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Political Gas Pricing Premiums

The Development in West Germany 1977-1985

A Complex Decoding of Official German Import Statistics show that prices of Natural Gas supplied from Norway, the Soviet Union and the Netherlands to West Germany tends to be more or less the same. Thus, Norway's Western Political Connections does not give any Favour in the form of Higher Gas Prices than the Russian's get.

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Introduction

Many people has claimed that the danger of disruption of supplies of natural gas from the Soviet Union to Western Europe must lead to increased Norwegian production to supplant Soviet export. This is an argument which has been put forward as particularly applicable in a situation where the "normal" tempo of development of Norwegian gas-fields, and a decrease in Dutch production, bwould lead to a disturbingly large share of imports having to come from the Soviet Union. It is claimed, especially from the Norwegian side, that in order to increase our production faster than the so called "normal" plan, Norwegian gas would have to be priced higher than Russian gas.

In order to see if any such preferential pricing has in fact been implemented, I shall in this paper show a comparison of prices on supplies of natural gas from various countries to West Germany, and discuss various opinions regarding the possibility of any type of preferentials involving the participants in the market.

Companies and government authorities are extremely reticent about allowing gas-prices to be revealed to the general public, and prices both in previous and in future contracts are only referred to in more or less general terms in a number of specialist magazines. In official trade statistics, too, prices are kept secret in many countries by means of suppression of figures related to quantity or value, distribution by country or combinations of these. This secrecy hamper a discussion about the reality of a preferantial gas pricing.

A great deal of data suppressed in statistics may however be decoded by comparing different informations. As far as gas-prices are concerned we have, by utilising statistics published by the Statistisches Bundesamt under different nomenclatures, arrived at quantities, values and thus prices of the gas West Germany has registered as imported from each individual country. The advantage of using such a source is that each import figure

is based on invoice values, converted to a price c.i.f. the German border. This makes prices comparable even if the contracts contain different processing values. They may however conceal considerable differences in individual contracts. The figures only provide average prices, gauged in proportion to the quantity supplied in accordance with each individual contract. Such a survey does, of course, not provide an answer to the question of whether preferential pricing is an integral part of future contracts.

In the first chapter of this paper there will be a discussion concerning how factors connected with economic and political dependency may be imagined as influencing consumption of the individual energy sources and their distribution in terms of country. After this there will be a presentation of various reasons why differences in prices can arise considering the manner in which gas contracts are normally formulated. In the second chapter the prices of supplies of natural gas to West Germany from the Soviet Union, the Netherlands and Norway respectively in the 1977-85 period will be compared. It is evident that the proportionally gauged average prices from the individual countries seem to tend toward being comparatively similar over a period of time. In other words, any preferences for individual exporters have so far not been reflected in [illegible]rious possible reasons for this will be discusse[illegible]e third chapter possible developmental trends in the future will be discussed, among other things how preferences for certain countries may be imagined as having other effects than differences in price-setting. The main features concerning calculations and methodics are described in a separate appendix.

1. Uncertainty in Utilisation of Energy and the Formulation of Gas Contracts

1.1 Economic and Political Uncertainty in Utilisation of Energy

All utilisation of energy involves risks. Nuclear power involves the possibility of accidents. Coal involves a pollution problem. Hydro-electric power is probably the least risky source of energy, even though it depends on precipitation. All import of energy sources also involves to a greater or lesser degree of risk of political and economic dependency in the exporting countries. In particular this is a problem which has ben focussed strongly on with regard to oil and gas. This leads to a situation where on the one hand countries wish to diversify consumption among several energy sources, and, to the extent that they are dependent upon import of individual sources, also among several supplier nations.

1.1.1 Consumption of Energy in Western Europe 1984

Millions of Tonnes of Oil Equivalents

Energy Source	Consumption	Share
Total Amount	1 220.9	100.0
Oil	586.6	48.0
Natural Gas	178.9	14.7
Coal	265.2	21.7
Hydro-electric Power	107.7	8.8
Nuclear Power	82.5	6.8

Source: BP Statistical Review 1985

Western Europe's dependency on oil is considerable, a thing which in itself is an incentive to move in the direction of greater utilisation of other energy sources. (However, it would require deliberate political control to reduce the consumption of crude oil if the prices of coal and gas were more or less the same as for oil, or even tended to favour oil.)

One way to substitute oil is using more natural gas. In the European gas market consumer countries have the possibility of dividing their purchases among the Netherlands, Norway, the Soviet Union and North Africa. Other areas gas may be supplied from are the Middle East and other African countries (such as Nigeria), but this does not seem realistic before some way into the next century.

In recent years Western Europe has experienced increasing consumption of natural gas. In 1984 consumption was approximately 214 billion cubic metres (approximately 178 mtoe), which partly has been the result of a deliberate policy of reducing consumption of crude oil. The main consumer countries are France, Italy, Great Britain and the Federal Republic of Germany, with the Netherlands playing a double role as a major producer and consumer. The Soviet Union is the dominant producer in the "region", though most Soviet production is consumed domestically. Since production, then, takes place in areas other than those where a significant amount of consumption takes place, significant trade flows arise, where pricing and the reliability of supplies are important both to exporters and importers.

1.1.2 Natural Gas Trade in Western Europe 1984

Billion of Standard Cubic Metres

Exporter / Importer	Nether-lands	Norway	USSR	Algeria	Libya	Total
Germany	15.0	7.0	13.5	-	-	35.5
France	7.3	2.3	4.9	9.0	-	23.5
Italy	5.2	-	8.2	6.3	0.4	20.1
Belgium	5.8	1.7	-	1.5	-	9.0
Netherlands	-	2.8	-	-	-	2.8
Austria	-	-	2.8	-	-	2.8
Yugoslavia	-	-	2.0	-	-	2.0
Spain	-	-	-	1.3	0.7	2.0
Switzerland	0.4	-	-	-	-	0.4
Finland	-	-	0.8	-	-	0.8
The Continent	33.7	13.8	32.2	18.1	1.1	98.9
Great Britain	-	12.1	-	-	-	12.1
Total	33.7	25.9	32.2	18.1	1.1	111.0

Source: BP Statistical Review of World Gas 1985

Approximately half of West European consumption is covered by imports. In continental Europe the Netherlands and the Soviet Union are now approximately equally large exporters. However, if one looks at the whole West European import picture (including Great Britain), Norway is just a bit smaller than each of the other two. The newly signed Troll contract will rise Norway's export figures till todays level of the Russian's and the Netherland's in Continental Europe.

The validity of the argument that a country should receive a special political preferential price for its gas exports depends among others upon to what extent other suppliers are regarded as being unreliable, what developments take place in other energy markets, what developments take place in western economy, to what degree economic activity leads to increased demand for energy, what capital equipment utilising individual energy sources in individual countries is like, and not least: what price the market will "give" without intervention having taken place.

With so many variables influencing the validity of the argument, there may, at any rate theoretically, be situations where preferential pricing is realistic for one country, situations where no country will receive a preferential price and situations where preferential treatment may be based on aspects other than prices.

1.2 Gas Contracts

Prices in contracts for the sale of natural gas are positively correlated to prices of other energy sources contained in the contract. If the price of gas is G and the price of other energy sources Ei (i = 1,....n) the price of gas may be expressed generally by the following formula:

$$1.2.1 \qquad G = f(E1,.....,En),$$

$$\text{where} \quad \frac{dG}{dEi} > 0 \qquad (i = 1,.....,n)$$

However, prices in different contracts may react to different degrees to changes in other prices and with varying time-lags. The energy contained in each individual contract may also vary. To a considerable extent contracts have been linked to the price of heavy fuel oil, which means that prices have fluctuated in accordance with the price of this oilproduct. In 1984 the price of heavy fuel oil rose in relation to the prices of other distillates, thus pushing up the price of gas independently of developments concerning the price of oil. However, if the comparative relationship between the price of petroleum products contained in contracts and that of crude oil remains constant, with corresponding lags gas prices will fluctuate in accordance with crude oil prices, considering the manner in which contracts are largely formulated today. However, lately some contracts have also (implicitly) been entered into for supplies containing prices partly linked to coal.

The main element of the philosophy behind formulation of contracts where prices are linked to other energy prices is based on the idea that gas prices should be more or less the same as the prices of the energy sources gas competes with. However, if one is to replace other energy sources with natural gas one must set gas prices somewhat lower than the prices of alternatives, so that transitional costs are also covered. The degree of this depend, among other things, on how fast one wishes to replace the capital equipment compared to it's living age.

The price of alternative energy sources also varies with the sector it is delivered to. It is lowest for electricity supplies, somewhat higher for industry, and highest for general supplies to households and businesses. The price we will be referring to later is gauged in proportion to the quantities contained in the various areas of utilisation. Thus relatively greater utilisation of natural gas in households would push the average price up. In the same way a technical modification in one of the areas of utilisation would increase the value of the gas to users. If the negotiated price is focussed on the average price, re-negotiation, then, should take place each time such technical improvement or changes in connection with market distribution take place, if one is to retain a price similar to that for alternative energy sources as a whole.

The contracts thus allows prefential pricing among others through:

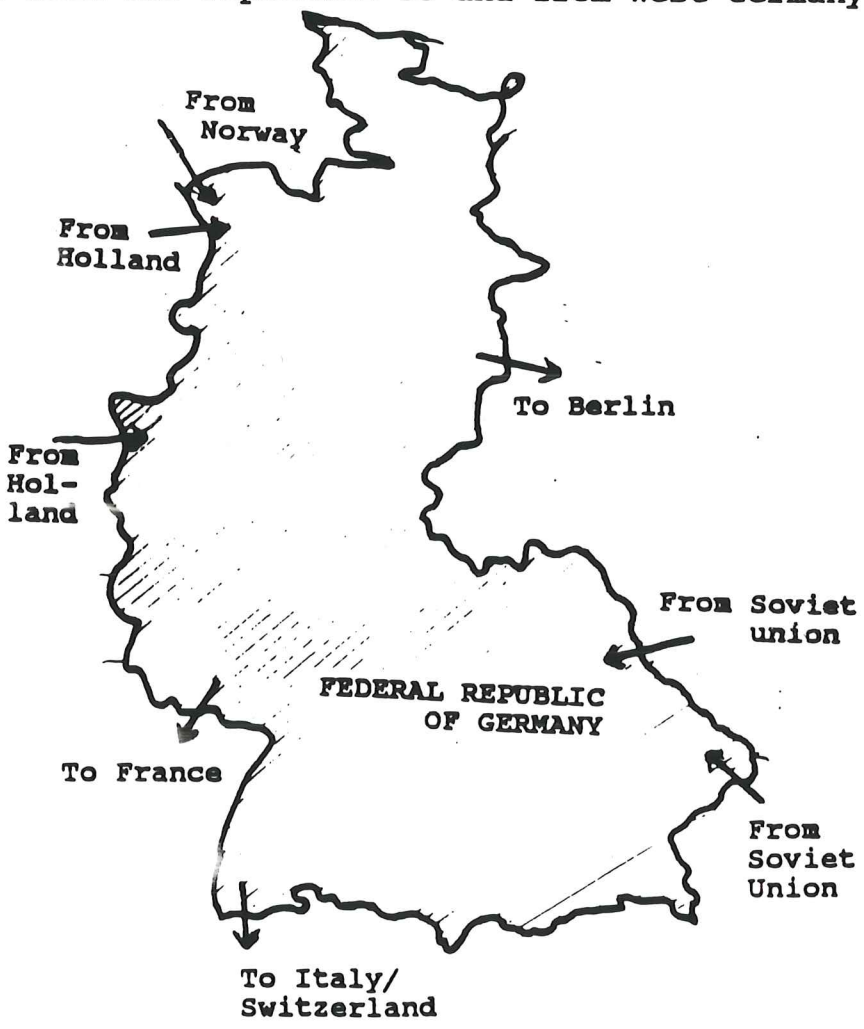
a) The escalation mechanism
b) The composition of energy sources implemented in the contract and how their prices react to changes in the currency rates.
c) The composition of high- and low-price consuming sectors

Its obvious that differences in these factors may bring differences in the short run. Our question is if these differences systematically favours contracts from one special country ?

2. Comparison of Gas Prices

We shall look at the development of the prices on gas imports to West Germany; the biggest single importer of Natural Gas in hole Western Europe. As was shown in 1.1.2 West Germany imports gas from the Netherlands, Norway and the Soviet Union respectively. Dutch gas is taken in from the west of Arnhem and Groningen, Norwegian gas via the terminal at Emden, while Soviet gas is taken in over the
Czechoslovakian border to the west of Pilsen (the Megal pipeline) and through Austria. West Germany also acts as a transit country for gas, and pipelines for transporting gas out of the country goes from Saarbrucken to France and west of Basel to Switzerland and Italy.

2.1 Main Gas Pipelines to and from West Germany

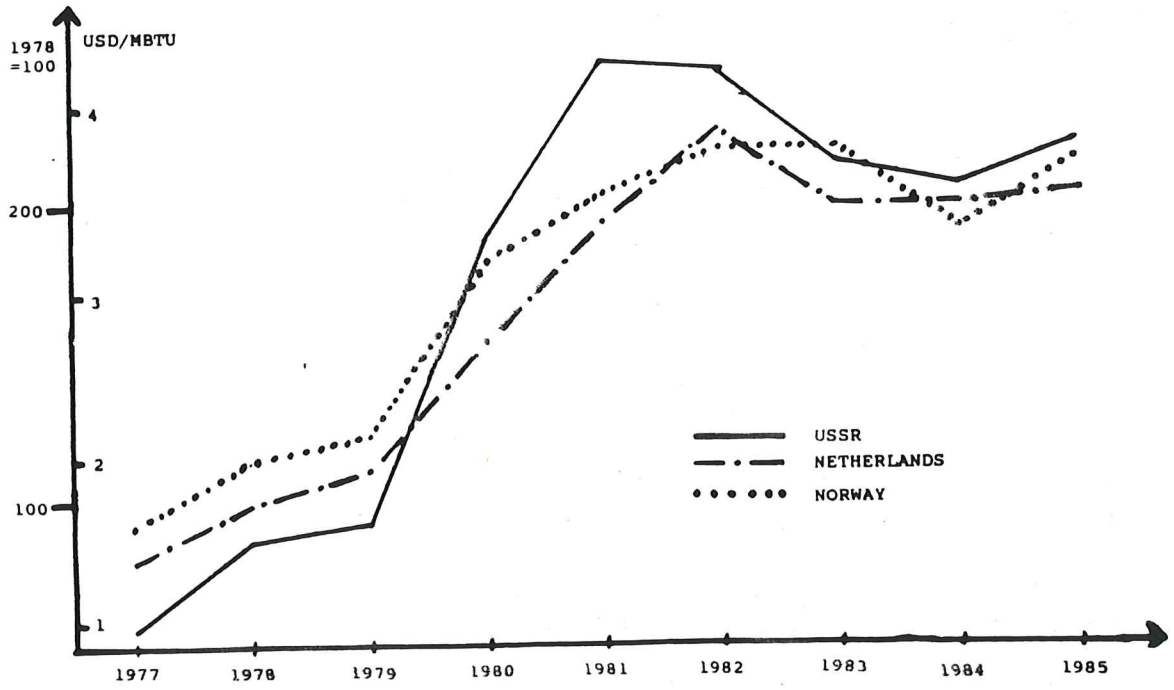


Source: Glückauf Jahrbuch 1985/86

The source for my figures is official import statistics from Statistiches Bundesamt in Wiesbaden. The decoding method and the main features concerning calculations and metjodics are described in a separate appendix. The unit of energy often used in gas contracts is the British Thermal Unit (BTU). German importat statistics give prices in marks per tonne. Conversion from tonnes to BTU requires quite accurate information regarding calorific values and specific weights of individual countries' gas. With reservations on the fact that re-calculation factors may contain some inaccuracies, and statistical errors in general, the figures show this development in prices for the period from 1977 to 1985 period.

2.2 Import Prices of Natural Gas to the Federal Republic of Germany

Dollars per MBTU 1978 = 100



Source: Decoding of German Import Statistics (v and vii)

The figures show that when Norwegian supplies of natural gas started up from the Ekofisk field in 1977, prices were higher than both Dutch and Soviet prices. However, after the Soviet Union re-negotiated its contracts in 1979 their prices overtook Norwegian prices and since 1980 they have largely remained above.

2.3 Soviet Gas Prices

Percentage Proportion of Norwegian Gas Prices

1977	1978	1979	1980	1981	1982	1983	1984	1985
61	76	75	104	122	112	98	108	103

An obvious feature of the period is thus the growth of Soviet gas prices in relation to Norwegian prices, but it may seem as if the prices are converging on one another as time goes by. Since 1980 the difference according to German import statistics has been 4, 22, 12, -2, 8 and 3 per cent in favour of the Soviet Union. To a certain degree this cannot be said to represent very large differences, but because of the size of the sums involved they constitute large amounts:

2.4 Extra Sales Revenues to Norway if Norwegian Gas Had Been Sold for the Same Prices as the Soviet Union Received in 1980-85. Millions of NOK, USD, and DEM:

Year	1980	1981	1982	1983	1984	1985	Total
NOK	328	2218	1593	-260	1052	366	5297
USD	66	386	247	-36	129	43	835
DEM	120	871	599	-91	368	125	1624

Even though terms of supply in each contract may be different, as has been mentioned in accordance with definitions applying to trade statistics, import prices must be comparable. An example

of a possible divergence from this, however, is that whereas prices in Norwegian contracts are determined at time of departure from the terminal at Emden, the point of price calculation in German statistics is located at the time of arrival, before the terminal. Thus the value of the cleaning process at the terminal is deducted from the invoice value. This means that part of the increase in value produced by forwarding the gas to consumers takes place in Germany. If such processing does not take place in connection with supplies of gas from other countries, this reduces the Norwegian prices in our survey in relation to these. However, the increase in value at Emden only constitutes approximately 1% of the contract price, so this difference will not alter the levels of the curves in the above figure. Nor will utilisation of current values as done in 2.4 give an accurate expression of values lost in the period. However, the representation does give a clear impression of the fact that small margins soon constitute billions, thus making it important for exporters and importers to attract them to themselves.

The main conclusion which can be drawn from these figures is that so far Norway has not received any preferential treatment in the form of higher gas prices. It may seem as if prices are roughly speaking (over a period of time) more or less the same for all countries. The reasons for temporary differences may be different negotiating strengths/skills and/or willingness, and divergent escalation clauses in individual contracts. According to the German import statistics these factors look as if they may favour the Soviet Union.

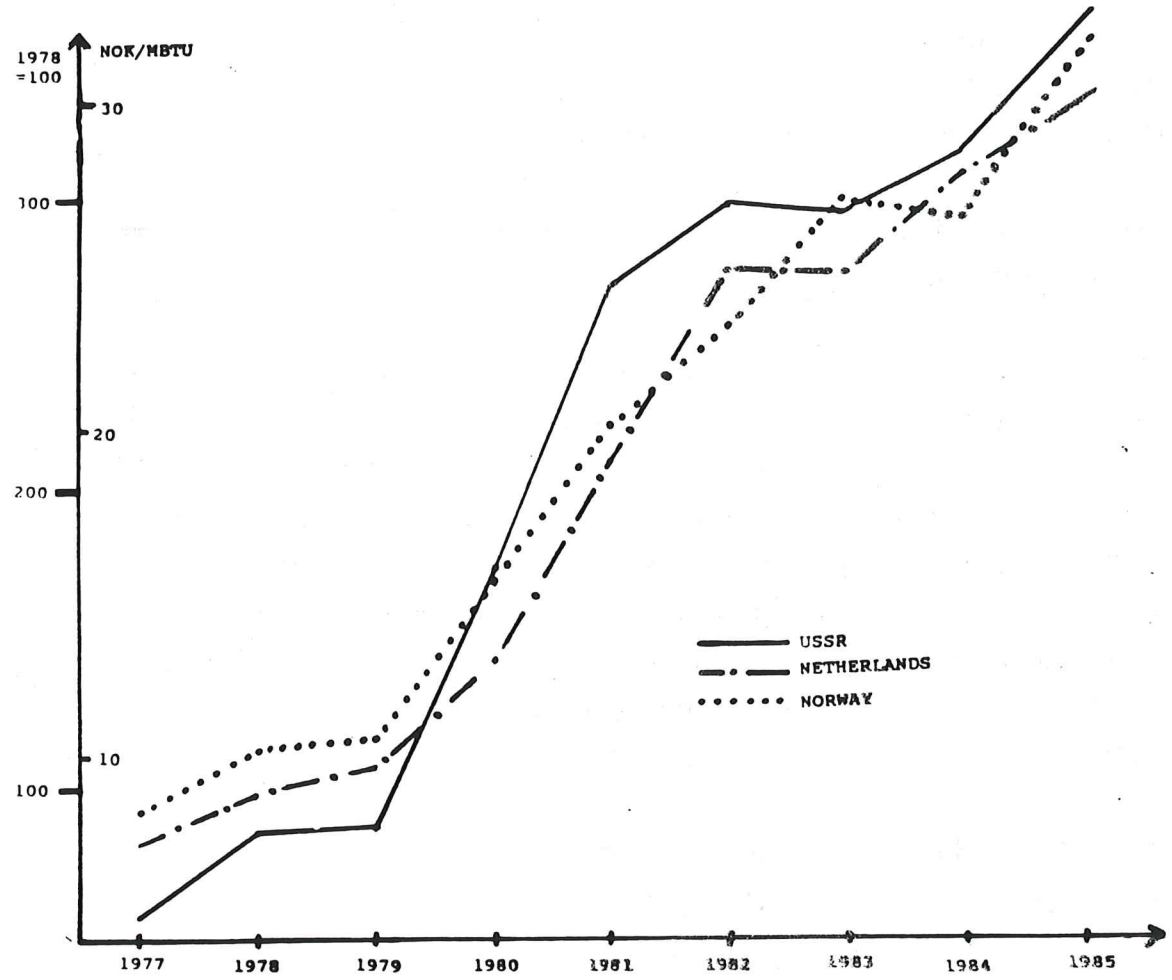
If it is so that the Russians' higher prices are not due to systematic statistical errors in the Statistisches Bundesamt and are not due either to negotiating skills or special (temporary) escalation clauses, it is difficult to explain the difference in prices in any other way than that the Germans regard the Soviet Union as an attractive trading partner and not as a burden to do business with. Thus preferential pricing goes in favour of the Soviet Union. Why ? In an economic sense the Soviet Union as a market is more interesting and important to the Germans than

Norway, even if we take into account Norwegian offshore activities and military equipment. Even though the absence of strikes is not due to the fact that people in the Soviet Union are particularly more content with their wages and working conditions than workers in the North Sea, the Soviet Union may also, from the buyers point of view, be said to be a country with "stable" working conditions. In addition, it is also possible that the Germans, as a part of their Ost-politik, wish to trade with the Russians. Trade relations between countries create awareness of common interests, replacing knowledge of dissimilarities. They may thus contribute to relaxe tensions between both blocs in Europe.

As a result of the fall in crude oil prices calculated in dollars, 2.2 shows that gas prices also calculated in dollars, lagging to a certain degree behind crude oil prices, have also fallen. However, calculated in Norwegian kroner (or in another Western European currency) gas prices, like oil prices, have shown a steady rise ever since 1977. The fall in the price of oil both in European currencies and in dollars since the summer of 1985, and especially the winter of 85/86, will not fully affect gas prices in the European Market before some way into 1986.

2.6 Prices of Natural Gas Imported to the Federal Republic of Germany

NOK per MMBTU 1978 = 100



Source: Decoding of German Import Statistics (xi and xiii)

The figure above is the same as the first figure (2.2) expressed in Norwegian kroner. That is to say that the difference between them is only the annual exchange rate of the dollar compared to Norwegian kroner. Thus the comparative relationships between individual prices will remain as in 2.2. Corresponding developments also exist for prices calculated in other West European currencies.

3. Conclusions

If a purchaser should wish to employ sources that are unreliable when he has alternatives considered safer, they must provide him with advantages in "normal" periods which compensate for those disadvantages he thinks he may get in periods of disruption. The probability of trouble and the extent of this trouble's effect on supplies must be weighed against the advantages he otherwise gains by employing such sources.

For commercial reasons importers desire to spread their purchases among several sellers. It is when weighing various types and degrees of risk against one another that purchasers may arrive at preferences among the various suppliers. In a scenario where one supposed that the Russians would turn off the taps, they would also lose their own currency revenues. What if instead they had the possibility of reducing Norwegian supplies? Then they would reduce energy supplies to Western Europe at the same time as they retained their income. Would their closing off their own pipeline not constitute such a dramatic scenario, that the political climate would make it possible that such a pressure was also brought to bear on Norway ?

Added to the difficulties concerning evaluation of <u>each exporter's degree and quality of security</u> in their supplies (politically, military, technically et.c.), it would probably be extremely difficult for any purchasing government to discriminate openly between any of the sellers <u>in price</u>. Possibly it could easier be done in connection with <u>volume and reliability of supplies</u>. When the market grows it would be the country preferred that was first allowed to sell its gas. If a country was to receive any preferential treatment in the form of price, it would prabably be in a more indirect form, for example through the purchasing countries financing parts of the field developments, through inexpensive loans, less visible commercial package deals etc. Such arrangements might in turn also lead towards the selling country to achieve greater stability in terms of supplies.

In a falling market preferential pricing could, however, have a decisive importance for the development of Norwegian fields. Considering the substantial costs involved in developing these, it would be of importance if Norway was guaranteed a certain price over a long period. However, one might call this a price guarantee, rather than a price premium, at least in so called "normal" market situations.

When the relation between oil (or more general: energy) and gas prices is established, the gas price will be determined on the basis of the current oil price. However, the higher the oil price, the smaller the gas/oil price-fraction have to be in order to cover i.e. the transitional costs for the consumers to leave oil in order to favour gas. Thus, contracts on future supplies of natural gas will imply expectations of future oil prices. The Statfjord contract signed in the early eigthies was based on expectations of a rapid rise in oil prices from 1985 and onwards, whereas the now signed Troll contract contain expectations of slightly growing oil prices in the ninthees. Like the Germans, who are renegotiating the Statfjord Contracts as oil prices did not show the expected rise, we will probably also see a renegotiating of the Troll Contracts if the oil price development does not follow the expected growth. If oil prices grow faster than expected, the contract will probably be adjusted upwards. If oil prices grow slower (or falls) in the ninthees, the contract will prabably be adjusted downwards.

The Troll contracts contain prices approximately on the 1985-level, thus a bit higher than the 1986-prices, but lower than Norway's initial expectations. This level seemes to be what was possible to achieve with todays expectations of the oil price development, and thus a reasonable contract to sign for both parties. The market share will probably be one of the significant features of the ability of changing the contract in ones favour later if renegotiating are to take place, and the volume of the Troll contract are strengthening Norway's position in this respect.

We have seen that small margins constitute large sums. Thus it is important to all parties in the market that the margins are in their favour. Sellers may attempt to take part of the profits of the purchasing consortium, or also perhaps pass somewhat higher prices on to consumers. Given that prices remain more or less the same to each seller over a period of time, another way of looking at the gas market could be in terms of the sellers common interests. What about considering the co-ordinating of the sales policy to Norway, the Netherlands, the Soviet Union and Algeria, even if it will have to be considered as politically impossible at present ? However, if the political connections of individual countries prevent parties from taking part in co-operative efforts to increase common gas prices which they would otherwise wish to participate in, i.e. be the means of a common pricing strategy, the seller countries will be in a situation where they pay for political connections instead of gaining economic advantages from them.

With a group of buying countries gathered in one consortium and selling countries splitted, a market structure more or less made out of the present political situation, the West European Gas Market may be considered as an oligopoly on the sellers and a monopsoni on the buyers side. Given that a monopsony have a stronger market position than an oligopoly, one could say that the political situation have led to lower prices in general to the sellers than otherwise could have been realised. In such a case the political situation implies preferential treatment of consumers at the expense of producers and not one producer at the expense of another.

APPENDIX

Calculations

In the Federal Republic of Germany natural gas is registered under a special trade number (27.11.910). The trade nomenclature used by the Germans is an expanded national version of the EEC area's common nomenclature, NIMEXE, which again is based on the Customs Co-operation Council Nomenclature (CCCN).

As regards natural gas as an item of trade the total quantity and value of imports to the Federal Republic is given. Division into countries is not given in importation statistics in connection with the NIMEXE division. However, by employing statistics published by the Statistisches Bundesamt in accordance with various nomenclatures, one arrives at quantities, values and therefore prices of the gas Germany registers as imported from each individual country. Besides NIMEXE the Standard International Trade Classification (SITC), which is the UN's nomenclature for trade statistics, is utilised. They give goods in a different order than CCCN/NIMEXE do. Moreover, a special standard for trade groups is utilised in the German statistics. An exact description of how the various publications are combined has been published in Austvik (1985), Central Bureau of Statistics. For each individual supplier country the calculations give the following results:

i) Imports of Natural Gas to the Federal Republic of Germany

Millions of Tonnes

Year/Country	Norway	Soviet Union	Netherlands	Others	Total
1977	2,281	4,300	22,235	231	29,048
1978	8,111	6,607	19,191	-	33,909
1979	10,400	7,744	20,265	-	38,409
1980	12,496	7,260	20,062	-	39,818
1981	11,534	8,013	18,349	-	37,896
1982	11,261	7,097	16,409	-	34,762
1983	10,392	7,366	17,177	-	34,935
1984	10,167	8,878	15,869	66	34,980
1985	8,860	8.905	16,844	1	34,610

ii) Millions of German Marks

Year/Country	Norway	Soviet Union	Netherlands	Others	Total
1977	407	446	3,084	54	3,991
1978	1,592	938	2,911	-	5,441
1979	1,997	1,061	3,142	-	6,200
1980	3,532	2,021	4,252	-	9,805
1981	4,578	3,683	6,115	-	14,376
1982	5,156	3,460	6,862	-	15,479
1983	4,986	3,315	6,678	-	14,979
1984	4,750	4,249	6,885	33	15,917
1985	4,816	4,737	7,712	-	17,265

The figures under "Total" have been checked against the quantities and values published in German statistics under the NIMEXE number for natural gas. We find some minor deviations in 1977 and 1984 but this is a matter of tiny fractions of the total and does not alter the main features of the final figures.

Not all natural gas registered as imported to the Federal Republic is consumed in the country. For example, 50 per cent of imports from Norway are re-exported to France, Belgium and the Netherlands. See in this connection, for example, Austvik (1985, NUPI-Paper No 326). Our intention is to show price developments for imports of natural gas for each of the countries, and for this reason we do not pursue the gas to the "final" place/country of consumption. Thus, to the extent that differences in price exist in the different countries, these may have an effect on the average prices we have registered in the German importation statistics. To our knowledge the Norwegian prices to each of the receiving countries are similar.

The above-mentioned figures for quantities and values give us direct prices per tonne. However, gas prices in contracts are not settled by unit of weight, but by unit of energy. Usually the prices in the contracts are settled per Millions of British Thermal Units, abbreviated to MBTU. 1 therm corresponds to 100 000 BTU which again correspond to 25 200 Kcal in calorific value

(OD's annual report). This means that there are approximately 4 BTU per Kcal.

The price of gas per cubic metre is found by multiplying the price per tonne with the specific weight. The gas price per MMBTU is found by dividing the price per unit of volume (cubic metre) with the gas's calorific value per the same unit. We have set the values of individual variables for the different countries as follows:

iii) Transformation Factors

Units:	Norway	Soviet Union	Netherl.	Source
Kcal/Nm	10600	9500	8400	Ruhrgas
Kg/Nm3	0.85	0.80	0.76	OD/Estimates/Gasunie
BTU/Nm3	42400	38000	33600	Kcal/Nm3 x 4BTU/Kcal
MBTU/Tonnes	49,882	47,500	44,211	BTU/Nm3 / Kg/Nm3

By means of these factors we arrive at a conversion into prices per unit of energy (MBTU). By means of the currency rates given below we also arrive at prices in the currency we desire: German marks, Norwegian kroner or American dollars:

iv) Currency Rates for German Marks and American Dollars towards Norwegian Kroner 1977-85

Year	NOK/100 DEM	NOK/USD
1977	236.02	5.33
1978	261.77	5.25
1979	277.00	5.08
1980	272.64	4.95
1981	254.70	5.75
1982	265.80	6.45
1983	286.14	7.30
1984	286.83	8.16
1985	292.65	8.60

Source: The Bank of Norway

The point of measurement was c.i.f. the German border. This means that all costs both in connection with recovery and transport up to the German border are included in the prices. Transport from the German border and internally in the country and any processing costs in the country have not been included. This gives us the following prices calculated in American dollars and Norwegian kroner per MMBTU. As the price of oil we have given the official norm price for Norwegian North Sea oil f.o.b. Teesside both in dollars and Norwegian kroner.

The Prices of Natural Gas Imported to the Federal Republic of Germany (c.i.f. German Border).

v) American Dollars per MBTU

Year/Country	Norway	USSR	Netherl.	Average	Oil Price/Barrel
1977	1.58	0.97	1.39	1.34	14.3
1978	1.96	1.49	1.71	1.73	14.1
1979	2.10	1.57	1.91	1.90	21.9
1980	3.12	3.23	2.64	2.91	36.0
1981	3.52	4.29	3.34	3.60	38.0
1982	3.78	4.23	3.90	3.93	33.9
1983	3.77	3.71	3.446	3.61	30.5
1984	3.29	3.54	3.45	3.43	29.3
1985	3,71	3,81	3,52	3,60	27.6

vi) Norwegian Kroner per MBTU

Year/Country	Norway	USSR	Netherl.	Average	Oil Price/Barrel
1977	8.44	5.15	7.40	7.15	76.0
1978	10.30	7.82	8.98	9.09	73.5
1979	10.66	7.99	9.72	9.63	110.8
1980	15.45	15.98	13.07	14.41	177.5
1981	20.27	24.65	19.20	20.72	217.5
1982	24.40	27.28	25.14	25.33	219.0
1983	27.52	27.11	25.16	26.33	227.3
1984	26.86	28.90	28.15	27.95	238.9
1985	31.89	32.73	30.31	31.34	237.1

Corresponding tables may be set up as index rows. We have selected 1978 as the basis, since this was the first year when all three countries exported substantial quantities of gas to the Federal Republic.

Price Developments for Natural Gas Imported to Germany
1978 = 100

vii) American Dollars per MBTU

Year/Country	Norway	USSR	Netherl.	Average	Oil Price/Barrel
1977	91	56	80	77	101
1978	113	86	99	100	100
1979	121	91	110	110	155
1980	180	187	153	168	255
1981	203	248	193	208	270
1982	218	245	225	227	240
1983	218	214	199	209	216
1984	190	205	199	198	208
1985	214	220	203	208	196

viii) Norwegian Kroner per MBTU

Year/Country	Norway	USSR	Netherl.	Average	Oil Price/Barrel
1977	93	57	81	79	103
1978	113	86	99	100	100
1979	117	88	107	106	151
1980	170	175	144	159	241
1981	223	271	211	228	296
1982	268	300	277	290	298
1983	303	298	277	290	309
1984	295	318	310	307	325
1985	351	360	333	345	323

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SUMMARY IN ENGLISH

When Norwegian supplies of natural gas started up from the Ekofisk field in 1977, prices were higher than both Dutch and Soviet prices. However, after the Soviet Union re-negotiated its contracts in 1979 their prices overtook Norwegian prices and since 1980 they have largely remained above. In 1985 the gauged prices were more or less the same, and it may seem as if prices are roughly speaking (over a period of time) more or less the same for all supplying countries. A preferense for one country may, however, possibly be made with volume and reliability of supplies. The figures are collected through a complex decoding of Official German Import Statistics.

The paper also shows that the prices of natural gas in the West Europan market never has been higher than in 1985, and they have shown a steady rise ever since 1977. This is due first to the rise of the dollar oil prices until 1982 and, as they were falling afterwars, the rise of the exchange rate of the dollar towards all the West European Currencies. The fall of oil prices in West European currencies since the summer of 1985, and especially the winter of 1985/86, will not fully affect gas prices in the European Market before the fall of 1986.

Prices in future contracts seem to a large extent to depend on the expectations the participants in the market have on future energy prices at the time of contracting. If the market conditions are changing considerably compared to the expected development, the contracts will be renegotiated. Even if the newly signed Troll contract contain a price approximately on the 1985-level, thus a bit higher than 1986-prices, but lower than Norway's initial expectations, it seemes right to sign for the volume. Each country's market share will have an impact on the renegotiating strength, and the volume of the Troll contract may show to be a significant feature of the ability of changing the contract in ones favour later if renegotiating are to take place.

With a group of buying countries gathered in one consortium and

selling countries splitted, a market structure more or less made out of the present political situation, the West European Market may be viewed as an oligopoly on the sellers and a monopsoni on the buyers' side. Given that a monopsony has a stronger market position than a oligopoly, one could say that the political situation has led to lower prices in general to the sellers than otherwise might have been realised. In such a case the political situation implies preferential treatment of consumers at the expense of producers and <u>not</u> one producer at the expense of another.

SAMMENDRAG PÅ NORSK

Etter at prisen på norsk gass levert Vest-Tyskland lå høyere enn de sovjetrussiske prisene på slutten av 70-tallet, passerte de sovjetiske prisene de norske og har siden 1980 stort sett ligget noe over. De veiede gjennomsnittsprisene var i 1985 imidlertid svært nære hverandre, og det synes ikke som at noe land får noen preferanse i form av pris framfor andre leverandørland over tid. En preferanse for et enkelt leverandørland synes mer sannsynlig å kunne slå ut i form av volum og eventuelt leveringssikkerhet. Tallmaterialet er hentet via en komplisert dekoding av offisiell tysk importstatistikk.

Notatet viser også at gassprisene regnet i norske kroner alder har vært høyere enn i 1985, til tross for fallende oljepriser i dollar over flere år. Dette skyldes først økningen i oljeprisen i dollar fram til 1982, og når dollarprisen falt etter det, økningen i kursen på amerikanske dollar vis a vis alle vest-europeiske valutaer fram til 1985. De fallende oljeprisene i 1985 og 1986, også regnet i europeiske valutaer, vil først få full virkning på gassprisene fra høsten 1986.

Prisene i framtidige kontrakter synes i stor utstrekning å avhenge av de forventninger partene har om utviklingen i energi-prisene på kontrakteringstidspunktet. Dersom forholdene i vesentlig grad endrer seg i forhold til denne, vil kontraktene bli reforhandlet. Den markedsandel hvert land har vil imidlertid kunne være med å påvirke den enkeltes reforhandlingsstyrke, og kan synes å være viktigere enn å oppnå kanskje urealistiske prisvilkår på kontrakteringstidspunktet. Dette notatet viser at prisene for hvert leverandørland tenderer å bli relativt like over tid, og selv om den nylig inngåtte Troll-kontrakten synes å ligge på en pris om lag på 1985-nivået, altså noe høyere enn 1986-prisene, men lavere enn opprinnelig forventet, virker det fornuftig å sikre seg selve leveransevolumet.

Med et samlet kontinentalt kjøperkonsortium og splittete selger-land, en situasjon som mer eller mindre er skapt ut av dagens

politiske forhold, kan det vest-europeiske gassmarkedet oppfattes som et oligopol på selgersiden og monopsoni på kjøpersiden. Gitt at et monopol gir en sterkere markedsposisjon enn et oligopol, er det mulig at den politiske situasjonen har ført til at selgerne får lavere priser enn de ville fått uten en slik splittelse. En politisk prispremie går da eventuelt i favør av konsumentene på bekostning av produsentene, og ikke til et produsentland på bekostning av et annet.

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