-mining industry up to the year 1980.

114. If we compare the situation in respect of production costs with the developments in fob export values for coking coal and boiler coal in Table 32 - which are higher than the "ex pit values" in Table 29 as a result of the load imposed by freight charges - we see that the fob export values for US coal rose between 1967 and March 1971 by 8.00 \$ per tonne, i.e. in absolute terms the increase was considerably higher than the rise in production costs for the entire US mining industry. We cannot exclude the possibility that the cost rises in the underground workings of the regions producing US export coal (expressed in absolute terms) were greater in the period 1967 to 1971

than the average rise covering the entire production of US coal including the highly economic opencast operations. This price movement, which deviates strikingly from the general trend, together with the fact that only a relatively small number of mining companies and merchants handle the export business, are the special features governing the establishment of US coal export prices. We have already observed in the foregoing that the elasticity of the prices for US coking coal in 1971 was considerably stronger in an upward direction than downwards. The fact that certain sections of the Australian and Canadian coal-mining industries belong to US companies makes these considerations so much the more important for the Community as a potential buyer of coking coal on the world market. It is for this reason impossible to make any prediction as to future price trends on the world market.

#### B. Coal freight costs

115. As far as the freight loading on imported coal is concerned, there are three cost elements to be considered: the transport costs from pit to port, the sea freight, and the unloading in Europe together with transport to the coking plant.

American export coal has to cover a 600 kilometre stretch of railway to Hampton Roads, the major loading port. For this stretch, the freight tariff - which has undergone seven yearly or half-yearly increases, each of 0.15 to 0.60 ¢/t, between 1967 and the beginning of 1972 - has increased from some 4.50 ¢ to 6.55 ¢.

116. During the same period, there were considerable variations in the sea freight rates.

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On the run Hampton Roads to Amsterdam/Rotterdam/Antwerp, the Atlantic freight rates remained stable below 3.00 \$/t up to the middle of 1969 and then rose gradually to 4.00 \$/t by the end of the year. This was followed by a veritable explosion of freight rates; from March 1970 the rates rose to 7.00 \$/t and above, and maintained this level until the middle of October.

Then the freight rates fell off rapidly, reaching 3.75 \$/t by the end of 1970 and 2.00 \$ to 2.50 \$ by the middle of 1971; this was the level they maintained until the end of that year.

This was the development in the spot freight rates, which apply to only a small part of the quantity of coal transported from the USA to Europe. The major part of the coking coal imported into the Community is either brought in at the consumer's own charges or under medium- or long-term contracts; consequently, the transport of this coal attracts considerably more stable freight charges, which can be estimated to move between 2.50 and 4.50 \$/t.

On the Hampton Roads - Japan route, the rates developed in much the same way; the freight rates at the end of 1969 were between 6.00 and 7.50 \$, rising abruptly to values between 11.00 and 14.00 \$ up to Autumn 1970 and then dropping to below 4.00 \$ again by the end of 1971.

On the Australia - Japan route, the freight rates were 4.50 \$/t at the beginning of 1970, 9.00 \$/t in June of that year and 5.80 \$/t at the end. In 1971, some rates dropped to below 4.00 \$.

On the Australia - Europe route, the freight rates varied generally in 1970 between 9.00 and 10.00 \$, with a minimum figure of 8.25 \$ at the beginning of the year and a maximum figure of 11.75 \$/t. In 1971, the freight rates gradually dropped to 5.00 \$/t.

117. The present inactivity on the world freight market can be explained by a number of factors, and in particular by:
- the increase in the tonnage of the world tanker fleet,
  - the release of multipurpose ore-carriers as a result of developments in the iron and steel industry, the moderate demand for crude oil and refinery products, the restriction of rice production and the resultant reduction in fertilizer demand in Japan,
  - the frequency of sailings of Japanese steel transports to the USA, carrying coal on the return trip.

118. The unloading costs in the European ports are some 0.50 \$ to 1.00 \$/t, according to whether the coal is transferred from the seagoing vessel to coal barges or to rail waggons. Freight rates on the Rhine - which run at some 1.00 \$ and more on the Rotterdam-Duisburg stretch - can rise by as much as a factor of two in periods when the water level in the river is low, as has been the case since the summer of 1971. The corresponding freight rate between Rotterdam and Thionville lies between 2 and 3.00 \$.

With large-tonnage seagoing ships the sea freight rates are generally lower, but in this case a considerable part of the consignment has to be offloaded onto the quayside at the unloading ports. Storage of this offloaded coal involves additional charges which can be estimated at 0.75 \$/t. These various cost elements have very recently exhibited a rising trend. On the other hand, it is more difficult to quantify the effects of delays in loading or unloading, such as have occurred in preceding years as a result of the increase in sea traffic or because of labour problems at the ports.

In general, we can take as the starting-point the fact that the sea freight rates have currently reached a low point, but that on the other hand there is nothing to indicate that there will be within the foreseeable future changes in ship-building technique which would cause any appreciable modification of the cost structure.

119. As a general indication, the transport costs for Ruhr coal to the following destinations are listed below:

Genoa	)	
Carling (Lorraine)	)	5.50 \$/t
Lübeck	)	4.80 \$/t
Thionville	)	
Brussels	)	3.30 \$/t
Netherlands		2.90 \$/t

C. Price trends for Community coal and coke

120. As Table 33 shows, the list prices for coking coal and boiler coal rose by 50 to 60% in the period from 1.1.1967 to 1.1.1972. The list prices do not in every instance correspond to the invoiced prices, since alignment prices are agreed on the basis of the list price.

It is clear that in general the coking coal prices in the Community on 1.1.1971 were relatively uniform at a level of 23 to 25 units of account/t; the slight price differentials are the result of differences in quality. If we compare these prices with the world market prices for coking coal (see Page 75), we observe that the Community coal producers have so established their list prices - taking into account quality differences - in accordance with the world market price level as to achieve approximately equal delivered prices for imported coking coal and Community coking coal delivered at the coke ovens<sup>1)</sup>. This is true at least of the position in the second half of 1971.

The 8% devaluation of the US dollar and the revaluation of certain Community currencies which occurred around the turn of the year 1971/1972 created a new situation for 1972. Price developments on the world market for coking coal will depend on whether deliveries of Community coal to the steel industry

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1) The calculation of equivalence prices for coking coal of differing quality is a difficult matter.

will have to be granted additional alignment rebates. This would result in an increase in the operating losses and consequently call for increased subsidies; the price relationships existing in the second half of 1971 could only become stabilized if the world market prices, expressed in US dollars, were in the future to rise by the amount of the devaluation of the US dollar or the amount of the revaluation of the Deutschmark, the Belgian Franc and the Dutch guilder.

121. Each change in currency parities causes modifications in the competitive position between Community and world market coal. The currency policy measures taken during the past five years have in general led to a worsening of the competitive position of Community coal.

122. As was pointed out in the "Coking Coal Report 1969", the relationship between Community coal and coke prices was approximately 1 to 1.33 for 1967, while the ratios for the USA and Great Britain were respectively 1:1.79 and 1:1.75. It was noted that the Community steel industry obtains its bought-in coke from the pithead coking plants relatively cheaper than the steelworks in the USA or Great Britain.

The prices for coke, which were relatively low in relation to the coking coal prices, resulted in a situation where not only the pits but also the pithead coke-ovens were working at a loss. To eliminate these causes of financial loss, the list prices for coke<sup>1)</sup> (see Table 33) have meanwhile been subjected to a considerably heavier increase than the list prices for coal. Whereas the coking coal prices in the Community rose between 1960 and 1970 by 50 to 60%, the coke prices increased by 70% to 80%. This caused the following changes in the relationships between Community coal and coke prices:

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1) Establishment of the list prices for coke in accordance with world market prices is impossible, since there is no such thing as a world market for coking coal (see above, Page 26, paragraph 40).

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	<u>1.1.1967</u>	<u>1.7.1971</u>
Ruhr	1 : 1.29	1 : 1.52
Lorraine	1 : 1.49	1 : 1.57
Nord/Pas-de-Calais	1 : 1.40	1 : 1.49
Campine	1 : 1.51	1 : 1.72

Constituting as they do operating elements of the coal-mining industry, the pithead coking plants were enabled by this disproportionate increase in the price of coke to reduce their losses, but they were not able to "move into the black". The intention of Decision No. 70/1 was to assist the pithead coke-ovens to become profitable.

123. The National Coal Board does not issue list prices for coal or coke. The supplies of fuel are sold on the various regional markets open to the producing areas on the basis of "achievable market prices". In consequence, in examining the price levels for British coal it is necessary to have recourse to the average financial returns per tonne as an aid (see Table 34). By reason of the lower production costs and in consideration of the fact that the quantitative structure of the deliveries of boiler coal or coking coal differs from that in the Community the level of financial return for British coal is around 3.00 units of account/t lower than in the Community. It should also be noted that the returns obtained by the National Coal Board per tonne of coal between 1967 and 1970 have not risen so markedly (+ 18.5%) as in the Community (+ 24.9%).

D. The financial situation of the Community coal-mining concerns

124. The increases in wages in the coal-mining industry in the Community were considerably higher in the period 1967/1971 than the increase in output per manshift (see Table 34). In consequence, the labour costs - which constitute some 55 to 60% of total costs - rose. Added to this we have price rises for mining materials, so that the total production costs in the mines

increased considerably. Since it was not possible (for reasons of professional secrecy) to give details for individual countries or coal-producing regions in the Community in this Report, Table 34 shows only the average costs for the overall Community production. These figures show that between 1967 and the first half of 1971 there were increases in costs which averaged 17.45 to 21.94 units of account/t (an increase of 25.7%).

125. Since the list prices for Community coal rose fairly markedly between 1967 and the summer of 1971, the financial returns of the pits have also increased. This made it possible to stabilize the operating losses at a level of some 3.40 units of account/t; the indications for 1971 make it possible to expect a certain reduction in the loss level.

126. The losses on pit operations have reached a level which makes it impossible for the coal-mining concerns to continue without state assistance. If the subsidies were eliminated, the great majority of Community concerns would be unable to continue production even for only a few months. Closure of the uneconomic pits in short order would however cause considerable social and economic problems in the mining regions in the Community and would confront the economy as a whole with insoluble problems.

It is for this reason that the Governments of the Member States were unable to terminate the subsidies granted to the coal-mining industry. The terms of Decision No. 3/71 (Community subsidy system) and Decision No. 70/1 (coking coal subsidy) provide that the financial aid should be subject to approval by the Commission. If the aids furnished are compared with the operating losses (see Table 34), it will be observed that the subsidies only cover part of the operating losses. After financial aid has been made available, the concerns still have to face losses which represent a consumption of capital. This must be added to the exceptional losses incurred by the concerns as a result of pit closures.

127.

It cannot be expected in the future that, up to 1980, there will be any fundamental change in the necessity for subsidy aids to the Community coal-mining industry. It must be accepted that the average production costs for Community coal - which in 1970 were from 3.00 to 4.00 units of account/t<sup>1</sup> above the level of world-market prices (cif import price to the Community) - cannot possibly be reduced so that they correspond to that level, whatever developments there may be in the world-market prices for coking coal in the future. The fact is that the natural conditions governing coal production simply will not allow this, as can be seen from the level of productivity expressed in terms of output per man-shift.

Output per man-shift in the coal-mining industry  
(in t)

<u>USA (1970)</u>		<u>Poland (1970)</u>		<u>USSR (1967)</u>	
Underground operations	12.5	Underground operations	2.6	Underground operations	1.0
Opencast operations	32.6			Opencast operations	5.5
Total	<u>17.1</u>	<u>Canada (1970)</u>		Total	<u>7.4</u>
<u>Australia (1969/70)</u>		Underground operations	4.9	<u>Community (1970)</u>	
Underground operations	10.1	Opencast operations	52.6	Underground operations	5.0
Opencast operations	29.1	Total	<u>14.2</u>	Opencast operations	-
Total	<u>12.0</u>	<u>Great Britain (1970)</u>		Total	<u>3.4</u>
		Underground operations	3.5		
		Opencast operations	..		
		Total	<u>3.7-3.8</u>		

If the Community's steel industry is to continue to be supplied with coking coal at world-market prices, and if no fundamental change occurs in the relative competitive position of Community coal in relation to imported coal, the proceeds obtained will probably not cover the production costs.

<sup>1</sup>Compare Table 29 with the figures on page 75.

128. Even a production level of 100 to 110 million t in 1980 will call for direct subsidy aid and/or other protective measures to be taken by the Member States, to enable the mining concerns to maintain financial equilibrium between outgoings and incomings. It would only be possible at a much lower output level than 100 to 110 million t would it be possible for the few remaining collieries to become financially independent without any kind of financial aid.
129. This state of affairs leads to the following conclusions in respect of the coal-mining industry of the Community of Six:
- The Community steel industry will still be drawing large quantities of coking coal (60 to 65 million t) from Community output (cf. the statements on Page 66), whatever may be the developments affecting imports of coking coal.
  - The production costs for Community coal are higher than the world market prices for coking coal. If due consideration is given to the interests of the steel industry, and coking coal supplied from Community output at world market prices, the pits will incur such large financial losses that the authorities will inevitably have to make subsidy payments or take other measures to counter this situation. Every reduction in price or every increase in costs in the coal-mining industry must (other things being equal) lead to an increased deployment of public funds, since the mining concerns are now already well into the red.
  - Reduction in the output of Community coal goes hand in hand with a reduction in sales. Coal sales from the different Community coal-producing regions are geographically widely scattered, and the freight charges are higher, the greater the distance involved. If it is desired to align Community coal in the consumption areas which are far distant from the producing regions

to world market prices, the net financial returns of the mining concerns for these quantities which they sell will be particularly low. As a consequence of this, the subsidy payments for consignments of coal delivered to regions far distant from the producing areas will be relatively higher than those for consumption points nearer to the place of production. This is particularly true if Community coal has to be transported to coastal sites, where it is faced with direct competition from the US coal.

130. The information contained in Table 34 on the financial position of the coal-mining industry in Great Britain shows that in 1970 the British industry was not in a good position, but that its situation was relatively better than that of the coal-mining industry of the Community. It may however be assumed that this position has worsened in 1971<sup>1</sup> and in particular, at the beginning of 1972, that a sudden rise in operating losses will occur as a result of the strike and the wage increases.

The costs and financial returns of the National Coal Board lie below the corresponding values for the Community; moreover, the increases in costs or returns during the years 1967/1970 were smaller than those in the Community.

This level of costs for British coal, lower than that in the Community, is very largely explained by the smaller social charges borne by the National Coal Board. In addition to this there are differences in depreciation and capital charges. Particularly in connection with the last point, the production cost figures given in Table 34 for the Community and for Great Britain are not comparable.

In addition it should be pointed out that the cost calculations underlined in Table 34 have, for reasons of comparability with Community conditions, included only underground mining operations. The NCB does however also produce coal from opencast workings (see above Page 56)

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1) No information is as yet available for 1971.

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and owns plant for processing coal into chemical products. These sectors of its operation produce certain profits, so that the National Coal Board can, in its overall balance sheet, compensate for operating losses at pits. The overall financial position of the National Coal Board (including depreciation on production costs and also including the interest payable to the Minister of Power), was as follows:

1967	1.1 million units of account profit
1968	21.4 million units of account loss
1969	62.6 million units of account loss
1970	1.2 million units of account profit

Taking pit operations underground alone, each year showed financial losses, with consequential pit closures and reductions in output. The operating losses are however lower than those in the Community, and - so far as can be discerned - the British coal-mining industry has hitherto been able to subsist either without any aid, or with only very low levels of aid, from state funds. It is at this moment not yet possible to make any calculations as to the effect of certain measures in aid taken by the British Government to assist the coal-mining industry, which resemble subsidies in their character.

It is safe to assume that, both for the Community and for the future situation of the British coal-mining industry, a properly balanced financial position - particularly after the events of early 1972 - is hardly likely to be achieved without significant reductions in total capacity.

CHAPTER IVThe trends in the relationships between the Community  
coal and steel industries, and the recourse  
to third countries for supplies of coalA. The intra-Community relationships

131. In the period from 1967 to 1972 the development of the relationships between the buyers and sellers of Community coal and coke has undergone certain legal and economic modifications.

One major change affecting Community supplies is the establishment of the Ruhrkohle AG (RAG) in July 1969, which was approved on 27 November 1969 by the Commission. Since that time a so-called "steelwork contract" governs the relationships between the producers and eight German steel companies, which had until that time drawn their supplies from their own collieries, which have now been absorbed in the new company. In its approval of the RAG the Commission charged the RAG to begin, within a period of two years, negotiations leading to the signing of long-term contracts with the Community steel companies involved.

The preamble of the "steelworks contract" lays down that the objective of the contracting parties is to provide the Ruhr steel concerns for a period of at least twenty years with their requirements of solid fuel from the Ruhr by deliveries from the Ruhrkohle AG, and that the RAG would provide the quantities of fuel necessary to cover this demand. With this in view, the steel industry must supply the colliery concerns after signing of the contract with estimates of demand covering the longest periods possible, and to give the colliery companies firm orders on a quarterly and monthly basis. The contract envisages the application of the Ruhrkohle AG list prices. Should these however not correspond to the competitors' prices (coal from third countries), price alignment arrangements are to be negotiated

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with due consideration of the interests of both contracting parties. The contracting parties further bind themselves to introduce new arrangements in respect of quality. An arbitration tribunal, to be set up under the terms of the contract, is specially entrusted with problems of price and quality. This arbitration tribunal has already begun to function, to provide a judgment on the level of parity in the first quarter of 1971 (up to the 8th of April) and to establish a first settlement in respect of quality.

In 1970 the German concerns which signed the contract received approximately 22.6 million tonnes coal equivalent for their coking plants and blast furnaces, while the Ruhrkohle AG had delivered to other concerns which had signed contracts before the foundation of the RAG a total of 15.8 million tonnes of coal equivalent. One such concern was a French group which had over a long period received supplies on terms corresponding very largely to those of the steelworks contract. The quantity supplied to buyers not covered by contractual arrangements was 0.6 million t coal equivalent.

The Ruhrkohle AG has, within the time limits imposed, begun or offered to begin negotiations with all the iron and steel concerns involved with a view to signing long-term contracts. Contracts with customers in other Member States have been renewed subject to reliefs which were in some cases below the rebates granted previously, but which to date were at least equivalent to the subsidies paid in respect of coking coal.

Another major producer of coking coal and coke, the Saarbergwerke AG, had at the end of 1970 signed with the coal purchasing company of the Saar Steelworks (KOEK) a five-year contract (1971 to 1975) covering deliveries and drawings of approximately 2.4 million tonnes of coal and 125,000 t of blast furnace coke annually. These quantities will be invoiced by the Saarbergwerke AG at prices and on terms based on the prices for solid fuels in the steel-making districts which are comparable with and which compete with the Saar. The quality allowances

are covered by a separate agreement appended to the contract. This contract also provides for the establishment of an arbitration tribunal. This tribunal has been invited to examine the level of the list prices introduced by Saarbergwerke AG on the 1st of June 1971.

The sales by Saarbergwerke AG to the French steel industry are taking place within the framework of the German-French Saar Treaty of 1956 and are covered by global long-term contracts which for 1970 involve the supply of 0.6 million t of coal and 0.6 million t of coke. In 1972 the coal will be supplied to the Lorraine mining district. The supplies of blast-furnace coke to the iron and steel industry are covered by a new contract running for eight years (1972-1979) and involve a quantity rising by stages from 0.4 to 0.6 million t; the contract envisages alignment of the prices with those applied by the Ruhrkohle AG to the coke delivered to France under the terms of the contract of 1969.

133. The entire blast-furnace coke production of Eschweiler Bergwerksverein, which has pits in the Aachen and Ruhr areas, is intended for supply to the Luxembourg steel industry, the requirements of which have thereby been covered as to 70%, the remainder being supplied by Ruhrkohle AG.
134. In France the relationships between the coal and steel industries during the period covered by this Report were in the first place governed by the supply contracts signed in 1965 between the coal-mines and the Société d'Achat et de Réception de Combustibles pour l'Industrie Sidérurgique (ORCIS). At the beginning of 1968, the conditions governing the implementation of this contract were closely defined by an agreement which provided that the coalfields would have a guaranteed minimum quantity of coal to supply and, in the event of an increasing demand, guaranteed a certain degree of preference for Lorraine coal.

These contracts, which lapsed at the end of 1970, were followed by an agreement governing the supplies for the years 1971, 1972 and 1973, this agreement being extended one year at a time. Penalties are applicable if 95% or less of the annual contracted quantity is drawn.

In 1966, certain provisions were inserted in the agreement between the State and the iron and steel industry in respect of coal prices to be applied from 1967 onwards within the framework of the Decisions regarding coking coal and coke. Essentially these covered the alignment of the prices of the French coalfields on the prices for American coal - with due allowance for quality differences - or on the prices of the coking plants using American coal and best situated with regard to the steelworks. It was subsequently agreed that the prices should be aligned on the Ruhr coking smelters supplied within the framework of the 1969 contract, if these latter prices were more favourable to the iron and steel industry. This provision was applied during 1971.

135. In Belgium, the price policy in the coal sector led from 1967 onwards to alignment - to begin with partial, and subsequently complete - of the coking coal price on the purchase price of American coal supplied to Belgium.

Now that production subsidies are no longer expressly intended to support rebates on the list prices, the list prices have been applied to sales of coal to the iron and steel industry since the 1st of June 1970. The price tariff is thus constituted the instrument of achieving the desired alignment on world market prices.

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During this entire period, global agreements were drawn up with the object of ensuring preferential sale of Belgium output, even during periods of slackening market activity.

On the 1st of January 1967, the Campine pits founded the Kempense Steenkolenmijnen N.V. This merger also involved one pit which had previously belonged to a steel concern. This newly-merged organization has been fully effective commercially since 1st January 1968.

Negotiations with a view to a long-term contract (five years) between the coal-mines and the iron and steel industry were begun in 1971. The problem of the price, which is to be fixed on the basis of imports from third countries and of the "steelworks contract" of the Ruhrkohle AG, has clearly led to certain problems.

136. The Italian consumers will be supplied with German coal under contracts which lapse in 1975/1976, unless they are extended. Between 25 and 30% of the coal supplied is used for the manufacture of coke not intended for blast furnace use.
137. The Netherlands consumers do not at this moment have long-term contracts for the supply of Community coal; coal production in the Netherlands ceased at the end of 1968.
138. The foregoing analysis throws up the following important points:  
There has occurred on the supply side a degree of concentration which is the result of cessation of coal production in one Member State and of the establishment of new organizations - which have also absorbed coal-mines which used to belong to steel concerns - in two other countries.

With one notable exception, the organic links between the coal and steel concerns in the Community have since 1970 been replaced by contractual links. At the same time, buyers and sellers in the different Member States have been increasingly attracted to the creation of long-term relationships which would make it possible to optimize the conditions of delivery, supply and transport in respect of quantity, quality and regularity. This growing interest has become all the clearer since the share of Community production of coal and coking coal destined for the steel industry is steadily growing.

The question arises as to whether the contractual links between the concerns in the coal and steel industry do in fact achieve the appropriate spread of risks between the contracting partners. The reciprocity of the obligations is clearly best expressed in those contracts which predetermine the quantities to be supplied and the quantities to be drawn over a period of several years and envisage firm annual orders - if necessary with a relatively small margin of play (less than 10%, sometimes 5%). To ensure that this margin of play is maintained, provisions may be made for a penalty to be paid or for the coal or coke to be stockpiled in the event of the quantity not being called forward or not delivered.

Up to now the period of validity of the quantitative agreements in the Community has seldom been as much as five years; clearly the steel concerns are, in the present circumstances, close to the limit of the period beyond which they cannot make any binding estimates of future requirements, but can only make declarations of intent. Some agreements covering a period of less than five years envisage a revolving formula, which acts as a corrective to the relatively short period of validity and facilitates any adjustments which may be necessary.

The establishment of the prices for coking coal and coke is the major problem in the negotiations. The producers of coal and coke wish to cover their costs, while the steel producers want to obtain their solid fuels at the world market price or at least at a price no higher than that paid by their direct competitors.

In 1970, and to some extent in 1971, the world market price seemed to be developing on lines corresponding to the interests of both partners. Very recently costs and productivity in the Community coal-mines have however begun to develop in a way which - taken together with the de facto devaluation of the dollar - threatens to widen the gap again, if the advantage conferred on the American pits by the devaluation is consolidated.

B. Recourse to third countries for supplies of coal

139. In the period covered by this Report, changes and reorientations have taken place in the supply of coking coal from third countries. The quantities contracted for in 1969 by Community countries were drawn from the USA (7 million t) and the state economy countries (2.5 million t). Between 1964 and 1968, contracts for American coal running for a maximum of four to seven years were signed, and these lapse at the latest in 1972.

The major part of the contracts which had lapsed at the end of 1969/beginning 1970 (1.5 to 2 million t) was replaced not by long-term contracts, but by contracts which were in the first instance applicable only for 1970; in addition to this there were spot purchases, which were very largely executed only after the Japanese demand had already affected the prices.

The principle of spot purchases was maintained during 1971 and 1972 for quantities around 0.5 million t per year. Since the end of 1971, the spot prices for smaller quantities have dropped below the prices for medium- and long-term contracts; the reason for this is mainly the release of certain contracted quantities of normal quality by Japanese steel concerns.

With regard to the other supplies of American coal, one of two things has happened: either contracts have been extended or contracts have been signed for a period of several years; these contracts to an increasing extent contain indexing clauses with or without stated maximum figures, adjusted to cover miners' wages, pit-to-port transport charges or taxes. A large proportion of these contracts run, in the first instance, to 1976; some countries however have already signed contracts running beyond 1980. The successive extension of certain contracts has eliminated the price differences between new and old contracts, which at the beginning of 1970 amounted to 6.00 \$/t on the fob price.

At the present moment the only other long-term contracts are those with Poland; in one case, the period of validity extends beyond 1975.

The new supplying countries (Australia, Canada) have to date sold only sample consignments to the Community.

The quantities covered by contract by 1972 break down as follows:

	(In million tonnes)
USA	7.0
State economy countries	5.7
Other third countries	1.2
	<u>13.8</u>
	<u><u>13.8</u></u>

140. The volatile content of the third country coking coal used in the Community ranges from 17% to 35%. The volatile content of the American coal ranges from 24 to 27% for half the total quantity, and falls outside this range for the other half. For coal from other sources, with the exception of Canada, the volatile matter content lies in the upper range.

The demand is lowest for coal with a low or medium volatile content, although there is a continuing heavy demand from Japan.

The ash content of the American coal rose steeply in 1970 and is as a general rule higher since that time than it was in 1969. This value now lies close to the average ash content of Community coal, which is of uniform quality and subjected to more systematic price corrections.

C. The choice: Community coal or world market coal?

141. Apart from the case of the Netherlands, indigenous supplies of coking coal have hardly declined in the period covered by this Report. By 1975, it is only in the Nord/Pas-de-Calais coalfield that the reduction of coking coal production will be appreciable; it is to be expected that the coking plants in this region will consume larger quantities of coal from third countries.

The negotiations between the coal and steel industries of the Community in respect of medium- or long-term delivery and acceptance conditions continue. The discussions have not in all instances provided a clear picture of the quantities which will need to be drawn from third countries. The year 1970 - during which Decision No. 70/1 first came into force - was considered by most steel concerns to be particularly unfavourable for concluding new long-term contracts, since the coking coal sector exhibited some strains, with a strong trend

to price rises, based on the development in costs in American pits and further reinforced by each - even small - increase in demand. The falling-off in quantities actually accepted as against the quantities contracted for which was observed from the second quarter of 1971 did not bring the American producers to carry out any systematic price reductions; the indexing clauses will continue to be applied. Other producers (Canada, Australia) have applied price increases, without this compromising the implementation of certain existing contracts. At the beginning of 1972 many steel concerns held the view that the current circumstances favoured casual purchases but were still not good enough for the conclusion of long-term contracts. In spite of this, it has been announced that several Community interests are about to buy into the American coal-mining industry.

The national regulations for the import of coal from third countries have not changed significantly to date. In Belgium, the practice of granting annual licences has been relaxed by the issue of licence permits which encourage long-term purchases in third countries. In Germany, the Federal Government is empowered by new rulings (law of 14.12.1970) to establish a coking coal quota, should the Ruhrkohle AG be unable to align its prices on the prices of its competitors in respect of deliveries within the framework of the steelworks contracts. No use has been made of this special quota hitherto. No changes have occurred in the commercial and geographical distribution of the traditional quotas - although their volume has been increased and could attain 10.5 million t per year (including 1.5 million t of British coal) if necessary.

CHAPTER VThe effects of the Decisions in respect of coking coal and coke on the Community iron and steel industryA. Basis, content and aims of the Decisions

142. In the course of the period 1967 to 1972, special aids were granted in respect of the production and sale of coking coal and coke for the iron and steel industry of the Community in virtue of two Decisions:

- Decision No. 1/67 of 21st February 1967 regarding coking coal and coke for the iron and steel industry (1); originally applying to 1967 and 1968, this was extended by Decision No. 2177/68 of 27th December 1968 to run to the end of 1969 (2);
- Decision No. 70/1/ECSC of 19th December 1969 regarding coking coal and coke, applying from 1st January 1970 for a period of three years (3).

143. These two Decisions go back to the Protocol of an agreement of 21st April 1964 regarding energy problems (4), in which the Governments:

- "11. Invite the High Authority to submit, within the framework of the Treaty of Paris, and to the extent necessary, proposals for a procedure for implementing a Community system of state aids;
- "12. Consider that the problem of long-term supplies of coking coal for the Community merits the special attention of the "Council".

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(1) Official Bulletin of 28.2.67, p. 501/67  
(2) Official Bulletin of 31.12.68, L 315/68  
(3) Official Bulletin of 6.1.70, L 2/10  
(4) Official Bulletin of 30.4.64, p. 1099/64.

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On the 17th February 1965 the High Authority issued Decision 3/65 regarding the Community system of measures taken by the Member States to assist the coal-mining industry (1).

On the 16th February 1967 there was issued a second protocol of an agreement regarding coking coal and coke for the iron and steel industry between the Governments of the Member States of the European Communities meeting in the Extraordinary Council of Ministers of the ECSC (2).

144. Decision No. 1/67 is based on this protocol, in which reference was made firstly to active competition from products originating in third countries and secondly to the volume of the internal exchanges of coking coal and blast-furnace coke. This Decision emphasized the necessity for further efforts to adapt coal production to the situation, accompanied by the need to maintain certain production capacities for special reasons connected with the supply of coking coal. This Decision was intended to improve the competitive position of the coal produced in the Community with respect to coal imported from third countries in such a way that the producers would be able to reduce their prices by reason of the special aids granted to them by the Government. The measures taken were in addition intended to reduce the differences in the conditions of supply to the steel industry resulting from the varying coal import policies of the Member States.

145. Decision No. 70/1 was not covered by a preceding protocol of agreement, as had been the case with Decision No. 1/67. It was however preceded by a detailed investigation in the Council of the problem of coking coal and coke for the Community iron and steel industry. In addition, the Council of Ministers had on 18th December 1969 approved the principles underlying the First Directive for a Community energy policy, in which the Commission made the following proposals in respect of coal:

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(1) Official Bulletin of 25.2.65, p. 480/65  
(2) Official Bulletin of 28.2.67, p. 561/67.

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"A Community system of aid will be introduced which, "in association with the provisions regarding commercial policy "yet to be established, is intended to make it possible to "achieve the production required to meet Community demand."

At the end of 1969, Decision No. 70/1 stated that

"Despite the present favourable market conditions, there will "be continuing economic difficulties in connection with the "production and sale of coking coal and coke; that the necessity "might arise of still further restricting production capacities; "but at the same time there is uncertainty regarding the "conditions which would govern the procurement of supplies of "coking coal from third countries following upon over-hasty and "excessive reduction of the Community production capacities."

It was necessary to avoid the occurrence of "a situation inimical to Community solidarity in respect both of the quantities available for intra-Community exchanges and the alignment of prices on the coking coal price for supplies from third countries."

146. Thus, the purpose of both Decisions is to bring the Community producers into a position where they can reduce their prices for sales to the steel industry to the level of the world market price, and all the more so because a large proportion of Community output would in the medium and long term continue to be won at a financial loss, as stated in Decision No. 70/1.

The two Decisions taken on the basis of Article 95, Para. 1, extend the possibilities of alignment available to the coal-mining concerns in accordance with Article 60, Para. 2b, last sub-para., of the ECSC Treaty. According to these Decisions, rebates on the list prices can be accorded even if there is no actual competition from coking coal and coke from third countries at the point of consumption in question (1).

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(1) No country in the Community possesses effective competitive capacity with coke from third countries; an effective competitive position in respect of coking coal from third countries exists only in Germany and, by reason of the import system applied, is restricted to exceedingly small quantities and restricted geographical areas.

Decision No. 70/1 has absorbed from Decision No. 1/67 the basic rule precisely defining the method of calculation of the cost price, to avoid any shortfall in price for coal or an insufficient degree of cover of the carbonization costs for the Community coking plants. With this end in view, the Decision offers the Commission the possibility of laying down indicative cif prices, standard values for carbonization and criteria for the assessment of quality differences between coking coal and coke.

147. The two Decisions are intended to make only a temporary contribution to the solution of the problems which arise for products for which there is no substitute - such as coking coal and coke - for the iron and steel industry. The Decision of 1970 does however go still further by introducing degressive aids and by assigning an objective for this system; it is intended:

"To provide the producers and consumers involved with an  
 "increasing possibility of reaching, during the period of  
 "application of this Decision, by the use of appropriate  
 "measures, a position in which the steel industry bears the  
 "full cost of its supplies of coke:

"- either by paying for Community coal a price (1), which makes  
 " production possible, a measure which might be equivalent to  
 " paying a guarantee premium,

"- or by going on to the world market during the period of  
 " application of the subsidy system, which involves a  
 " reorientation of the procurement policy of the concerns."

This objective corresponds to the spirit of the "First Guideline for a Community Energy Policy", the main purpose of which is to serve the interests of the consumers. The Community iron and steel industry however seems more interested in having the freedom to choose between supplies from the Community

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(1) Leaving out of account the possibility of subsidies from public funds, which is justified by reasons connected with the present position of the coal-mining industry.

and those from third countries, making the choice in the light of flexibility and of costs.

## B. Application of the Decisions

### 1. Aids provided by the Member States and load-spreading

#### 1.1. Statistics for 1967 to 1970

148. Tables No. 35 (coal) and No. 36 (coke) contain detailed data on Community deliveries to coking plants and blast furnaces from 1967 to 1970.

The total quantity of deliveries developed as follows (in million t).

	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1967-1968</u> <u>total</u>	<u>1970</u>
Coal	26.3	27.6	27.7	81.6	26.4
(of which exchange)	(9.1)	(11.0)	(10.4)	(30.4)	(10.3)
(a)					
Coke	41.2	44.2	46.5	151.9	48.8
(of which exchange)	(6.3)	(7.3)	(7.8)	(21.4)	(8.3)
(of which pithead coke ovens)	(21.0)	(23.7)	(25.2)	(69.9)	(25.8)

(a) Excepting internal deliveries to pithead coke ovens.

Table No. 37 shows the share of the various coke-oven groups in the intra-Community deliveries and in total deliveries. In the period 1967/1970, the overall share of the pithead coke ovens (including exchange) remained stable at 60% in Germany and France. In the Netherlands it rose from 18 to 30% and in Belgium from 11 to 20%. In Luxembourg it was over 95% and in Italy it was zero.

Table No. 38 lists the quantities of coal by Member State and by origin which approximately correspond to blast furnace consumption in the Community.

Table No. 39 summarizes the data from Table No. 38 by consumer country.

Tables No. 40 and 41 contain data regarding the quantities of coking coal attracting subsidies, together with the associated subsidies.

1.2. Decision No. 1/67

Decision No. 1/67 provided for only one form of aid, which was exclusively intended for rebates on list prices. The rate of application per tonne of coal was laid down at an average of 1.70 units of account, but was not allowed to exceed 2.2 units of account.

From 1967 to 1969 the annual quantities of coking coal attracting subsidies and the corresponding subsidies themselves followed the pattern shown below:

	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>Total</u>	<u>Average per tonne (units of account)</u>
Quantity attracting subsidy (million t) (of which exchange)	47.6 (13.7)	51.6 (16.7)	54.1 (17.2)	153.3 (47.6)	
Subsidy in million units of account (of which exchange)	78 (23.2)	85 (28.3)	88.8 (29.2)	251.8 (80.7)	1.64 1.70

The subsidies for the intra-Community exchange were subjected to a multilateral load-spreading operation in the framework of a maximum amount of 22 million units of account per year, corresponding to a volume of exchange of some 13 million t, distributed over the supplying countries (German share: 20.1 million units of account).

After the load-spreading operation had been carried out, the charge for subsidies in the period 1967 to 1969 payable by the Member States was as follows:

Summary table of subsidies for exchange

(In million units of account)

		<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>Total 1967/1969</u>
Germany	(a)	11.65	11.63	11.50	34.78
	(b)	1.66	6.90	8.57	17.13
	(c)	13.31	18.53	20.07	51.91
Belgium	(a)	1.82	1.81	1.55	5.18
	(b)	0.06	0.05	-	0.11
	(c)	1.88	1.86	1.55	5.29
France	(a)	3.62	3.62	3.48	10.72
Italy	(a)	1.81	1.79	1.73	5.33
Luxembourg	(a)	1.16	1.15	1.12	3.43
Netherlands	(a)	1.43	1.35	1.24	4.02
Total	(a)	21.49	21.35	20.62	63.46
	(b)	1.73	6.94	8.57	17.24
	(c)	23.22	28.29	29.19	80.70
Load-spreading payments for Germany	(d)	8.45	8.47	8.60	25.52

(a) Net charge on the basis of load-spreading (in the framework of the maximum amount quoted on Page 104).

(b) Subsidies paid over and above the maximum amount, not allowable for load-spreading.

(c) Overall net charge.

(d) Amounts included in the (a) amounts of the other countries.

1.3. Decision No. 70/1

149. This Decision envisaged two types of subsidy, one intended to facilitate production and not allowed to exceed a figure of 1.50 units of account/tonne of coal, while the other was meant to facilitate the sale of coal in districts far distant from the coalfields and intra-Community exchange; this is a degressive figure of 0.70 units of account during the first year of application of this Decision, of 0.55 units of account during the second year and 0.40 units of account during the third year.

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The development of the quantities of coking coal which attracted subsidies, and the amount of the aids, are listed below:

	<u>1970</u>		<u>1971</u>		Total	
	(1)	(2)	(1)	(2)	(1)	(2)
Quantity attracting subsidies (million t) (of which exchange)	50.8 (17.7)	24.2 (17.6)		(16.7)		
Subsidies in million units of account (of which exchange)	67.7 (22.8)	16.4 (11.8)		(9.2)		
(1) Production aid.						
(2) Sales aid.						

Joint financing (1) was provided by the Member States and the ECSC for the subsidies paid on intra-Community exchanges, as follows:

		<u>1970</u>	<u>1971</u>
		Million units of account	Million units of account
Germany	(b)	0.4	-
Belgium	(a)	1.7	1.33
	(b)	0.1	-
	(c)	1.8	1.33
France	(a)	3.4	2.66
Italy	(a)	1.35	1.07
Luxembourg	(a)	1.2	0.93
Netherlands	(a)	0.85	0.67
ECSC	(a)	3.4	2.50
Total	(a)	11.9	9.16
	(b)	0.5	-
	(c)	12.4	9.16

(a) Subsidies within the framework of the maximum quantity of 17 million t, i.e. which were jointly financed (funds provided in 1970: Germany 11.76, Belgium 0.07 million units of account).

(b) Aids paid over and above the maximum amount.

(c) Total amount of subsidies paid out (of which Germany 11.8 million units of account in 1970).

(1) Overall maximum quantity of 17 million t; the ECSC funds cover approximately 25% of the total quantity paid in aid for three years; the remainder is distributed over the five Member States (excluding Germany).

## 2. Comparative analysis of the measures taken by the Member States

150. There are differences in the application of the two systems 1/67 and 70/1.

From 1967 to 1969 the four producer countries paid aids on all quantities attracting subsidies. The average aid paid per tonne was 1.64 units of account/t. At the same time, virtually all consignments were subjected to alignment rebates which were at least equal to the amount of aid paid.

On the aids paid within the framework of exchanges, Germany received the sum of 25.5 million units of account in the load-spreading operation. Thus, Germany ultimately took two-thirds (77.4 million units of account for 45.5 million t, of which 17.1 million units of account over and above the maximum load-spreading amount).

151. The situation is much more varied since 1970.

Since the end of 1968, the Netherlands have ceased to produce coking coal.

In respect of production aids, Belgium alone has decided to grant this subsidy for its entire production of coking coal at the maximum rate (1.51 units of account/t) during each of the three years of the period of application of Decision No. 70/1.

France has, it is true, decided upon payment of aid at the maximum rate, but on a smaller subsidy-attracting quantity, which is moreover different for each of the three years. In 1970 the subsidy will be paid only for bituminous coal from the Nord/Pas-de-Calais and Lorraine coalfields, with the exception of the high-bituminous coal from the latter coalfield and the production of the Aquitaine coalfield. In 1971 the aid will be paid only for the Nord/Pas-de-Calais coalfield through the entire year and for the Aquitaine coalfield during the period from 1st January to 15th April 1971. In 1972, the subsidy will be paid to these two coalfields for the entire year.

In Germany the aid was paid during 1970 to all producers at the rate of 1.30 units of account/t. For 1971 this rate of payment, already below the maximum amount approved under the Decision, was still further reduced to 1.09 units of account/t, accompanied by restriction of the payment of subsidy to the period from 1st June to 31st December 1971. As yet the Federal Government has not requested permission to make payment of the subsidy aids for 1972.

152. The sales aids were paid in only two countries - Germany and Belgium.

The quantities of Belgian coal attracting this subsidy are insignificant. The quantities in question are deliveries to the Aachen region, which delivers to its Belgian suppliers a corresponding quantity. This exchange makes it possible for both parties to make better use of large quantities of coal by means of blending.

Two types of delivery attract sales subsidies in Germany: consignments to German coking plants far removed from the coalfields and deliveries within the framework of the intra-Community exchange (1). The amounts are as follows:

(In million tonnes)

	<u>1970</u>		<u>1971</u>	
	(a)	(b)	(a)	(b)
Deliveries of coal	2.8	10.7	-	-
Deliveries of coke	3.2	7.9	-	-

(a) Far distant from the coalfields.  
(b) Exchange.

### 3. Price rules, price lists and rebates

153. The Decisions No. 1/67 and No. 70/1, formulated and applied in periods of widely differing market conditions, which were particularly reflected in the trend in Community steel production, in the trend on the international coal market and in the trend of coal and coke sales and stocks in the Community.

154. Both Decisions furnished the Community coal-mining concerns with both the legal possibility and certain actual financial means of granting to the steel industry rebates on their list prices. Contracts which provide for such rebates must be notified to the Commission at regular intervals of time.

The volume of the contracts so notified has developed as follows:

	<u>(In million tonnes)</u>			
	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Coking coal	25	27.1	27.2	25.1
Blast furnace coke	22.7	21.6	24.3	26.1

(1) It is only the exchange which enjoys joint financing. Cf. Page 104.

In 1966 the alignments announced in respect of coal and coke sales to the iron and steel industry covered some 9 million tonnes.

The figures given above are clear evidence that the provision of rebates on the basis of the Decisions has become a general practice.

The figure for "coking coal 1970" includes the application of the list prices to sales to the iron and steel industry in Belgium from June to December, which were associated with a falling-off in the quantities notified.

From 1967 to 1969 the financial aids granted to the coal-mines were obligatorily passed on in their entirety to the coke-oven clients or to the steelworks. In those cases where earlier contracts had already provided for a rebate per tonne which was higher than the amount of subsidy paid, this improved the financial position of the coal-mining company. As against this, the increase in quantities sold has led to an increase in the total charge resulting from the rebates, since - in order to attract the payment of the subsidy - these rebates had to be applied to the list prices of 1st January 1967, so that these prices were virtually frozen until the end of 1969. This period was furthermore characterized (virtually since 1965) by the stability of the production prices for coal, although the costs did rise towards the end of that period. On the other hand, the coal-mining companies have sold a large part of their stocks of coal and coke, which they had accumulated in preceding years, so raising the level of their receipts.

The developments in the world market which began in 1969 have, by reason of the new strains produced, placed Community prices in an unnatural situation, since no change was made in the practice of taking the price lists of 1st January 1967 as a basis.

Decision 70/1 has removed the strain caused by this situation, having done away with the yardstick of a sole immutable reference date for the list prices as a basis for the granting of rebates. Of the two types of subsidy, only the subsidy paid as an aid to sales carries an obligation to grant a rebate. The production aid subsidy is at the free disposal of the coal-mining concerns. It has also been laid down that the coke prices must include the net carbonization costs of the supplying coking plants, so that

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the rebate is possible only on the price of the coal carbonized.

Since market demand continued to remain high, the differences existing at the end of 1969 were very largely corrected from 1970 onwards by stepwise increases in the list prices, as shown in Table 33.

Since 1970 the production costs for coal have however risen markedly; consequently the financial results achieved by the coal-mining concerns did not exhibit any constant improvement, and this was so much less the case because, after the almost complete exhaustion of stocks around the end of 1970, the decline in steel production during 1971 led to significant stockpiling at the pits.

155. Decision No. 70/1 provided the Commission with the possibility of laying down guide prices, the concerns being obliged to notify at regular intervals the essential information regarding their purchases of coking coal and coke from third countries. The Commission has hitherto considered it sufficient to publish at regular intervals the average figures for the quantities of coking coal actually imported - by the Community countries from free economy countries - to supply Community steel industry. In this way the Commission made its contribution to the "transparency" of the coking coal market, by facilitating consideration of the prices and of price alignment and at the same time leaving the customers with full freedom of discussion and unimpaired responsibility.

The development of the prices notified by the Commission was as follows:

Date of notification	Reference period	Price in units of account/tonne - cif ARA*
10th March 1970	Beginning 1970	17.50
26th October 1970	July-August 1970	20.00
18th March 1971	Beginning 1971	23.60 (1)
25th November 1971	July-September 1971	23.90 (2)
1972	Beginning 1972	23.65 (3)

\* Amsterdam/Rotterdam/Antwerp.

(1) Corresponding fob value Hampton Roads: 20.70.

(2) Of which sea freight 2.70.

(3) US dollars.

156. The efforts to find the "right price" for alignment gave rise to difficulties in this period of rapid price development.

In particular there arose the question whether the equivalence of value with the world market price should be calculated for a future period - with some uncertain elements - or for a period already past. Hitherto - in particular since 1969 - it was the first of these two solutions which was generally applied, this having been found favourable to the purchaser of Community coal by reason of the phase displacement affecting the readjustments with respect to the international trend.

In certain countries, reliable cost comparison between supplies from third countries and the traditional supplies from the Community has not been possible, because of the absence of long-term contracts. In these circumstances, reference to an import value laid down on the basis of a common method could perhaps raise certain problems.

The changes in the currency situation which have recently occurred could also considerably disturb such a price system by reason of the sudden widening of the alignment range between the Community coal prices and the prices of dollar-quoted contracts, so long as the latter were not raised in consequence of the devaluation of the US dollar.

C. The effects of Decisions Nos. 1/67 and 70/1

157. Decisions 1/67 and 70/1 regarding coking coal laid down that the financial aids granted in accordance with the provisions of these Decisions are to be taken into account in assessing the measures of intervention carried out by the Member States to assist their coal-mining industry in accordance with Decisions 3/65 and 3/71.

In Germany Decisions Nos. 1/67 and 70/1 have been applied hitherto without any operating losses which might have occurred being covered by a lump sum payment in accordance with Decisions Nos. 3/65 and 3/71.

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From 1967 to 1969, the subsidies granted for coking coal in France and Belgium were considered as part of the subsidies paid in a comprehensive fashion to compensate for the operating losses. Since 1970, aids to coking coal have been paid selectively in France and considered by the Coalfields as supplements to specific receipts, these supplements being intended to make it possible to define and improve the profitability of the production units. It seems less easy to draw such a distinction in Belgium, since in that country the provisions of Decision No. 70/1 apply in practice only to the Campine Coalfield, which predominantly produces coking coal.

Seen overall, the aids to coking coal and coke have facilitated and supported the maintenance of the requisite production for the Community steel industry, and have simultaneously reduced - for this part of output - the disparities between the different pits which may have arisen as a result of the varying methods of intervention applied by the Member States.

158. By reason of the traditional links between the pits and the steel industries in the Six without exception, the intra-Community exchange since 1967 has been one of the fundamental bases of the Community system of financing part of the subsidies and of the specific alignment procedure. The subsidy system has favoured the maintenance of the latter and simultaneously made a considerable contribution to equalizing the prices for a vital raw material, a matter of considerable importance in a period when the iron and steel industry was experiencing difficulties.

159. The alignment of the prices for Community coking coal and coke on the world price applies to roughly six parts of Community coal to one part of third country coal.

From the economic point of view, the essential advantage of alignment on the prices quoted by a fictitious competitor lies in the fact that this prevents making additional demands on the world coking coal market, and that it does so at a time largely characterized by heavy strains; for this reason, this practice can be seen as a calming and stabilizing influence on price developments.

Chapter VISUMMARY

160. Like the "Investigation of the problem of coking coal and coke for the iron and steel industry of the Community" published in 1969, this new Report is intended to serve as a basis for the formulation of proposals for solving the problem of supplying the steel industry of the Community with coking coal and coke. The fact that new member countries are soon to accede to the Community has been taken into account in this survey.

The steel market has in very recent times been subject to a degree of market activity of an intensity hardly ever seen before; this provides a large corpus of data which can throw light on the entire problem of supplying the steel industry with its raw materials and fuel. This second Coking Coal Report evaluates all the data available for the period 1967/1970 and investigates the assumptions and forecasts for 1975 and 1980. Lastly, it summarizes the experience gained by the Community to date in the application of the coking coal aid Decisions Nos. 1/67 and 70/1.

161. This Report takes as its starting-point (see Chapter I) the statement that no significant changes will occur in the technical methods of producing coke and crude iron in the period up to 1980. The processes which occur in the blast furnace are being progressively better understood and mastered, and justify the expectation that further progress will be made in efficiency and in reducing the specific coke consumption. It is true that the strains in the coke supply situation during the period of high demand 1969/1970 have strengthened the interest in the direct reduction of iron ore, but this particular process is likely to be applied in the foreseeable future only in particularly favourable circumstances, this being governed by its high energy requirement and the demands made in respect of ore quality.

Nor is there any more reason to expect that, in the period up to 1980, the manufacture of formed coke - a process which makes it possible to produce blast furnace coke from coal of poor coking capacity - will come to replace the traditional carbonization method.

It is much more likely that the conventional coke-oven will have its efficiency increased even further, and thus reinforce its position.

162. Chapter II establishes that the increase in world crude steel output - a rise of 100 million t to 594 million t - and of world crude iron output - a rise of 71 million t to 425 million t - in the period between 1967 and 1970 was, in absolute terms, an exceptional increase. In the case of Japan, this rise constituted a 50% increase for crude steel and a 70% increase for crude iron; in the Community, the increase represented 21.5% and 22%, and in Great Britain 16.5% and 15% respectively. In Great Britain the steel industry experienced a slower rate of expansion than the continental steel industry, corresponding to the slower economic growth; in addition, the ratio between crude steel and crude iron is lower than in the Community.

For 1975, there are various predictions which have been made in regard to steel output in Western Europe; on the other hand, for 1980 we only have statistical extrapolations. Including the four new member countries, the Community will produce in 1975 more than 170 million t of crude steel and more than 125 million t of crude iron; this constitutes an increase of 31 or 26 million tonnes respectively. Extrapolation to 1980 indicates a level of 204 million t for crude steel and 147 million t for crude iron.

World production figures for 1980 can be expected to reach an order of magnitude of 850 to 900 million t of crude steel and 600 to 630 million t of crude iron.

163. The rapid increase in crude iron output in the period 1967 to 1970 caused an equally rapid increase in the consumption of blast furnace coke. In the Community it was possible to satisfy this demand in the first instance by drawing upon the stocks of coke and coking coal held by the mines. During 1970 the flexibility of offer in this sector became clear. It was not possible to increase output, by reason of the overall coal market policy of the Member States, with a consequent retraction of output levels, and it was therefore only possible to slow down the programme of pit closures. Although supplies to certain consumer categories were restricted to make supplies available for the steel industry,

the steelworks were obliged to purchase small and even very small parcels of coke at excessive prices and from very remote places since there is virtually no such thing as a world coke market. The Community is therefore still faced with the need to produce all the coke it needs for itself.

The increased demand which occurred in 1970 on the world coal market, which nevertheless has a certain degree of adaptability to short-term variations in demand, was so heavy that it reached the very limits of flexibility of supply of the market and, as was the case with coke, gave rise to intensive efforts to find possible sources of supply.

The supply situation for blast furnace coke in Great Britain was less strongly affected, because the output of the steel industry did not rise to the same extent as was the case in the Community. Nonetheless, imports of coal were freed from restriction in the autumn of 1970.

164.

The coke requirement of the world steel industry will, in the period up to 1980, undergo an estimated increase of 60 to 70 million tonnes; as against this, the demand for coke for heating purposes will fall off, so that between 1970 and 1980 it can be expected that the actual increase will be of the order of 60 million tonnes of coke (= 80 million tonnes of coking coal). It is expected that the coking coal demand in the Community - including the new member countries - will remain constant. The displacement of the steel industry towards the coastal regions, where the steelworks plan to build their own coke-ovens, will however presumably result in a falling-off in the demand for Community coal and in an increased demand for imported coal.

The supply potential of the state-trading countries - in particular Poland - will no longer be able to expand without restriction, owing to the growth of their own domestic requirements. On the other hand, coal production in the United States, Canada and Australia can be expected to develop to an extent that will enable an additional supply of coking coal to be placed on the world market in the requisite volume. Timely expansion of overseas production capacities should allow adequate quantities to be made available for meeting the increasing import requirements of the enlarged Community.

In respect of transport, too, there are at present no indications that difficulties are likely to arise.

165.

Since the subsidies granted to Community coal have made it possible for the steel industry to obtain indigenous coking coal at prices aligned on the cif import prices for US coal, and in view of the fact that in many Member States import restrictions exist or are applied, the Community metallurgical plants will continue - albeit to varying extents - to be geared to coking-coal supplies from the common market. A massive short-term switch of demand to the world market could give rise to difficulties of adaptation on the supply side, for there are limits to the flexibility of supply on the world market, especially since the European steel industry is not the only customer. As a result, prices would be affected.

The regular supply of constant-quality coal from Community sources located not too far away was a major stabilizing factor on the world coal market. In this connection special attention must be made of the compensating effect of pithead stocks when, in 1968-69, the demand for coke and coking coal for the steel industry rose sharply as a result of market pressures. A strategic reserve of some 25 million t was sufficient to absorb the sudden heavy demand from the steel industry within the framework of the 1967-70 economic cycle and thus to confer a degree of elasticity on the supply situation in respect of Community coal. The financial burden imposed by the action taken to confer greater elasticity on the supply of Community coal was borne entirely by the coal-mining industry. As regards the development of prices and costs (Chapter III), the boom period of 1969-70 rendered all earlier predictions - for steel and for coal, for the world market and for the common market - completely illusory. The rises in costs were very largely passed on and absorbed into the prices during the boom. In spite of this, the

coal-mining concerns of the Community continue to make operating losses. Even after allowing for the subsidies, the concerns are suffering losses which represent a loss of capital. Nor is it to be expected that the necessity for subsidies for the Community coal-mining industry will disappear within the foreseeable future, since the production costs of Community coal lie at a level above the cif import prices for coking coal. These prices differ very widely according to quality, customer and point of delivery and do not make it possible to give any precise forecast of their future developments. The currency relationships which have changed since the summer of 1971 have, in addition, had deleterious effects on the competitive position of the Community coal-mining industry. It therefore seems fairly certain that the production costs in the Community will not allow of reduction to such an extent (or the rises in costs in the American, Australian, etc. mining industries will not be so marked) as to eliminate the existing difference between the level of world market prices and the average costs in Europe. To the extent that the Community steel industry requires to be supplied with indigenous coking coal at world market prices, the financial returns obtained by the coal-mining industry will not suffice to cover costs. This situation is in no way improved by the burden of transport costs for the imported coal.

167. Chapter IV shows how the relationships between the coal-mining industry and the steel industry in the Community have developed. Since the establishment of the Ruhrkohle AG there are - with one exception - no longer any organic links. The contractual relationships are almost entirely of a long-term nature, in order to achieve optimum conditions in respect of quantity, quality and transport of supplies. Differences exist in regard to the reciprocity of obligations on the part of the suppliers and the customers. Contracts are rarely valid for more than five years. The prices are generally orientated towards the purchase price of American coal.

In respect of supplies of coal from third countries, procedure is by no means uniform. There are long-term agreements, many of which are extended at the moment when they lapse, while other supplies are covered by annual contracts or purely spot purchases. There has been no large-scale establishment of new agreements, but against this the discussions between the mining industry and the

steel industry in the Community in connection with medium- and long-term contracts continue. National regulations covering the import of coal have undergone little change to date.

168.

The aid systems for coking coal - introduced in 1967 and 1969 with the unanimous approval of the Council - have made it legally and financially possible for the Community coal-mining industry to provide price rebates to the steel industry in respect of the annual deliveries of 50 million t (Chapter V). This facilitated the maintenance of a particularly vital source of supply for the steel industry and at the same time also evened out differences between the different national systems of subsidies. Above all, however, these aids were a means of avoiding a massive shift of demand on to the world market at a time of exceptional boom.

The fact that, during the three-year period of validity of Decision No. 70/1 on aids to coking coal, no extensive long-term provisions have been made by the steel industry is attributable primarily to the market conditions prevailing during the boom both inside and outside the Community, to the organizational changes that have affected the pattern of coal supply in the Community, to the coal-policy framework drawn up by several Member States, and finally to the uncertainty produced in 1971 by events in the sphere of monetary policy. When Decision No. 70/1 lapses at the end of 1972 the Community will in all probability be enlarged by the accession of four new members, one of which, namely the United Kingdom, is a major producer of coal and steel. This will scarcely alter the problems of supplying the steel industry with coking coal and coke. In the solution of these problems account will have to be taken of the experience acquired as a result of the two Decisions on coking coal.

Table 1

Survey<sup>(1)</sup> of the increase in market activity in the world steel industry 1969/1970 and the trends in coke consumption for blast furnaces

	Production of crude steel		Production of crude iron		Blast furnace consumption of coke		Specific consumption of coke per tonne of crude iron <sup>(2)</sup>	
	Millions of tonnes						kg	
	1967	1970	1967	1970	1967	1970	1967	1970
<b>A. <u>Free economy countries</u></b>								
Community	89.9	109.2	65.9	80.5	40.9	46.9	620	583
United Kingdom	24.3	28.3	15.4	17.7	10.1	11.0	656	621
Remainder Western Europe	15.9	22.2	11.5	13.8	7.6	8.5	660	620
USA	118.0	122.1	79.5	83.3	50.8	52.8	639	633
Canada	8.8	11.2	6.3	8.2	3.5	4.5	555	549
Latin America	8.9	11.6	5.6	7.3	3.8	4.6	679	630
Africa	4.2	4.9	3.7	4.2	2.9	3.0	784	725
Japan	62.2	93.3	40.1	68.0	19.9	32.3	496	475
India	6.3	6.0	6.9	6.6	6.0	5.3	870	810
Remainder of Asia	2.2	2.9	1.9	2.3	1.5	1.7	790	740
Australia and Oceania	6.4	6.9	5.1	6.1	3.1	3.6	608	585
Total (A)	347.1	418.6	241.9	298.0	150.1	174.2	620	584
<b>B. <u>State economy countries</u></b>								
USSR	102.2	115.9	74.8	85.9	44.9	49.4	600	575
Remainder of Europe	35.0	42.3	22.0	25.0	14.7	15.8	670	630
People's Republic of China	14.0	17.0	15.0	16.0	13.0	13.1	867	820
Total (B)	151.2	175.2	111.8	126.9	72.6	78.3	649	617
<b>C. <u>World (A + B)</u></b>	498.3	593.8	353.7	424.9	222.7	252.5	630	594

(1) New version for 1967, compared with: "Investigation of the problem of coking coal and coke for the iron and steel industry of the Community"; Energy Series No. 2.

(2) To some extent estimates.

Table 2

Data on steel production and crude iron  
production in Norway, Ireland, Denmark and Great Britain

in 1,000 tonnes

	1967				1969				1970			
	Norway	Ireland	Denmark	Great Britain	Norway	Ireland	Denmark	Great Britain	Norway	Ireland	Denmark	Great Britain
Crude steel production	790	64	401	24,279	854	76	482	26,845	870	80	473	28,316
Crude iron production	664 <sup>1)</sup>	-	111	15,396	684 <sup>1)</sup>	-	207	16,653	678 <sup>1)</sup>	-	215	17,672
Coke consumption in blast furnaces	451 <sup>2)</sup>	-	50	10,354	598 <sup>2)</sup>	-	72	11,025				11,103
Coal equivalent (coke consumption x 1.4)	631	-	70	14,496	837	-	100	15,435				15,544

(1) In addition Norway produced the following quantities of ferro-alloys:  
1967 : 640,000 t  
1969 : 653,000 t  
1970 : 571,000 t

(2) Including sinter coke.

Table 2

Compilation of the results of forecasts (1) of steel production and crude iron production

Millions of tonnes

	Steel production										Crude iron production									
	1970 Effective	1975 Estimated forecasts								1980(3) I	1980(3) II+V	1970 Effective	1975 Estimated forecasts				1980(3) I	1980(3) II+V		
		I	II(2)	III	IV	I	II(2)	III	IV				I	II(2)	III	IV				
<b>A. Free economy countries</b>																				
Community	109.2	116.6	137.0	137.0	137.0	124.0	165.0													
Great Britain	28.3	32.7	32.5	32.5	32.5	36.0	..													
Norway, Denmark, Ireland	1.4	1.7	1.7	1.7	1.7	2.0	..													
USA	122.1	136.1	145.0	135.0	135.0	150.0	..													
Japan	93.3	99.2	135.0	120.0	120.0	105.0	..													
Other free economy countries	64.3	99.7	112.9	103.8	103.8	135.0	..													
<b>Total (A)</b>	418.6	486.0	562.4	530.0	530.0	552.0	..													
<b>B. State economy countries</b>																				
USSR	115.9	139.5	145.0	140.0	140.0	163.0	..													
Remainder of Europe	42.3	51.2	46.5	46.5	46.5	60.0	..													
People's Republic of China	17.0	33.5	25.0	32.0	32.0	50.0	..													
<b>Total (B)</b>	175.2	224.2	216.5	218.5	218.5	273.0	..													
<b>C. World (A + B)</b>	593.8	710.2	778.9	748.5	748.5	825.0	..													

(1) The figures quoted represent the estimates given in the following studies:

- I. "Investigation of the problem of coking coal and coke for the iron and steel industry of the Community"; Commission of the European Communities, Energy Series No. 2, Brussels 1969. The figures for 1975 are interpolation values.
- II. "General Objectives of the Iron-making Industry of the Community for the years 1975 to 1980"; Official Bulletin of the European Communities, Year 14, 96, dated 29 September 1971.
- III. "Report on the problems and prospects of the coking industry in the OECD countries"; ad hoc working group of the Energy Committee, Paris, 9 September 1971.
- IV. "Long-term prospects of the market for coking coal and coke"; United Nations, Coal Committee, Geneva, 7 May 1971.
- V. "Prospects for the long-term supply of energy for the Community (1975-1980-1985)". Commission of the European Communities, Directorate-General of Energy, Working Document.

(2) Median hypothesis; the higher hypothesis envisaged a Community production of crude steel of 148 million tonnes and a crude iron output of 107 million tonnes.

(3) Investigation No. V also included the following 1985 figures for the Community: Crude steel output: 190 million tonnes; Crude iron production: 130 million tonnes.

Table 4

Survey of the trends in output of hard coal and of  
the coking industry for the world as a whole 1967/1970

in millions of tonnes

	Output of hard coal (1)		Coke production (2)		Coal equivalent for coke production (3)		Blast furnace consumption of coke (4)		Coal equivalent for blast furnace consumption of coke (5)	
	1967	1970	1967	1970	1967	1970	1967	1970	1967	1970
<b>1. Free economy countries</b>										
Community United Kingdom	184.6	164.7	64.1	70.2	83.8	91.9	40.9	46.9	53.5	61.3
Remainder of Western Europe	176.1	145.6	15.6	16.6	24.0	25.3	10.1	11.0	15.2	16.5
USA	18.5	16.3	6.3	6.4	8.8	9.0	7.6	8.5	10.6	11.9
Canada	508.4	540.9	62.2	61.5	89.6	88.6	50.8	52.8	73.2	76.0
Latin America	8.5	11.7	4.0	5.1	5.6	7.1	3.5	4.5	4.9	6.3
Africa	8.8	9.2	3.2	3.8	4.5	5.3	3.8	4.6	5.3	6.4
Japan	53.2	56.7	3.2	3.9	4.5	5.5	2.9	3.0	4.1	4.2
India	47.5	39.7	22.2	35.0	31.1	49.0	19.9	32.3	27.9	45.2
Remainder of Asia	68.2	71.9	7.6	9.0	10.6	12.6	6.0	5.3	8.4	7.4
Australia and Oceania	19.5	18.8	1.4	1.7	2.0	2.4	1.5	1.7	2.1	2.4
<b>Total (A)</b>	<b>1,126.7</b>	<b>1,125.4</b>	<b>193.3</b>	<b>217.8</b>	<b>269.4</b>	<b>303.1</b>	<b>150.1</b>	<b>174.2</b>	<b>209.5</b>	<b>242.6</b>
<b>3. State economy countries</b>										
USSR	414.1	472.4	69.9	74.0	97.9	103.6	44.9	49.4	62.9	69.2
Remainder of Europe	162.2	181.2	28.3	30.5	39.6	42.7	14.7	15.8	20.6	22.1
Remainder of Asia	246.8	371.5	14.8	19.0	20.7	26.6	13.0	13.1	18.2	18.3
<b>Total (B)</b>	<b>823.1</b>	<b>1,025.1</b>	<b>113.0</b>	<b>123.5</b>	<b>158.2</b>	<b>172.9</b>	<b>72.6</b>	<b>78.3</b>	<b>101.7</b>	<b>109.6</b>
<b>C. World (A+B)</b>	<b>1,949.8</b>	<b>2,150.5</b>	<b>306.3</b>	<b>341.3</b>	<b>427.6</b>	<b>476.0</b>	<b>222.7</b>	<b>252.5</b>	<b>311.2</b>	<b>352.2</b>

- (1) New version; omitting brown coal (compare Commission of the European Communities, Energy Series No. 2).
- (2) Excluding gasworks coke.
- (3) Where no statistical data are available, the figure represents coke output multiplied by 1.4.
- (4) Excluding fuel consumption for sintering.
- (5) Where no statistical data are available, the figure represents coke consumption multiplied by 1.4.

Table 5

Survey of coke production<sup>1)</sup> and coke sales<sup>1)</sup>  
in the Community

in millions of tonnes

	1967	1970
<u>A. Deliveries to consumers</u>		
Coke-ovens' own consumption	1.4	0.9
Iron-making industry <sup>2)</sup>	46.4	52.8
Other industries	5.9	6.5
Domestic heating, including concessionary	9.2	7.3
Sundry	0.9	0.5
Total deliveries, Community	63.8	68.0
<u>B. Exports to third countries</u>	2.6	2.8
Total	66.4	70.8
<u>C. Coke imports</u>	- 0.1	- 0.8
Deliveries from inland sources	66.3	70.0
<u>D. Stock movements and statistical   differences</u>	- 2.2	+ 0.2
<u>E. Coke production</u>	64.1	70.2
Of which: Germany	35.2	39.9
France	12.4	14.2
Belgium	6.9	7.1
Italy	6.3	7.0
Netherlands	3.3	2.0

1) Excluding gasworks coke and L.T. carbonization coke.

2) Including coke for sintering.

Table 6

Main suppliers and receivers of coke on the world market<sup>1)</sup>

in millions of tonnes

Suppliers			Receivers		
	1967	1970		1967	1970
<b>A. <u>Free economy countries</u></b>			<b>A. <u>Free economy countries</u></b>		
Germany	7.7	9.9	Luxembourg	3.3	3.8
Netherlands	2.0	0.7	France	3.2	3.4
Other Community countries	0.2	1.9	Other Community countries	1.7	3.3
United Kingdom	0.5	0.4	Sweden	0.9	1.0
Sundry (2)	-	1.0	Austria	0.9	1.0
			Sundry (2)	2.4	2.5
Free economy countries total	11.0	13.9	Free economy countries total	12.4	15.0
<b>B. <u>State economy countries</u></b>			<b>B. <u>State economy countries</u></b>		
USSR	3.7	4.0	Eastern Germany	3.2	3.1
Poland	2.4	2.2	Hungary	1.1	1.3
Czechoslovakia	2.2	2.5	Rumania	1.1	2.0
Sundry (2)	-	-	Sundry (2)	1.5	1.2
State economy countries total	8.3	8.7	State economy countries total	6.9	7.6
<b>C. World trade (A + B)</b>	<b>19.3</b>	<b>22.6</b>	<b>C. World trade (A + B)</b>	<b>19.3</b>	<b>22.6</b>

(1) Excluding China and USA

(2) Estimated.

Table 7Exchange of coke within the Community

In thousands of tonnes

Receivers Suppliers	Germany	France	Belgium	Italy	Netherlands	Luxembourg	Community
	<u>A. Year 1967</u>						
Germany	-	2 611	55	229	130	2 505	5 530
France	8	-	24	18	12	-	62
Belgium	109	186	-	2	3	378	678
Italy	-	-	-	-	-	-	-
Netherlands	341	440	652	2	-	362	1 797
Luxembourg	-	-	-	-	-	-	-
Community	458	3 237	731	251	145	3 245	8 067
	<u>B. Year 1970</u>						
Germany	-	3 130	924	11	729	3 604	8 398
France	122	-	216	35	50	15	438
Belgium	39	87	-	-	6	167	299
Italy	-	-	-	-	-	-	-
Netherlands	27	162	250	-	-	-	439
Luxembourg	-	-	-	-	-	-	-
Community	188	3 379	1 390	46	785	3 786	9 574

Table 8

Coke supply figures for Norway, Ireland, Denmark and Great Britain  
(including gas coke; some figures estimated)

In 1000's of tonnes

	1967				1969			
	Norway	Ireland	Denmark	Great Britain	Norway	Ireland	Denmark	Great Britain
<b>A. Sources</b>								
1. Coke production in gasworks	-	100	246	6,330 <sup>1)</sup>	-	75	161	3,048 <sup>1)</sup>
in coke-ovens	302	-	-	15,565	325	-	-	16,844
Total	302	100	246	21,895	325	75	161	19,892
2. Imports of coke from:								
USA	1	-	-	-	109	-	24	-
Great Britain	257	5	37	-	148	-	30	-
Community countries	90	-	287	-	98	-	164	-
USSR	-	-	144	-	-	-	209	-
Czechoslovakia	-	-	97	-	-	-	89	-
Poland	1	-	-	-	-	-	8	-
Sundry	282	13	22	-	372	28	26	-
Total imports	631	18	587	-	727	28	550	-
3. Stock movements, differences	+ 9	-	+127	+ 163	- 2	-	+ 21	-1,477
Total sources	942	118	960	22,058	1,050	103	732	21,369
<b>B. Uses</b>								
1. Deliveries to:								
- Own use	-	30	52	1,402	-	20	20	995
- Steel industry	558	8	56	11,064	460	13	89	11,958
- Other industries	195	40	-	1,280	217	35	-	1,006
- Domestic heating	189	40	807	4,257	311	35	535	3,403
- Sundry	-	-	-	3,282	-	-	-	2,987
Total deliveries	942	118	915	21,285	988	103	644	20,349
2. Exports	-	-	45	773	62	-	88	1,020
3. Total use	942	118	960	22,058	1,050	103	732	21,369

1) Excluding coke breeze.

Table 9

Survey of the trends in coke exchanges within  
the Community and the candidate countries

(Some figures estimated)

In 1000's of tonnes

Suppliers \ Receivers	Germany	France	Belgium	Italy	Netherlands	Luxembourg	Community	Great Britain	Norway	Denmark	Ireland	Enlarged Community
	<u>Year 1967</u>											
Germany	-	2,611	55	229	130	2,505	5,530	-	70	282	-	5,882
France	8	-	24	18	12	-	62	-	12	-	-	74
Belgium	109	186	-	2	3	378	678	-	8	-	-	686
Italy	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	341	440	652	2	-	362	1,797	-	-	5	-	1,802
Luxembourg	-	-	-	-	-	-	-	-	-	-	-	-
Community of the Six	458	3,237	731	251	145	3,245	8,067	-	-	-	-	-
Great Britain	20	-	13	12	38	-	83	-	257	37	5	382
Norway	-	-	-	-	-	-	-	-	-	-	-	-
Denmark	-	-	-	-	-	-	-	-	25	-	-	25
Ireland	-	-	-	-	-	-	-	-	-	-	-	-
Enlarged Community	478	3,237	744	263	183	3,245	8,150	-	372	324	5	8,851
	<u>Year 1970</u>											
Germany	-	3,130	924	11	729	3,604	8,398	-	41	64	-	8,503
France	122	-	216	35	50	15	438	-	33	12	-	483
Belgium	39	87	-	-	6	167	299	-	12	11	-	322
Italy	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	27	162	250	-	-	-	439	-	10	6	-	455
Luxembourg	-	-	-	-	-	-	-	-	-	-	-	-
Community of the Six	188	3,379	1,390	46	785	3,786	9,574	-	-	-	-	-
Great Britain	128	-	50	-	42	-	220	-	317	16	3	556
Norway	-	-	-	-	-	-	-	-	-	-	-	-
Denmark	-	-	-	-	-	-	-	-	-	-	-	-
Ireland	-	-	-	-	-	-	-	-	-	-	-	-
Enlarged Community	316	3,379	1,440	46	827	3,786	9,794	-	413	109	3	10,319

Compilation of the results of forecasts (1) of coke production

(Millions of tonnes)

	World surveys				Estimated forecasts				Estimated forecasts (1) for the Community					
	1969 effective		1975		1980		Year 1975		Year 1980		Year 1975		Year 1980	
	Blast furnaces	Total steel industry	Total coke consumption	Blast furnaces	Total steel industry	Total coke consumption	Blast furnaces	Total steel industry	Total coke consumption	Blast furnaces	Total steel industry	Total coke consumption	Blast furnaces	Total steel industry
<b>A. Free economy countries</b>														
Community	47.1	52.3	68.9	46.1	51.3	67.7	45.3	56.7	67.7	46.1	52.0	65.0	46.1	52.0
Great Britain	10.8	12.6	18.3	11.8	11.9	18.8	12.0	14.6	18.8	52.0	57.0	70.0	52.0	57.0
Norway, Denmark, Ireland	0.6	0.7	1.7	0.7	1.0	1.4	0.9	1.1	1.4	5.3	5.7	6.7	5.3	5.7
USA	55.6	57.7	62.0	50.8	52.5	60.8	48.7	55.0	60.8	54.5	61.0	73.0	54.5	61.0
Japan	28.8	32.9	36.5	33.7	38.7	46.7	35.0	44.7	46.7	54.5	61.0	73.0	54.5	61.0
Sundry	29.2	31.2	37.7	39.2	42.5	52.4	47.8	46.3	52.4	52.0	56.0	69.0	52.0	56.0
Total (A)	172.1	187.4	225.1	182.3	197.9	247.8	189.7	218.4	247.8	189.7	218.4	288.0	189.7	218.4
<b>B. State economy countries</b>														
USSR	47.3	52.3	65.8	53.3	54.5	72.5	57.2	60.5	72.5	57.2	60.5	72.5	57.2	60.5
Remainder of Europe	15.8	17.3	25.3	18.0	19.1	31.4	20.1	21.4	31.4	45.3	55.0	67.0	45.3	55.0
People's Republic of China	9.8	10.8	14.8	17.0	20.0	25.5	21.0	21.5	25.5	21.0	21.5	25.5	21.0	21.5
Total (B)	72.9	80.4	105.9	88.3	93.6	129.4	98.3	103.4	129.4	98.3	103.4	129.4	98.3	103.4
Total (A + B)	245.0	267.8	331.0	270.6	291.5	377.2	288.0	321.8	377.2	288.0	321.8	417.4	288.0	321.8
<b>C. World (A + B)</b>														

(1) The figures quoted represent the estimates given in the following studies:

- I. "Investigation of the problem of coking coal and coke for the iron and steel industry of the Community"; Commission of the European Communities, Energy Series No. 2, Brussels 1969. The figures for 1975 are interpolation values.
- II. "General Objectives of the Iron-making Industry of the Community for the years 1975 to 1980"; Official Bulletin of the European Communities, Year 14, 96, dated 29 September 1971.
- III. "Report on the problems and prospects of the coking industry in the OECD countries"; ad hoc working group of the Energy Committee, Paris, 9 September 1971.
- IV. "Long-term prospects of the market for coking coal and coke"; United Nations, Coal Committee, Geneva, 7 May 1971.
- V. "Investigation of the problem of supplies of coal and of coal production in the Community"; Commission of the European Communities; Document No. 3541/1/XVII/70.

VI. "Prospects for the long-term supply of energy for the Community (1975-1980-1985)". Commission of the European Communities, Directorate-General of Energy, Working Document.

Planned investments in the coking sector of the Community\*

Position as at middle of year 1971

Annual production capacity  
in million tonnes of coke

	Existing capacities end 1970	Planned closures in the period 1971/76	Planned new construction in the period 1971/76	Calculated status of capacities end 1976
<u>Germany</u>				
Pithead coking plants	31.5	- 1.4	+ 6.4	36.5
Foundry coking plants	8.3	- 1.2	+ 2.4	9.5
Total	39.8	- 2.6	+ 8.8	46.0
<u>Belgium/Netherlands</u>				
Pithead coking plants	0.1	- 0.1	-	0.0
Foundry coking plants	8.3	- 0.9	+ 3.8	11.2
Independent coking plants	1.0	-	-	1.0
Total	9.4	- 1.0	+ 3.8	12.2
<u>France</u>				
Pithead coking plants	9.0	- 1.3	+ 0.3	8.0
Foundry coking plants	5.3	- 1.3	+ 9.4	13.4
Total	14.3	- 2.6	+ 9.7	21.4
<u>Italy</u>				
Foundry coking plants	4.7	-	+ 3.4	8.1
Independent coking plants	2.5	- 0.1	-	2.4
Total	7.2	- 0.1	+ 3.4	10.5
<u>Community</u>				
Pithead coking plants	40.6	- 2.8	+ 6.7	44.5
Foundry coking plants	26.6	- 3.4	+19.0	42.2
Independent coking plants	3.5	- 0.1	-	3.4
Total	70.7	- 6.3	+25.7	90.1

\* Compiled on the basis of the investment statistics. In their long-term development returns the firms generally report only the new-construction programmes and not the closures; consequently, the figures for the capacities as at the end of 1976 may be exaggerated.

Table 12

Trends in coal deliveries to Community consumers

(Million tonnes, tonne-for-tonne)

	1967	1970
<b>A. <u>Deliveries to consumers</u></b>		
for briquetting	10.0	9.5
for carbonization		
in coking plants	84.0	91.9
in gasworks	4.2	3.4
for electricity raising <sup>1)</sup>	57.3	58.6
Pithead consumption	5.5	2.9
Steel industry	3.4	4.9
Other industries <sup>2)</sup>	19.5	14.3
Transport	3.9	2.2
Domestic heating <sup>3)</sup>	20.9	16.7
Sundry	3.8	1.0
Total	212.5	205.4
<b>B. <u>Export to third countries</u></b>	2.3	1.5
Total use	214.8	206.9
<b>C. Deduct: <u>imports of coal from third countries</u></b>	24.3	31.2
Deliveries of Community coal	190.5	175.7
<b>D. Stock movements and statistical differences</b>	- 1.0	- 5.2
<b>F. Production<sup>4)</sup></b>	189.5	170.5
Of which:		
Germany	116.8	116.9
Belgium	16.4	11.4
France	47.6	37.4
Netherlands	8.3	4.5
Italy	0.4	0.3

1) Including pithead power stations, excluding other industrial power stations.

2) Including other industrial power stations.

3) Including concessionary deliveries.

4) Including small mines.

Table 13Coal used for carbonization and coke production

In 1000's of tonnes

	Coal used for carbonization			Coke production
	Coal Groups V + VI	Other Groups	Total	Total
	<u>A. Year 1967</u>			
Germany	43 764	3 249	47 013	35 245
Belgium	8 411	576	8 987	6 857
France	14 804	1 451	16 255	12 432
Italy	7 541	383	7 924	6 239
Netherlands	4 255	-	4 255	3 314
Community	78 775	5 659	84 434	64 087
	<u>B. Year 1970</u>			
Germany	49 541	2 446	51 987	39 905
Belgium	8 804	891	9 695	7 119
France	17 550	783	18 333	14 135
Italy	8 794	421	9 215	7 034
Netherlands	2 598	74	2 672	1 998
Community	87 287	4 615	91 902	70 191

Table 14

Survey of the structure of primary energy consumption  
in the Community and in the candidate countries  
 (Year 1970)

Million tonnes coal equivalent

Energy sources	Denmark	Norway	Ireland	Great Britain	Community of the Six
Hard coal	3.4	1.3	1.4	141.8	189.5
Brown coal	0.1	-	-	-	32.8
Petroleum	24.5	9.8	5.5	142.5	500.2
Natural gas	0.0	-	-	16.2	72.9
Primary electricity <sup>1)</sup>	0.0	22.7	1.2 <sup>2)</sup>	12.4	48.5
<b>Total</b>	<b>28.0</b>	<b>33.8</b>	<b>8.1</b>	<b>312.9</b>	<b>843.9</b>
Energy consumption per head of population, in tonnes coal equivalent	5.7	8.7	2.6	5.6	4.1
<u>Proportion in %</u>					
Hard coal	12.1	3.8	17.3	45.3	22.5
Brown coal	0.3	-	-	-	3.9
Petroleum	87.6	29.0	67.9	45.5	59.3
Natural gas	0.0	-	-	5.2	8.6
Primary electricity	0.0	67.2	14.8	4.0	5.7
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
Of which: from own sources	1.0	68.3	17.3	54.0	34.1
from imports	99.0	31.7	82.7	46.0	65.9

1) Water power and nuclear energy.

2) Including peat.

Table 12

Figures for coal supplies to Norway, Ireland and Denmark

In 1000's of tonnes

	1967			1969		
	Norway	Ireland	Denmark	Norway	Ireland	Denmark
<b>A. Sources</b>						
1. Output of coal	427	179	-	385	155	-
2. Imports of coal from:						
USA	223	242	-	205	75	-
Great Britain	80	183	62	92	-	63
Community countries	33	15	4	34	-	-
USSR	-	-	500	-	-	507
Poland	73	570	3,062	87	725	3,039
Sundry	13	247	-	154	338	2
Total import	422	1,257	3,628	552	1,138	3,611
3. Stock movements, differences	+ 38		+ 88	- 8	-	+ 303
Total sources	887	1,436	3,716	929	1,293	3,914
<b>B. Uses</b>						
1. Deliveries to consumers						
- power stations	-	57	2,602	-	50	2,869
- gasworks	-	135	351	-	100	342
- coking plants	385	-	-	521	-	-
Total for carbonization	385	135	351	521	100	342
- briquetting and other processing	-	-	-	-	-	-
- pithead consumption	..	..	-	..	..	-
- industry	222	731	498	257	678	456
- domestic heating	83	506	253	87	465	237
- sundry	8	-	12	3	-	10
Total deliveries	698	1,429	3,716	868	1,293	3,914
2. Export	189	7	-	61	-	-
Total use	887	1,436	3,716	929	1,293	3,914

Table 16

Trends in coal deliveries to consumers in Great Britain

(In million tonnes)

	1967	1970
<u>A. Deliveries to consumers</u>		
for briquetting	1.2	1.5
L.T. carbonization	2.0	2.6
for carbonization		
in coking plants	24.0	25.3
in gasworks	14.8	4.3
for electricity raising <sup>1)</sup>	68.3	77.2
Pithead consumption	2.9	1.9
Steel industry	0.9	0.8
Other industries <sup>2)</sup>	22.4	18.8
Domestic heating	24.5	20.2
Sundry	5.5	4.2
Total	166.5	156.8
B. Export to third countries	1.9	3.3
Total use	168.4	160.1
C. Deduct: coal imports	-	0.1
Deliveries of British coal	168.4	160.0
D. Stock movements and statistical differences	+ 9.2	- 12.9
E. Coal production <sup>3)</sup>	177.6	147.1

1) All power stations.

2) Excluding privately-owned industrial power stations.

3) Including recovered coal.

Table 17

Comparison of the coking coal structure of  
Great Britain with that of the Community

(Year 1970)

	Great Britain		Community	
	Million tonnes (t = t)	%	Million tonnes (t = t)	%
<u>A. Deliveries to consumers</u>				
Briquetting and LT carbonization	4.1	2.6	9.5	4.6
Coking plants	25.3	16.1	91.9	44.7
Gasworks	4.3	2.8	3.4	1.7
Power stations <sup>1)</sup>	77.2	49.2	62.6	30.5
Total transformation	110.9	70.7	167.4	81.5
Pithead consumption	1.9	1.2	2.9	1.4
Steel industry	0.8	0.5	4.9	2.4
Other industries 2)	18.8	12.0	10.3	5.0
Domestic heating	20.2	12.9	16.7	8.1
Sundry, transport	4.2	2.7	3.2	1.6
Total	156.8	100.0	205.4	100.0
B. Export to third countries	3.3		1.5	
Total use	160.1		206.9	
C. Deduct: coal imports	0.1		31.2	
Deliveries of own coal	160.0		175.7	
D. Stock movements and statistical differences	- 12.9		- 5.2	
F. Coal production	147.1		170.5	

1) All power stations.

2) Excluding industrial power stations.

Table 18

Main suppliers and receivers in the international coal market

in millions of tonnes

Suppliers			Receivers		
	1967	1970		1967	1970
<u>A. Free economy countries</u>			<u>A. Free economy countries</u>		
USA	45.6	65.0	Japan	24.3	50.2
Australia	10.0	18.4	Canada	14.0	17.1
Canada	1.3	4.4	Benelux	13.0	12.9
Federal Republic of Germany	18.7	15.8	Italy	12.1	12.6
Other Community countries	5.1	3.3	France	11.6	13.7
United Kingdom <sup>1)</sup>	2.0	3.4	Federal Republic of Germany	7.8	9.7
Other countries <sup>1)</sup>	4.7	4.1	Other countries <sup>1)</sup>	20.7	21.0
Free economy countries total	87.4	114.4	Free economy countries total	103.5	137.2
<u>B. State economy countries</u>			<u>B. State economy countries</u>		
USSR	26.0	24.4	East Germany	8.5	7.9
Poland	24.0	28.8	USSR	7.8	7.1
Other countries <sup>1)</sup>	5.0	5.5	Other countries <sup>1)</sup>	22.6	20.9
State economy countries total	55.0	58.7	State economy countries total	38.9	35.9
C. World trade (A + B)	142.4	173.1	C. World trade (A + B)	142.4	173.1

1) Estimated.

Table 19Coking coal imports made by the Japanese steel industry

Countries of origin	1967		1970	
	Million tonnes	%	Million tonnes	%
USA	9.6	43.0	24.9	53.2
Australia	8.2	36.8	15.0	32.1
USSR	2.0	9.0	2.6	5.6
Canada	0.8	3.6	3.2	6.8
China	0.7	3.1	-	-
Other countries	1.0	4.5	1.1	2.3
Total coking coal	22.3	100.0	46.8	100.0
For comparison: Total coal imports	24.3		50.2	

Table 20

Estimates of quantities involved in the actual world coal market<sup>1)</sup>

In millions of tonnes

SUPPLIERS			RECEIVERS		
	1967	1970		1967	1970
<u>A. Free economy countries</u>			<u>A. Free economy countries</u>		
USA	36.1	47.9	Japan	24.3	50.2
Australia	10.0	18.4	Canada	-	-
Canada	1.3	4.4	Benelux	3.2	6.0
Federal Republic of Germany	2.1	1.3	Italy	9.1	9.6
Other Community countries	0.2	0.1	France	4.9	7.0
United Kingdom	2.0	3.4	Federal Republic of Germany	7.0	8.5
Other countries	4.7	4.1	Other countries	21.4	25.2
Free economy countries total	51.9	79.6	Free economy countries total	69.9	106.5
<u>B. State economy countries</u>			<u>B. State economy countries</u>		
USSR	7.8	10.3	East Germany	-	-
Poland	10.2	16.6	USSR	-	-
Other countries	-	-	Other countries	-	-
State economy countries total	18.0	26.9	State economy countries total	-	-
<u>J. Total world market</u>	69.9	106.5	<u>C. Total world market</u>	69.9	106.5

1) Not including exchanges of coal within the Community, within COMECON, or between USA and Canada

Table 21

Trends in coal production<sup>1)</sup> in the  
Community broken down by types of coal

Millions of tonnes  
(t = t)

Coalfield or region	1967				1970			
	Groups			Total	Groups			Total
	V + VI	I + II	others		V + VI	I + II	others	
Aachen	1.5	2.4	3.4	7.3	1.6	2.4	3.1	7.1
Ruhr	84.5	7.8	2.2	94.5	88.0	6.4	1.8	96.2
Saar	8.0	-	4.4	12.4	5.1	-	5.4	10.5
Lower Saxony	-	1.2	1.1	2.3	-	1.4	1.5	2.9
Germany	94.0	11.4	11.1	116.5	94.7	10.2	11.8	116.7
Campine	8.8	-	-	8.8	7.1	-	-	7.1
South Belgium	0.6	5.7	1.3	7.6	-	3.7	0.6	4.3
Belgium	9.4	5.7	1.3	16.4	7.1	3.7	0.6	11.4
Nord/Pas-de-Calais	11.9	8.9	2.6	23.4	9.0	7.8	0.2	17.0
Lorraine	12.6	-	2.4	15.0	10.6	-	2.2	12.8
Centre-Midi	4.5	3.1	1.5	9.0	3.4	2.7	1.4	7.5
France	29.0	12.0	6.5	47.5	23.0	10.5	3.8	37.3
Netherlands	1.3	6.0	1.0	8.3	-	4.5	-	4.5
Italy	0.0	-	0.4	0.4	-	-	0.3	0.3
Community	133.7	35.1	20.3	189.1	124.8	28.9	16.5	170.2
Percentage of total output	70.7	18.6	10.7	100.0	73.3	17.0	9.7	100.0

1) Excluding small mines.

Table 22

Survey of trends in coal imports into the Community from third countries

In 1000's of tonnes

	Germany	France	Italy	Nether-lands	Belgium	Community
<u>A. US coal</u>						
1967	6,124	2,154	5,304	1,096	1,213	15,892
1968	4,506	1,681	3,877	1,002	939	12,004
1969	4,340	1,998	3,406	1,262	992	11,998
1970	4,630	3,340	3,922	1,549	2,034	15,474
1971 - First half year	1,960	1,824	1,655	658	364	6,461
<u>B. British coal</u>						
1967	403	566	222	226	51	1,468
1968	771	426	263	664	101	2,225
1969	1,400	388	311	760	186	3,044
1970	1,460	500	277	357	110	2,705
1971 - First half year	674	293	133	26	32	1,158
<u>C. Polish coal</u>						
1967	376	651	1,345	206	223	2,801
1968	491	799	2,210	275	319	4,095
1969	561	1,088	2,210	381	428	4,669
1970	1,336	1,533	2,796	444	503	6,612
1971 - First half year	406	916	1,537	187	346	3,392
<u>D. Russian coal</u>						
1967	21	1,467	1,856	18	170	3,533
1968	31	1,256	1,735	24	205	3,252
1969	29	1,348	2,104	56	206	3,742
1970	36	1,454	2,017	41	213	3,762
1971 - First half year	4	724	879	0	51	1,658
<u>E. Sundry third countries</u>						
1967	154	57	366	0	3	581
1968	79	44	256	1	1	382
1969	219	69	314	3	22	627
1970	1,097	185	593	625	115	2,616
1971 - First half year	425	166	445	148	18	1,202
<u>F. Total imports</u>						
1967	7,079	4,895	9,094	1,546	1,661	24,275
1968	5,878	2,206	8,342	1,966	1,566	21,957
1969	6,549	4,891	8,344	2,462	1,833	24,080
1970	8,560	7,013	9,605	3,016	2,976	31,170
1971 - First half year	3,469	3,923	4,649	1,019	811	13,871

Table 23

Coal imports into the Community from third countries broken down by country of origin and types of coal for 1967, 1969 and 1970

In 1000's of tonnes

Country of origin	1967				1969			
	Coal of Groups				Coal of Groups			
	I + II	III, IV, VII	V + VI	Total	I + II	III, IV, VII	V + VI	Total
USA	907	831	14,138	15,876	1,028	838	10,132	11,998
United Kingdom	681	44	743	1,468	1,194	31	1,819	3,044
Poland	-	1,133	1,666	2,799	-	773	3,896	4,669
USSR	1,894	-	1,633	3,527	1,823	4	1,915	3,742
Others	309	118	176	603	304	121	202	627
Total	3,791	2,126	18,356	24,273	4,349	1,764	17,964	24,080

1970

Country of origin	Coal of Groups			
	I + II	III, IV, VII	V + VI	Total
USA	1,001	1,298	13,175	15,474
United Kingdom	1,161	7	1,537	2,705
Poland	-	1,050	5,562	6,612
USSR	1,812	57	1,893	3,762
Others	973	330	1,313	2,616
Total	4,947	2,742	23,480	31,169

Table 24

Exchange of coal within the Community

In 1000's of tonnes

Receivers \ Suppliers	Germany	France	Belgium	Italy	Netherlands	Luxembourg	Community
<u>A. Year 1967</u>							
Germany	-	5,808	2,914	2,866	4,582	51	16,221
France	355	-	152	16	130	5	658
Belgium	227	332	-	5	820	2	1,386
Italy	-	-	-	-	-	-	-
Netherlands	151	536	1,133	26	-	13	1,859
Luxembourg	-	-	-	-	-	-	-
Community	733	6,676	4,199	2,913	5,532	71	20,124
<u>B. Year 1970</u>							
Germany	-	6,106	3,518	2,930	2,022	50	14,626
France	543	-	321	96	69	40	1,069
Belgium	355	108	-	-	80	23	566
Italy	-	-	-	-	-	-	-
Netherlands	262	495	752	4	-	14	1,527
Luxembourg	-	-	-	-	-	-	-
Community	1,160	6,709	4,591	3,030	2,171	127	17,788

Table 25

Survey of the supplies to coking plants in the  
Community broken down by country of origin of the coal

- 1967 -

In 1000's of tonnes

	GERMANY	BELGIUM	FRANCE	ITALY	NETHER- LANDS	COMMUNITY
<b>A. <u>Inland coal</u></b>						
Pithead coking plants	40,940	161	9,321	-	894	51,316
Foundry coking plants	5,818	4,617	2,049	1	269	12,754
<u>Independent coking plants</u>	-	1,238	101	8	10	1,357
Total	46,758	6,016	11,471	9	1,173	65,427
<b>B. <u>Community coal</u></b>						
Pithead coking plants	-	-	675	-	991	1,666
Foundry coking plants	-	1,542	2,343	1,784	644	6,313
<u>Independent coking plants</u>	-	126	219	400	358	1,103
Total	-	1,668	3,237	2,184	1,993	9,082
<b>C. <u>Third country coal</u></b>						
Pithead coking plants	-	-	186	-	-	186
Foundry coking plants	255	545	1,170	3,189	569	5,728
<u>Independent coking plants</u>	-	758	191	2,542	520	4,011
Total	255	1,303	1,547	5,731	1,089	9,925
<b>D. <u>Total supplies</u></b>						
Pithead coking plants	40,940	161	10,182	-	1,885	53,168
Foundry coking plants	6,073	6,704	5,562	4,974	1,482	24,795
<u>Independent coking plants</u>	-	2,122	511	2,950	888	6,471
Total	47,013	8,987	16,255	7,924	4,255	84,434

Table 26

Survey of the supplies to coking plants in the  
Community broken down by country of origin of the coal

- 1970 -

In 1000's of tonnes

	GERMANY	BELGIUM	FRANCE	ITALY	NETHER- LANDS	COMMUNITY
<b>A. <u>Inland coal</u></b>						
Pithead coking plants	41,500	-	9,194	-	-	50,694
Foundry coking plants	9,963	4,125	1,892	-	10	15,990
<u>Independent coking plants</u>	-	-	-	0	-	1,222
Total	51,463	5,347	11,086	0	10	67,906
<b>B. <u>Community coal</u></b>						
Pithead coking plants	233	-	980	-	-	1,213
Foundry coking plants	72	1,777	3,282	2,048	564	7,743
<u>Independent coking plants</u>	-	38	-	590	420	1,048
Total	305	1,815	4,262	2,638	984	10,004
<b>C. <u>Third country coal</u></b>						
Pithead coking plants	-	-	1,001	-	-	1,001
Foundry coking plants	219	1,697	1,984	3,823	1,156	8,879
<u>Independent coking plants</u>	-	836	-	2,754	522	4,112
Total	219	2,533	2,985	6,577	1,678	13,992
<b>D. <u>Total supplies</u></b>						
Pithead coking plants	41,733	-	11,175	-	-	52,908
Foundry coking plants	10,254	7,599	7,158	5,871	1,730	32,612
<u>Independent coking plants</u>	-	2,096	-	3,344	942	6,382
Total	51,987	9,695	18,333	9,215	2,672	91,902

Table 22

Structure of coal deliveries to Community coking  
plants broken down by country of origin of the coal

In 1000's of tonnes

	Pithead coking plants	Foundry coking plants	Indepen- dent coking plants	Total
<u>A. Year 1967<sup>1)</sup></u>				
Own coal	51,316	12,754	1,357	65,427
Coal from other Community countries	1,666	6,313	1,103	9,082
Coal from third countries	186	5,728	4,011	9,925
Total	53,168	24,795	6,471	84,434
<u>B. Year 1970<sup>1)</sup></u>				
Own coal	50,694	15,990	1,222	67,906
Coal from other Community countries	1,213	7,743	1,048	10,004
Coal from third countries	1,001	8,879	4,112	13,992
Total	52,908	32,612	6,382	91,902
<u>Percentage of total</u>				
<u>A. Year 1967</u>				
Own coal	96.5	51.4	21.0	77.5
Coal from other Community countries	3.1	25.5	17.0	10.8
Coal from third countries	0.4	23.1	62.0	11.7
Total	100.0	100.0	100.0	100.0
<u>B. Year 1970</u>				
Own coal	95.8	49.0	19.2	73.9
Coal from other Community countries	2.3	23.8	16.4	10.9
Coal from third countries	1.9	27.2	64.4	15.2
Total	100.0	100.0	100.0	100.0

1) Statistical cross-entries have rendered the figures given for pithead and foundry coking plants for 1967 and 1970 non-comparable.

Table 28

Survey of the trends in coal exchanges within  
the Community and the candidate countries

(Some figures estimated)

In 1000's of tonnes

Receivers Suppliers	Germany	France	Belgium	Italy	Netherlands	Luxembourg	Community	Great Britain	Norway	Denmark	Ireland	Enlarged Community
			<u>Year 1967</u>									
Germany	-	5,808	2,914	2,866	4,582	51	16,221	-	4	4	15	16,244
France	355	-	152	16	130	5	658	-	-	-	-	658
Belgium	227	332	-	5	820	2	1,386	-	2	-	-	1,388
Italy	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	151	536	1,133	26	-	13	1,859	-	27	-	-	1,886
Luxembourg	-	-	-	-	-	-	-	-	-	-	-	-
Community of the Six	733	6,676	4,199	2,913	5,532	71	20,124					
Great Britain	403	566	51	222	226	-	1,468	-	80	62	183	1,793
Norway	141	-	14	-	11	-	166	-	-	-	-	166
Denmark	-	-	-	-	-	-	-	-	-	-	-	-
Ireland	-	-	7	-	-	-	7	-	-	-	-	7
Enlarged Community	1,277	7,242	4,271	3,135	5,769	71	21,765	-	113	66	198	22,142
			<u>Year 1970</u>									
Germany	-	6,106	3,518	2,930	2,022	50	14,626	-	5	3	22	14,656
France	543	-	321	96	69	40	1,069	-	4	-	-	1,073
Belgium	355	108	-	-	80	23	566	-	-	-	-	566
Italy	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	262	495	752	4	-	14	1,527	-	11	-	-	1,538
Luxembourg	-	-	-	-	-	-	-	-	-	-	-	-
Community of the Six	1,160	6,709	4,591	3,030	2,171	127	17,788					
Great Britain	1,460	500	110	277	357	-	2,704	-	136	24	150	3,014
Norway	97	..	..	..	..	-	97	-	-	..	..	97
Denmark	-	-	-	-	-	-	-	-	-	-	-	-
Ireland	-	-	-	-	-	-	-	-	-	-	-	-
Enlarged Community	2,717	7,209	4,701	3,307	2,528	127	20,589	-	156	27	172	20,944

Table 29

Survey of prices and values for coals of various origin

Units of account/t

	1967	1968	1969	1970	1971
<b>1. USA</b>					
Pithead value	5.09	5.15	5.50	6.70	7.10
Fob export value (bituminous coal)	10.57	10.79	11.47	14.77	17.37
<b>2. Canada</b>					
Pithead value:					
bituminous coal	8.45	8.50	8.39	8.79	
sub-bituminous coal		1.94	1.87	1.68	
Fob export value			7.57	7.33	7.86
<b>3. South Africa</b>					
Pithead value (bituminous coal)	2.40	2.56	2.72	2.67	2.65
Fob export value (bituminous coal)	..		5.62	6.24	6.18
<b>4. Australia</b>					
Pithead value				some 6.00	
Fob export value			8.84	9.67	
<b>5. Poland</b>					
Pithead value					
Fob export value					
<b>6. Great Britain</b>					
Costs <sup>1)</sup> at pithead (under-ground)	11.73	11.90	12.81	14.22	..
Returns at pithead	11.65	11.60	12.09	13.80	..
Fob export value			10.76	12.53	..
<b>7. Community</b>					
Costs <sup>2)</sup> at pithead	17.45	17.41	17.88	20.94	21.94 <sup>3)</sup>
Returns at pithead	14.07	13.96	14.29	17.57	19.44 <sup>3)</sup>
Fob export value (German coal only)	16.71	15.75	17.57	21.20	24.22 <sup>3)</sup>

1) Full cost figures, including calculated capital charges; calculated on the Community basis.

2) Full cost figures including calculated capital charges.

3) First half of 1971.

Table 30

Survey of trends in output and in exports of hard coal  
from the major potential sources of supply for the Community

In millions of tonnes

	1967	1969	1970
<b>1. <u>USA</u></b>			
Production (only bituminous coal)	497.3	507.8	534.5
Export ( " " " )	44.9	50.9	64.2
Exports as percentage of production	9.0	10.0	12.0
<b>2. <u>Poland</u></b>			
Total production	123.9	135.0	140.1
(of which coking coal)	( .. )	( 31.8 )	( 34.0 )
Exports	24.0	26.4	28.8
Exports as percentage of production	19.4	19.6	20.6
<b>3. <u>Australia</u></b>			
Production (only bituminous coal)	33.4	46.1	49.8
Export ( " " " )	10.0	16.1	18.4
Exports as percentage of production	29.9	34.9	36.9
<b>4. <u>South Africa</u></b>			
Production (only bituminous coal)	46.0	49.3	50.8
Export ( " " " )	0.5	0.5	0.5
Exports as percentage of production	1.1	1.0	1.0
<b>5. <u>Canada</u></b>			
Production (bituminous and sub-bituminous coal)	8.5	7.8	11.6
Export ( " " " )	1.3	1.3	4.0
Exports as percentage of production	15.3	16.7	34.5

Trends in the average value at  
frontier for coal imported from third countries  
(cif Europe)

Units of account/t

Importing country	1967	1968	1969				1970				1971	
	Average		I	II	III	IV	I	II	III	IV	I	II
<u>A. US coal</u>												
Germany	14.49	14.44	14.37	13.92	14.01	15.77	15.60	16.90	19.31	19.51	19.81	19.35
France	15.23	15.39	14.92	16.38	15.84	16.06	15.99	17.86	19.14	18.49	22.52	22.15
Italy	13.90	14.13	14.64	14.63	14.68	14.59	16.21	17.64	20.20	14.3	23.97	24.66
Netherlands	12.57	13.32	13.90	14.75	13.94	16.06	14.30	17.77	19.70	21.07	21.69	21.89
Belgium	12.47	12.53	12.68	12.80	12.57	12.63	18.72	20.49	21.73	19.58	25.26	25.37
<u>B. British coal</u>												
Germany	10.59	9.78	9.81	9.79	10.31	17.15	10.62	10.84	11.05	11.27	11.22	11.05
France	17.61	17.26	17.02	16.90	15.82	17.77	17.25	18.36	19.97	20.74	23.63	23.80
Italy	10.91	9.96	..	11.11	11.89	11.88	14.78	13.10	14.71	14.61	17.66	13.85
Netherlands	19.52	13.22	14.10	12.99	17.64	20.00	22.42	20.32	27.28	29.99	23.51	25.11
Belgium	13.07	12.61	12.96	12.38	13.76	15.21	18.69	16.37	18.78	22.88	14.88	12.88
<u>C. Polish coal</u>												
Germany	12.15	12.10	11.33	12.14	12.13	14.68	12.26	15.03	17.35	17.63	17.07	18.39
France	11.95	11.31	11.70	10.75	10.65	11.64	11.89	11.81	12.50	12.60	17.19	14.66
Italy	10.18	11.47	12.09	11.69	12.07	12.80	13.42	15.57	13.37	14.88	17.78	18.77
Netherlands	10.65	11.00	11.66	13.25	12.39	11.18	12.44	13.35	13.95	15.87	15.62	16.47
Belgium	8.21	8.80	8.91	8.87	9.31	9.20	10.74	12.95	12.44	13.76	18.44	18.36
<u>D. Russian coal</u>												
Germany	11.18	10.06	12.10	10.60	11.55	11.61	11.00	11.37	..	11.84	..	10.96
France	26.61	27.00	29.23	29.25	21.61	29.18	29.08	27.88	25.80	27.74	29.30	27.71
Italy	11.75	11.17	10.60	10.75	10.22	11.45	10.43	11.66	12.62	13.59	16.36	24.69
Netherlands	13.88	10.36	9.57	7.96	10.17	8.96	8.75	8.70	8.70	8.82	..	..
Belgium	12.05	8.97	8.98	8.99	9.56	9.49	12.11	12.79	13.68	14.02	20.88	24.05

Table 32

Trends in the average export price for US hard coal<sup>1)</sup>; FOB US ports

Units of account/t

Importing country	1967	1968	1969	1970	1971							
	Yearly average				Jan.	Febr.	March	April	May	June	July	August
Germany	10.43	10.56	11.16	14.46	17.74	16.35	15.66	16.47	15.12	16.77	16.04	15.61
France	10.21	10.42	11.84	15.21	17.15	15.71	19.74	19.78	17.68	15.02	17.66	18.08
Italy	11.31	10.29	12.23	15.68	19.43	20.18	20.21	20.91	20.90	21.76	22.44	20.90
Netherlands	10.45	11.02	11.92	14.58	16.55	16.52	18.08	20.15	19.05	19.96	19.73	18.44
Belgium	10.65	11.35	12.15	17.56	21.14	-	21.24	22.88	20.61	21.77	23.01	22.29
Community	10.70	10.92	11.80	15.29	18.03	17.57	18.74	19.37	18.15	17.58	18.10	18.69
Japan	11.77	11.94	12.57	16.27	19.02	19.40	19.81	19.37	19.86	19.93	19.48	20.60
Total exports	10.57	10.79	11.48	14.77	18.49	18.70	19.34	17.82	16.89	16.37	15.78	17.46

1) Excluding anthracite.

Table 33

Survey of trends in list prices for Community coal and coke  
(Pithead prices, excluding taxes)  
(current rates of exchange)

Units of account/t

	1.1. 1967	1.4. 1969	1.1. 1970	1.7. 1970	1.1. 1971	1.7. 1971	1.1. 1972
<u>Coking coal</u>							
Ruhr <sup>1)</sup>	16.68	16.50	20.22	23.11	23.11	25.14	25.14
Lorraine <sup>2)</sup>	14.79	14.79	15.21	17.18	21.60	23.86	23.04
Nord/Pas-de-Calais <sup>3)</sup>	14.59	15.09	15.84	17.75	24.30	25.20	25.20
Campine <sup>4)</sup>	15.60	15.60	18.20	18.20	20.70	22.90	22.90
<u>Steam coal</u>							
Ruhr <sup>5)</sup>	17.04	16.88	20.53	23.09	23.09	24.86	24.86
Lorraine <sup>6)</sup>	14.79	14.79	14.76	15.84	17.37	19.53	19.53
Nord/Pas-de-Calais <sup>7)</sup>	15.50	16.10	16.92	20.52	20.52	21.15	21.15
Campine <sup>8)</sup>	14.90	14.90	16.90	18.40	20.00	21.90	21.90
<u>Blast furnace coke 9)</u>							
Ruhr	21.51	21.65	27.05	34.97	34.97	38.11	38.11
Lorraine	21.98	21.98	24.84	28.08	36.00	37.53	37.53
Nord/Pas-de-Calais	20.25	20.25	23.40	28.62	36.00	37.53	38.71
Belgium	23.50	25.50	32.00	38.00	39.50	39.50	39.50

- 1) 24% volatile matter.
- 2) 30 to 36% volatile matter.
- 3) More than 18% volatile matter.
- 4) 20 to 28% volatile matter.
- 5) High-volatile nuts 5 ( $\frac{1}{4}$ "- $\frac{3}{8}$ "), more than 35% volatile matter.
- 6) High-volatile nuts 5 ( $\frac{1}{4}$ "- $\frac{3}{8}$ "), 31 to 41% volatile matter.
- 7) High-volatile nuts 5 ( $\frac{1}{4}$ "- $\frac{3}{8}$ "), more than 30% volatile matter.
- 8) High-volatile nuts 5 ( $\frac{1}{4}$ "- $\frac{3}{8}$ "), more than 28% volatile matter.
- 9) Owing to the differing gradings the prices quoted for the various coalfields are not entirely intercomparable.

Table 34

Economic data regarding the coal-mining  
industry in the Community and in Great Britain

	Unit	1967	1968	1969	1970	1971 First half year
<u>A. COMMUNITY</u>						
Collieries' production costs <sup>1)</sup>	ua/t	17.45	17.41	17.88	20.94	21.94
Collieries' returns	ua/t	14.07	13.96	14.29	17.57	19.44
Shortfall on returns <sup>2)</sup>	ua/t	- 3.38	- 3.45	- 3.59	- 3.37	- 2.50
Shortfall on returns	Mill. ua	-626.0	-611.7	-623.2	-513.0	-208.5
Coking coal subsidies	Mill. ua	77.9	84.7	79.4	87.4	48.7 <sup>6)</sup>
Other direct subsidies	Mill. ua	308.1	424.7	427.7	332.4	380.1 <sup>6)</sup>
Total subsidies	Mill. ua	386.0	509.4	507.1	419.8	428.8 <sup>6)</sup>
Shortfall on returns after subsidies	Mill. ua	-240.0	-102.3	-116.1	- 93.2	..
Gross hourly wage index <sup>3)</sup>						
Federal Republic of Germany	Index	100.0	104.2	112.8	134.3	146.0 <sup>7)</sup>
France	"	100.0	109.8	117.0	126.7	137.2 <sup>7)</sup>
Belgium	"	100.0	103.3	113.6	135.6	152.5 <sup>7)</sup>
Netherlands	"	100.0	106.6	115.4	129.3	..
Shift productivity index	"	100.0	108.4	115.5	121.8	124.2 <sup>8)</sup>
<u>B. GREAT BRITAIN</u>						
Collieries' production costs <sup>4)5)</sup>	ua/t	11.73	11.90	12.81	14.22	..
Collieries' returns <sup>5)</sup>	ua/t	11.65	11.60	12.09	13.80	..
Shortfall on returns <sup>2)</sup>	ua/t	- 0.08	- 0.30	- 0.72	- 0.42	..
Shortfall on returns	Mill. ua	13.5	46.7	102.2	56.9	..
Subsidies	Mill. ua	..	..	..	..	..
Difference on returns after subsidies	Mill. ua	..	..	..	..	..
Gross hourly wage index	Index	100.0	107.4	112.6	127.4	134.1 <sup>9)</sup>
Shift productivity index <sup>5)</sup>	Index	100.0	109.5	113.1	116.3	119.5 <sup>8)</sup>

(ua = unit of account)

- 1) Full cost figures, including depreciation and calculated capital charges.
- 2) Nett calculation; i.e. the losses of those operations producing coal at a financial loss were set against the profits from those operations producing at a profit.
- 3) Expressed in national currency.
- 4) Production costs including depreciation and interest charges paid to the Ministry of Power; if the British production costs are calculated on the Community basis, this would give figures some 5% higher than the values inserted in the table.
- 5) For purposes of comparison with the Community, only underground operations have been included, i.e. surface operations are excluded.
- 6) Yearly totals. 7) Second quarter 1971. 8) Year 1971. 9) January 1972.

Table 35

Coal deliveries to Community coking plants<sup>a)</sup>

Countries of origin	1967			1968		
	Inland deliveries a)	Exchange	Total	Inland deliveries a)	Exchange	Total
Germany	9,648,837	8,368,436	18,017,273	9,313,498	10,265,543	19,579,041
Belgium	4,910,374	761,895	5,672,269	4,987,597	712,958	5,700,555
France	2,295,606	-	2,295,606	2,156,143	-	2,156,143
Netherlands	367,853	-	267,853	155,431	-	155,431
Community	17,122,670	9,130,331	26,253,001	16,612,669	10,978,501	27,591,170

Countries of origin	1969			1970		
	Inland deliveries a)	Exchange	Total	Inland deliveries a)	Exchange	Total
Germany	10,298,641	9,913,937	20,212,578	9,629,147	9,989,045	19,618,192
Belgium	5,014,818	475,152	5,489,970	4,626,765	288,000	4,914,765
France	1,912,907	-	1,912,907	1,886,016	-	1,886,016
Netherlands	94,616	-	94,616	-	-	-
Community	17,320,982	10,389,089	27,710,071	16,141,928	10,277,045	26,418,973

<sup>a)</sup> Excluding internal deliveries to pithead coking plants.







Table 39

Approximate hard coal equivalent for the consumption of blast furnace coke by the Community steel industry broken down by receiving countries<sup>1)</sup>

		Inland production		Exchange with- in the Community		Third count- ries		Total	
		Mill.t.	%	Mill.t.	%	Mill.t.	%	Mill.t.	%
Germany	1967	21.8	100.0	-	-	-	-	21.8	100.0
	1968	23.2	100.0	-	-	-	-	23.2	100.0
	1969	25.0	100.0	-	-	-	-	25.0	100.0
	1970	24.1	100.0	-	-	-	-	24.1	100.0
France	1967	7.0	50.0	5.8	41.4	1.2	8.6	14.0	100.0
	1968	6.8	46.3	6.9	46.9	1.0	6.8	14.7	100.0
	1969	6.9	44.2	7.2	46.2	1.5	9.6	15.6	100.0
	1970	6.8	40.2	7.4	43.8	2.7	16.0	16.9	100.0
Belgium	1967	4.7	63.5	1.7	23.0	1.0	13.5	7.4	100.0
	1968	4.7	57.3	2.7	32.9	0.8	9.8	8.2	100.0
	1969	4.9	57.0	2.8	32.6	0.9	10.4	8.6	100.0
	1970	4.1	46.6	2.9	33.0	1.8	20.4	8.8	100.0
Netherlands	1967	0.4	17.4	0.7	30.4	1.2	52.2	2.3	100.0
	1968	0.2	8.0	1.1	44.0	1.2	48.0	2.5	100.0
	1969	0.1	4.3	1.0	43.5	1.2	52.2	2.3	100.0
	1970	-	-	1.2	50.0	1.2	50.0	2.4	100.0
Italy	1967	-	-	1.8	38.3	2.9	61.7	4.7	100.0
	1968	-	-	1.9	38.0	3.1	62.0	5.0	100.0
	1969	-	-	2.0	39.2	3.1	60.8	5.1	100.0
	1970	-	-	2.1	35.0	3.9	65.0	6.0	100.0
Luxembourg	1967	-	-	3.7	92.5	0.3	7.5	4.0	100.0
	1968	-	-	4.0	93.0	0.3	7.0	4.3	100.0
	1969	-	-	4.4	95.7	0.2	4.3	4.6	100.0
	1970	-	-	4.8	96.0	0.1	4.0	5.0	100.0
Community	1967	33.9	62.5	13.7	25.3	6.6	12.2	54.2	100.0
	1968	34.9	60.3	16.6	28.7	6.4	11.0	57.9	100.0
	1969	36.9	60.3	17.4	28.4	6.9	11.3	61.2	100.0
	1970	35.0	55.5	18.4	29.2	9.7	15.3	63.1	100.0

1) Source: Table 38.

Implementation of Decision No. 1/67  
Compilation of quantities of coking coal attracting subsidies,  
together with the associated subsidies<sup>(1)</sup>  
Years 1967-1968-1969

Countries of origin Quantity in t	1967			1968			1969			1967 - 1968 - 1969			Average per tonne
	Inland deliveries	Exchanges within the Community	Total	Inland deliveries	Exchanges within the Community	Total	Inland deliveries	Exchanges within the Community	Total	Inland deliveries	Exchanges within the Community	Total	
Germany	21,767,285	12,799,584	34,566,869	23,215,315	15,880,326	39,095,641	24,963,704	16,867,775	41,831,479	69,946,304	49,547,685	119,493,989	
Belgium	4,733,430	636,383	5,369,813	4,694,203	655,100	5,349,303	4,913,573	367,153	5,280,766	14,341,206	1,639,676	15,980,882	
France	7,030,473	11,729	7,042,202	6,788,406	34,263	6,822,669	6,909,245	29,342	6,938,587	20,728,124	75,334	20,803,429	
Netherlands	443,443	218,817	662,260	252,594	99,951	352,545	67,026	-	67,026	763,063	318,768	1,081,831	
Total	33,974,631	13,666,513	47,641,144	34,950,518	16,669,640	51,620,158	36,853,548	17,264,310	54,117,858	103,778,697	47,600,463	153,379,160	
<b>Subsidies in units of account</b>													
Germany	37,004,385	21,759,293(3)	58,763,678	39,466,036	26,996,554(3)	66,462,590	42,438,297(2)	28,675,219(3)	71,113,516	118,908,718	77,451,066	196,339,784	170
Belgium	7,854,536	1,065,531(3)	8,920,067	7,886,952	1,047,662(3)	8,934,615	8,169,865	474,679	8,643,544	23,910,354	2,587,872	26,498,226	1,686
France	9,127,867	25,800	9,153,667	8,966,441	75,379	9,041,820	8,890,213(2)	46,876	8,937,089	26,984,521	148,055	27,135,576	1,304
Netherlands	751,593	371,989	1,123,582	429,409	169,917	599,326	113,944	-	113,944	1,296,946	341,906	1,638,852	1,700
Total	54,740,381	23,222,613	77,962,994	56,748,839	28,289,512	85,038,351	59,611,319	29,196,774	88,809,093	171,100,939	80,708,829	251,809,438	1,642

1) Provisional figures except for final exchanges with the Community in 1967  
2) In calculating the amounts given in units of account, allowance has been made for the devaluation of the French franc on 11.8.1969 (Subsidies paid : 48,022,587 Fr. Frs.) and the revaluation of the German mark on 29.10.1969 (Subsidies paid : 16,059,100.61 Mks.)  
3) In accordance with Article 9 of Decision No. 1/67, the amounts are unlimited.

Table 41

Compilation of quantities of coking coal attracting subsidies, together with the associated subsidies<sup>1)</sup>

1970

Country of origin		Inland deliveries	Exchanges within the Community	Total
<u>Quantities in</u>				
<u>Mill. t.</u>				
Germany	(a)	24.1	17.5	41.6
	(b)	( 6.5)	(17.5)	(24.0)
Belgium	(a)	4.0	0.2	4.2
	(b)	-	( 0.1)	( 0.1)
France	(a)	5.0	-	5.0
Total	(a)	33.1	17.7	50.8
Of which	(b)	( 6.5)	(17.6)	(24.1)
<u>Subsidies in</u>				
<u>Mill. ua</u>				
Germany	(c)	31.3	22.8	54.1
	(d)	4.5	11.8	16.3
Belgium	(c)	6.1	0.3	6.4
	(d)	-	0.1	0.1
France	(c)	7.5	-	7.5
Total	(c)	44.9	23.1	68.0
	(d)	4.5	11.9	16.4
	(c+d)	<u>49.4</u>	<u>35.0</u>	<u>84.4</u>

1) Provisional figures.

a) Quantities for which production subsidies (c) are paid.

b) Quantities for which, in addition, sales subsidies (d) are paid.