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Western Markets for Soviet Energy

Summary

The Soviet Union has emphasized increased energy exports to the West as a means of earning hard currency. Although oil and coal will continue to earn Moscow hard currency, neither has the growth potential of natural gas. Despite the availability of adequate indigenous resources in Western Europe, the current gas surplus, together with Soviet marketing efforts, could prevent or delay development of new projects needed to meet West European demand requirements in the 1990s. Japanese interest in Soviet energy projects is based principally on a desire to sell equipment. Tokyo may, however, purchase competitively priced Soviet energy as part of its strategy to reduce energy costs. Concerns over undue dependence on Soviet imports should help limit the size of additional purchases. Nevertheless, if substantial progress on the development of indigenous Western gas resources is not achieved over the next few years because of weak demand, the high price of new gas, and stringent tax structures, Soviet gas may account for half of Western Europe's gas supply, and earn Moscow close to \$25 billion a year, by 2000. Until West European governments view gas supply availability in a regional strategic perspective, the coordination necessary to use effectively Europe's gas system during a disruption is highly unlikely. [redacted]

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This memorandum was prepared by [redacted] Energy Markets Branch, Office of Global Issues; [redacted] Western Europe Division, Office of European Analysis; and [redacted] Japan Branch, Office of East Asian Analysis. The information contained herein is updated to 29 November 1984. Comments may be directed to [redacted] Chief Strategic Resources Division, [redacted]

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Western Markets for Soviet Energy

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Western Markets for Soviet Energy

Over the last two decades Moscow has emphasized increased energy exports to the West to earn the hard currency necessary to purchase Western grain, technology, and equipment. At best we believe Soviet oil revenues will remain flat and increases in the much smaller volume of coal exports will depend almost entirely on Japanese purchases from a joint development project in Yakutsk. In view of Moscow's need for hard currency earnings, increased natural gas exports will be central to Soviet energy export policy in the 1980s and into the 1990s.

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Reduced natural gas demand and a surplus of available supplies in Western Europe, however, have sharply reduced its willingness to buy Soviet gas in this decade. In response, Moscow has undertaken a concerted gas-marketing effort, cutting some prices and attempting to penetrate new markets--an effort that has the potential to limit sales by other gas suppliers to the West European market. Given its abundant gas reserves, pricing flexibility, and the ability to deliver gas with relatively short lead times, Moscow is well placed to capture any growth in West European gas demand in the 1990s and beyond.

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For Western Europe to avoid increasing dependence on Soviet gas imports in the 1990s, decisions to develop new indigenous gas supplies must be made within the next year or so. The known but as yet undeveloped gas fields in the North Sea, particularly the Norwegian Troll field, are expected to be very costly and to have leadtimes as long as 10 years. Furthermore, negotiations for the sale of Troll gas may not proceed unless the sale of gas from Norway's Sleipner field is successfully concluded. Under the existing tax structure, however, it is doubtful whether new Norwegian gas can compete favorably against low-cost Soviet supplies, especially in view of Moscow's aggressive gas marketing tactics. In our judgment, if new sources of gas are not available in the mid 1990s, Western Europe could find itself dependent on Soviet gas for as much as half of gas consumption. Moreover, such purchases could generate close to \$25 billion a year for Moscow in hard currency earnings by 2000.

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Current Gas Market

According to the trade press, the main concern in international gas markets over the past year or so has shifted from lining up new supplies to absorbing contracted gas deliveries because of depressed demand. After steadily increasing during the 1960s and 1970s, gas consumption declined sharply in Western Europe and the growth in consumption slowed considerably in Japan during 1980-82. The world economic recession that began in 1980, combined with the sharp escalation in international gas prices in recent years, was responsible for the large but temporary reduction in gas use.

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Published data indicate that natural gas accounts for approximately 15 percent of total West European energy use, and [redacted] expect it to maintain that share of the overall energy mix through the end of the century. In response to the price shocks of 1979-1980 and the subsequent economic recession, total West European natural gas demand declined by over 5 percent between 1979 and 1982, but in 1983 rose about 4 percent. Preliminary estimates for the first half of 1984 show that gas demand continued its strong growth, rising 9 percent above year-earlier levels.

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About one-fifth of all gas consumed in Western Europe in 1983 came from Algeria and the Soviet Union, although some countries were more dependent on Soviet imports than others. All of the gas consumed in Finland, for example, is purchased from the Soviet Union. Soviet gas sales to Austria cover 70 percent of Vienna's gas needs. Italy already depends on Soviet gas for nearly half its imports, or 28 percent of its gas consumption. West Germany and France also rely heavily on Soviet gas. Soviet gas, however, represents only about 3-9 percent of total energy needs in most West European countries. [redacted]

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Natural gas currently provides only 7 percent of total Japanese energy use. The Japanese government expects this share to expand to about 10-12 percent by 1990. With only a small amount of domestic gas production, Tokyo relies heavily on imports in the form of liquefied natural gas (LNG). In 1983, for example, LNG imports accounted for 94 percent of Japan's consumption of 28 bcm. Imports of LNG for the first half of 1984 were running at an annual rate of about 34 bcm, pointing to a possible 30 percent increase over last year's volume. Nearly half of LNG imports come from Indonesia, with Brunei, Abu Dhabi, Malaysia and Alaska providing the remainder. By 1990, Australia will probably provide about 17 percent of LNG imports. [redacted]

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Forecasting Gas Demand and Supply

Great uncertainty surrounds long-term energy demand and supply forecasts. The success of past long-term forecasts has been minimal, and recent projections remain vulnerable to the shortcomings of past projections. The threat of unexpected supply disruptions and uncertainties regarding economic growth, price trends, and the responsiveness of supply and demand to price changes all hinder forecasting. Moreover, small changes in economic growth and price can cause substantial modifications in projected energy requirements. In addition [redacted] sharp declines in energy and gas requirements in recent years have caused forecasters to become overly pessimistic about future demand. [redacted]

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To assess gas market conditions through the remainder of the century, we examined several long-term forecasts completed

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West European Gas: 1983 Production, Consumption, and Imports¹
(billions of cubic meters)

Country	Production	Consumption	Gross		Imports	
			Total	Percent Total Consumption	Source	Percent Total Imports
Austria	1.1	4.3	3.0	70	USSR	100
Belgium	--	9.1	9.2	100	Netherlands Norway Algeria	61 22 17
Finland	--	0.7	0.7	100	USSR	100
France	6.8	27.6	22.4	81	Netherlands Norway USSR Algeria	33 9 18 40
Ireland	2.1	2.1	--	--		
Italy	12.3	25.1	14.5	58	Netherlands USSR Algeria	37 48 15
Netherlands ²	68.3	35.9	3.0	8	Norway	100
Norway ²	21.7	--	--	--		
Spain	Negl	2.6	2.4	92	Algeria Libya	62 38
Switzerland	--	1.0	0.5	50	Netherlands	100
Turkey	Negl	Negl				
UK	34.0	48.1	12.9	27	Norway	100
West Germany	14.7	43.1	31.6	73	Netherlands Norway USSR	52 16 32
Yugoslavia	1.9	4.3	2.0	46	USSR	100
Total	162.9	203.9	102.2		Netherlands Norway USSR Algeria Libya	35 24 26 14 1

¹Consumption minus production may not equal imports, because of losses in production and transmission, exports and reexports, and/or storage programs.

²Net exporter

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recently. [redacted]

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[redacted] We examined the forecasts for reasonableness of assumptions concerning economic growth and energy prices. In deriving our summary demand case we attempted to represent the consensus opinion, tempered by our own judgments. These supply/demand projections assume real oil prices decline through 1990, remain constant in real terms to 1995, and rise thereafter at 2 percent per year through the year 2000. In general, the price of other fuels, including gas, is expected to move in line with oil prices. West European and Japanese economic growth are projected at average annual rates of 2.0 to 2.5 percent, and slightly over 4 percent, respectively, through the end of the century. [redacted]

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Natural Gas Demand Outlook

Natural gas demand is projected to increase only slowly during the remainder of this century [redacted]

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- o West European gas use will grow by about 1-2 percent per year, rising to 250 bcm in 1990 and about 285 bcm in the year 2000. This compares with about a 10 percent annual growth rate during the 1970s.
- o Japanese gas demand is expected to increase to about 52 bcm by 1990, an 85 percent increase compared to current levels. During the 1990s, however, growth is expected to slow significantly and demand is projected to increase only an additional 10 bcm by the year 2000.

This forecast in effect constitutes our demand projection for the purposes of this paper. Most of the future growth in gas consumption is expected to occur in the residential/commercial and industrial sectors, rather than in electricity generation. [redacted]

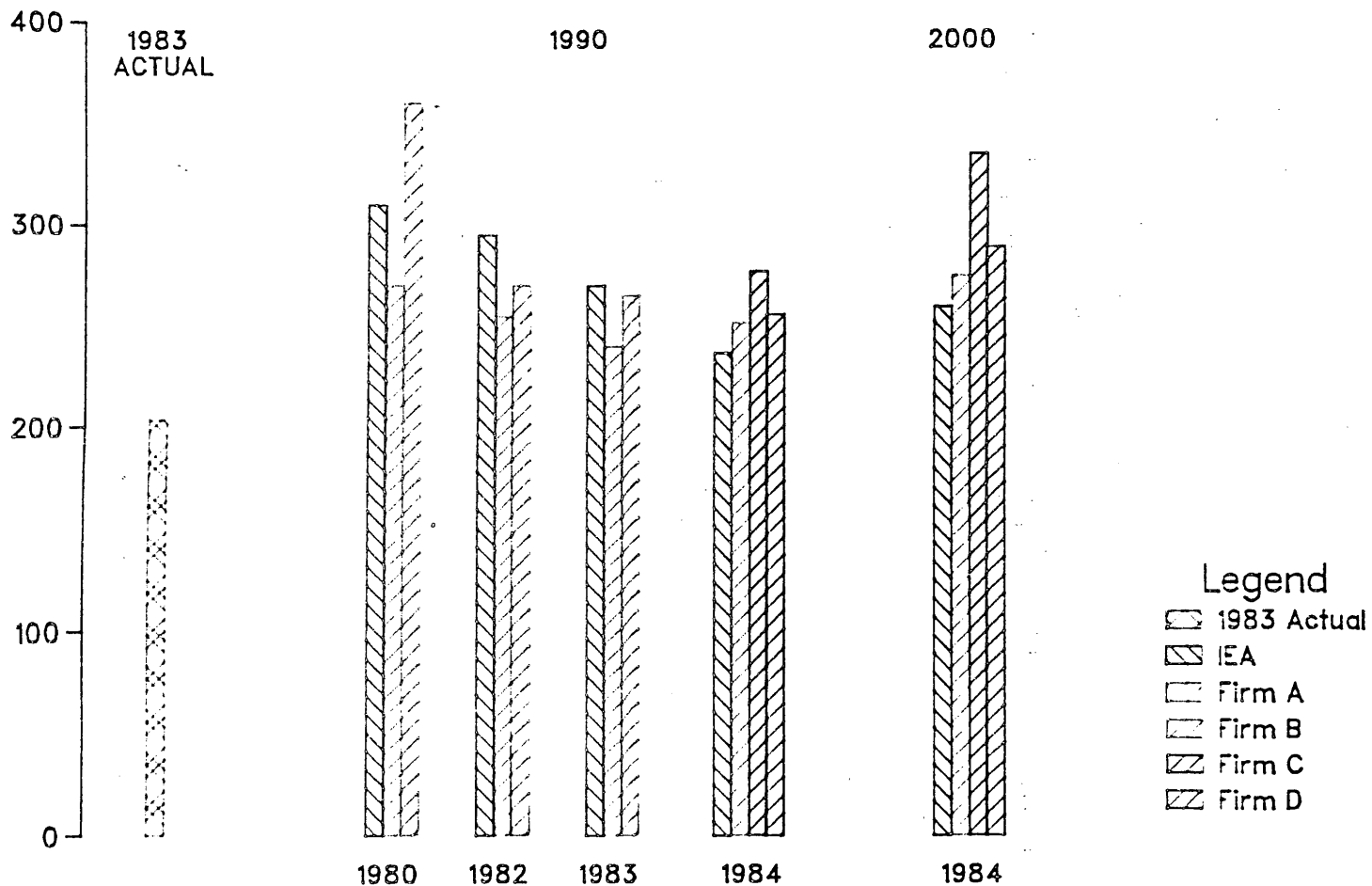
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This demand estimate might turn out to be too low. Over the last decade, projections of gas demand have gone through a cycle of optimism and pessimism. In the early 1980s, official gas demand forecasts projected fairly rapid increases, reflecting the trend of the 1970s when gas had been priced significantly below alternative fuels and consequently was being substituted in a number of uses. These high demand projections and concern over dwindling domestic supplies were a major reason for the sense of urgency in West European negotiations with the USSR for the purchase of gas from Siberia. In the course of the negotiations, however, West European gas demand began to fall.

- o Economic recession triggered a reduction in energy use.
- o As a result of price indexation and attempts to achieve parity with competing fuels, gas prices rose following the

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Changing Projections of West European Gas Demand, 1990 and 2000 (billions of cubic meters)



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substantial oil price increases of the 1970s and early 1980s. [redacted]

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It took almost two years for official forecasts to catch up with market realities. By 1984, however, projections for West European gas demand in 1990 had been reduced by as much as 30 percent compared to forecasts made just 4 years ago and official Japanese government projections have been reduced by 20 percent. [redacted]

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Despite an apparent return to the stronger growth levels of the past, recent forecasts continue to be influenced by the earlier downward trend in gas demand and pessimistic views of the prospects for economic recovery in Western Europe. Just as earlier projections overstated requirements, we believe current forecasts may be understating future growth, especially if the energy price projections built into these estimates prove to be unrealistically high. Oil prices have fallen recently, and continued weakness will restrain increases in gas prices or even cause a further decline. As a result, gas suppliers recently have already demonstrated considerable price flexibility in an attempt to increase market penetration and remain competitive with oil and other fuels. [redacted]

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Meeting Demand Requirements in Europe

We believe surplus natural gas supplies worldwide will probably persist for some time. Although gas demand is expected to grow, the increase in gas use in Western Europe and Japan during the remainder of this decade can be met through existing supply commitments. Beyond 1990, however, new sources of supply will be needed to cover demand requirements. We believe import requirements are likely to grow in Western Europe. Under these circumstances, as much as 48-57 bcm per year of additional imports would need to be contracted for in order to meet European demand requirements. [redacted]

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Indigenous production is expected to increase slightly between now and 1990, but will probably decline significantly between 1990-2000. Developments in three countries will play a key role in determining the amount of indigenous West European gas production available to help meet demand requirements. [redacted]

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- o Dutch gas production and export policy has been in a state of flux in recent years. As late as 1983, The Hague intended to completely phase out gas exports by the year 2000 in order to conserve gas resources for domestic use. According to Embassy and press reporting, however, the Dutch have recently authorized additional export commitments and have been flexible on price in an attempt to maintain market share. Although negotiations are continuing, The Hague may be willing to make available 20-30 bcm per year for export in the 1990s.

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Major Pipelines Supplying Western Europe



- o Norwegian production and exports will depend in large part on whether Oslo can sell gas from the Sleipner and Troll fields. Statoil, the Norwegian state oil company, and the British Gas Corporation have been negotiating a contract for the purchase of Sleipner gas for the last two years, but revisions required by London, according to Embassy reporting, have so far prevented a final agreement. Most press reports suggest that negotiations to sell Troll gas may not begin until after the Sleipner sale is completed, although [redacted] Oslo may begin to test the European market as early as next year. 25X1
- o Estimates of indigenous production in the United Kingdom vary considerably and are contributing to the delay in signing a contract for the purchase of Sleipner gas. Several energy companies believe that the UK has sufficient domestic gas supplies to meet demand to at least 2000, while British Gas Corporation and the UK Offshore Operators' Association are urging the UK to line up additional future gas supplies. [redacted] 25X1

Because of the potential wide variation in future domestic West European natural gas production and the different possible approaches for covering a supply shortfall, we have developed three illustrative scenarios that delineate the range of options available to Western Europe. All three scenarios utilize the consensus gas demand forecast developed from our review of government and industry demand projections. The scenarios differ, however, in the amount of anticipated indigenous production, and consequently, in the level of projected imports. The first scenario projects high levels of indigenous production with the result that no further purchases of Soviet gas are required to meet Western European gas demand in either 1990 or 2000. The second scenario is much more pessimistic on estimated indigenous production, and projects a substantial supply gap in the late 1990s, all of which is filled by additional imports of Soviet gas. The third scenario offers a moderate level of indigenous production, and suggests that some, but not all, of future gas requirements in Western Europe will be met by increased Soviet gas purchases. [redacted] 25X1

While we have not varied demand estimates across scenarios, it should be noted that the size of future potential gas surplus or deficits could also vary substantially as a result of changes in demand. Given the historic relationship between economic activity and energy consumption, we estimate that a one-percentage point increase in OECD economic growth will raise energy demand by a comparable amount. If improved economic growth were maintained--one-percentage point higher economic growth in every year for the remainder of the decade--1990 energy demand could be increased by more than 6 percent. If demand for natural gas increased at the same rate as total energy, 1990 West European gas requirements could increase by about 15 bcm. [redacted] 25X1

Case I -- Maximum Indigenous Development

In this scenario no further market develops for additional Soviet gas sales. Indeed, Western Europe would have surplus indigenous gas throughout the period. A number of optimistic assumptions underlie this scenario.

- o UK domestic gas production capacity reaches a high level of about 60 bcm.
- o UK contracts for Norwegian Sleipner gas, which makes the UK a potential net exporter after 1990.
- o Continued high levels of Dutch exports of 35 bcm in 1990 and about 20 bcm in 2000.
- o Contracted output of 30 bcm from Norway's Troll field by the year 2000.

Due to these favorable assumptions and the resulting gas surplus, a UK-to-Continent pipeline might be considered for the purpose of reexporting competitively priced gas from Europe to displace alternative Soviet supplies, in the event of a supply disruption or increased continental gas demand. [REDACTED]

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We consider this scenario overly optimistic because of the large number of favorable developments required to achieve maximum development of indigenous resources. For Sleipner gas to be delivered to the UK as assumed in this case, contract terms would have to be determined soon in order for construction to proceed. Similarly, given a minimum 10-year lead time for contract negotiations and development of Troll, negotiations for this gas must begin within the next year or so. Furthermore, successful conclusion of Troll negotiations will, in large part, depend on the price competitiveness of the gas which may require tax concessions from Oslo. For this case to be realized, moreover, the Netherlands must decide to maintain substantial gas exports. [REDACTED]

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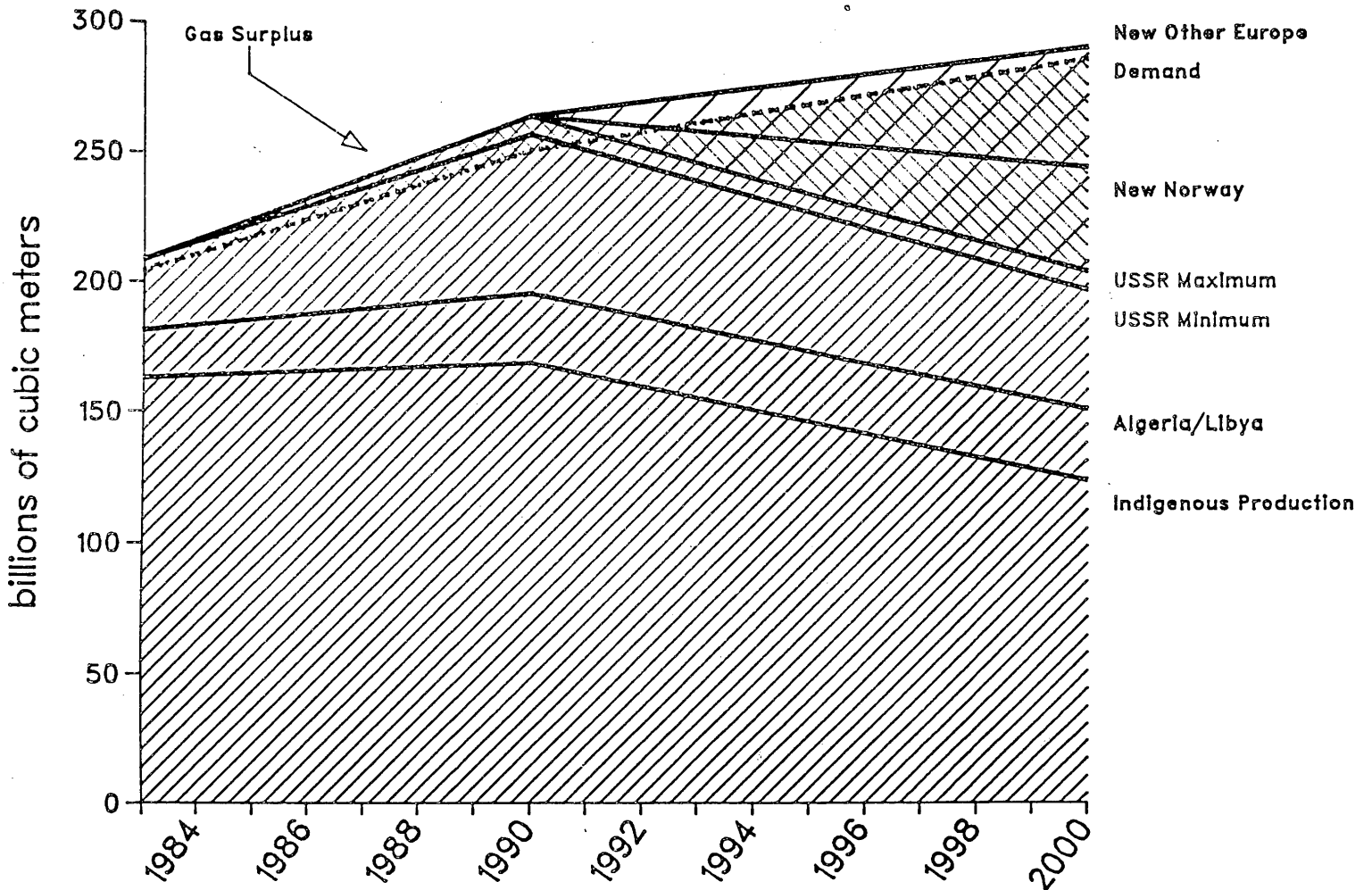
Case II -- Minimum Indigenous Development

In this scenario, a West European supply surplus in 1990 is replaced by a supply shortfall of about 48 to 57 bcm by the year 2000. This volume is assumed to be covered fully by additional Soviet deliveries giving Moscow about 40 percent of West European gas sales in the year 2000. Assumptions underlying this case include:

- o A domestic production profile for the UK of about 40-44 bcm, at the lower end of the range projected by industry sources.
- o Norway continues to sell only previously contracted gas, with neither Sleipner nor Troll developed.

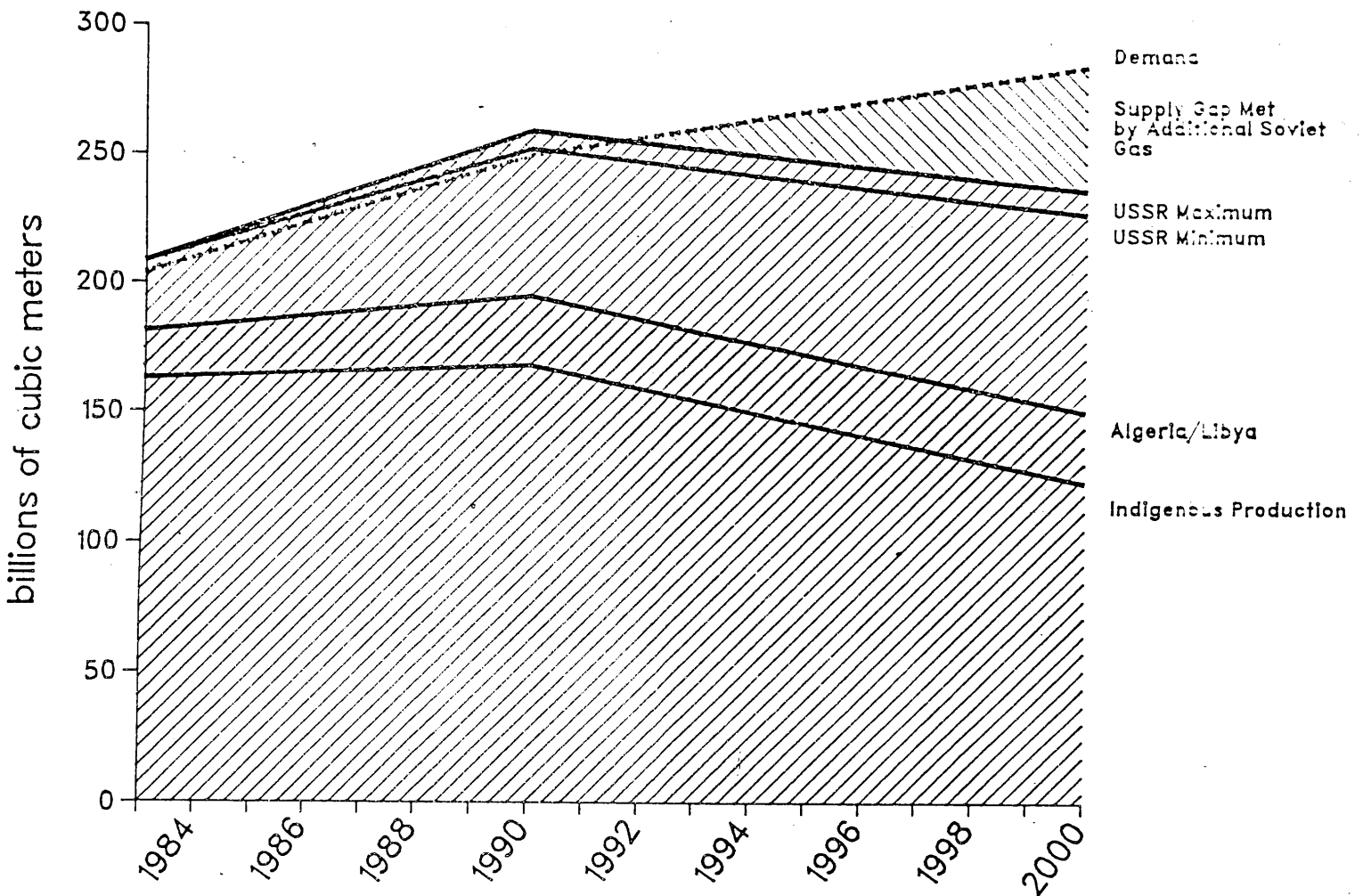
Western Europe: Natural Gas Supply and Demand, 1983-2000

Case I: Maximum Indigenous Development



Western Europe: Natural Gas Supply and Demand, 1983–2000

Case II: Minimum Indigenous Development



- o The Dutch completely phase out exports by 2000. [redacted]

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While we consider this case overly pessimistic, it cannot be ruled out. Protracted discussions with little progress could postpone the development of Sleipner and Troll. Moreover, declining energy prices and uncompetitive gas price demands could further delay the development of Troll if expected earnings are insufficient to justify the large capital outlays required. A Continent-to-UK pipeline might also be considered under these conditions primarily for the purpose of bringing Dutch or other gas to the UK. This connection in turn would open the UK market to Soviet penetration. [redacted]

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Case III - Moderate Indigenous Development

In this scenario, Western Europe again faces a gas surplus in 1990, but will need to contract for an additional 8 to 15 bcm of gas by 2000. Our assumptions include the following:

- o Moderate UK domestic gas production from 40 to 50 bcm.
- o As in the first scenario, the UK contracts for Norwegian Sleipner gas, which satisfies UK demand requirements.
- o Norway supplies 15 bcm of Troll gas by 2000, or half the volume assumed in the first scenario.
- o The Netherlands continues to export 20-30 bcm in the 1990s.
- o The UK and European gas markets remain separate, with no pipeline link under consideration.

The Soviets could cover the shortfall in this scenario at low marginal cost, at first by using surplus capacity in existing pipelines. [redacted]

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Meeting Japanese Requirements

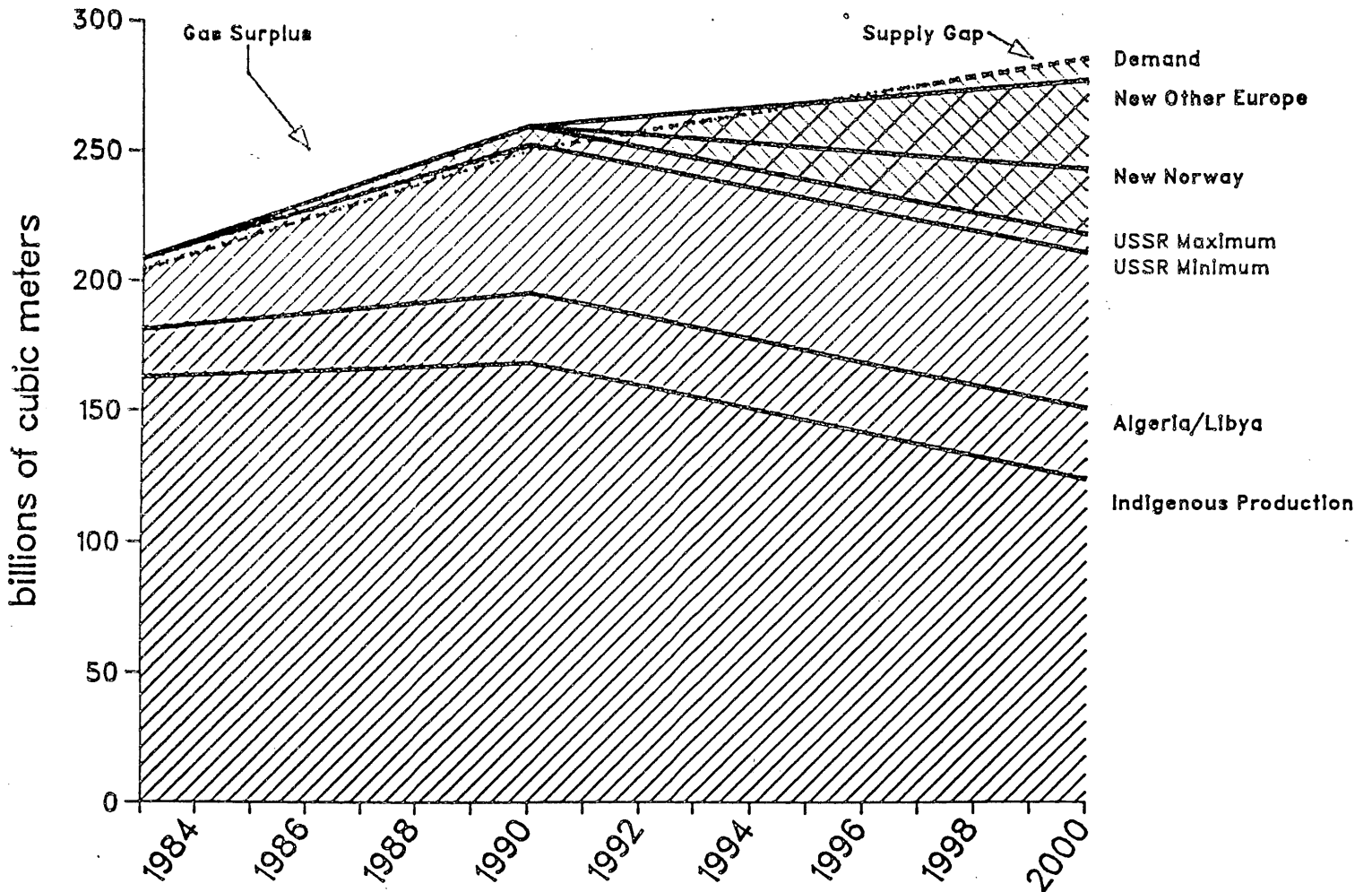
Although Japan does produce some domestic gas, the lack of significant reserves will cause Tokyo to remain almost completely dependent on imports. Even increased offshore drilling is expected to boost domestic production to only 5-10 percent of domestic requirements by the end of the century. [redacted]

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Japanese import requirements through the early 1990s will be more than satisfied if all projects now agreed to or under construction are completed as scheduled. Despite the low growth in LNG requirements from 1990 to 2000, Japan will need to contract for additional supplies. In addition to a 9 bcm growth in demand, existing agreements with Brunei and Abu Dhabi will expire in 1993 and 1997, respectively. Even so, published Japanese documents indicate Tokyo has already contracted for over half of its estimated demand in 2000, if Australian LNG is

Western Europe: Natural Gas Supply and Demand, 1983–2000

Case III: Moderate Indigenous Development



included. If the Abu Dhabi and Brunei contracts are renewed in similar volumes, as seems likely, Japan will have provided for nearly 70 percent of anticipated needs. [redacted]

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Given the many LNG projects under consideration, Japan has great flexibility in choosing its future gas suppliers and does not now seem to be concerned with possible delays in development projects.

- o The proposed Sakhalin LNG export project continues to experience delays and consumers have so far been reluctant to guarantee purchases. Japanese construction firms, however, remain eager to win contracts associated with the development of this Soviet gas.
- o Japan signed a letter of intent in 1981 to participate in Australia's LNG project. Plans have moved forward rapidly in the past year with purchase contracts likely to be signed in the near future. Shipments are targeted to begin in late 1989.
- o In Canada, the Western LNG project is stalled by Dome Petroleum's financial problems-- largely caused by Japan's Chubu power company's refusal to make a commitment to the project. The project could be cancelled if attempts to reorganize equity participation in the venture are unsuccessful.

In addition to these three projects, several other LNG projects are currently under study.

- o In Thailand, a Thai-Japanese LNG venture recently won Bangkok's approval, and work will soon begin on a two-year feasibility study. According to public reports, the project is believed to face many obstacles, the most serious of which is the possibility of an LNG supply glut in Japan.
- o Already the world's largest exporter of LNG, Indonesia has granted Japan an option to purchase an additional 8.5 bcm.
- o The project to develop 8.5 bcm of LNG in Qatar has been repeatedly shelved and revived. To date no Japanese or other foreign buyers have contracted for future supplies.
- o A prefeasibility study on a proposal to develop about 20 bcm per year of Alaskan North Slope gas for export to Japan is currently underway. A smaller Alaskan export project of about 2.1 bcm is also under consideration, according to the trade press.

Given the large number of potential suppliers, Tokyo can easily meet its future LNG requirements without Sakhalin gas. We believe the Japanese may nevertheless decide to purchase Soviet

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gas to diversify away from its traditional suppliers if it can obtain a relatively low price, or to obtain equipment orders.

[Redacted]

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A Soviet Perspective on Natural Gas Sales to Western Europe

A recent article in a Soviet foreign trade journal contains Moscow's perceptions of West European gas demand, supply, and imports in the year 2000. West European demand for gas imports, according to the Soviet article, will be met in part by increased capacity and throughput on the Trans-Mediterranean pipeline from Algeria to Italy and possible deliveries through an as yet unconstructed gas pipeline from Algeria to Spain. Even with these somewhat speculative additions to capacity and supply, the article sees a shortfall in European supplies of from 70 to 80 bcm in 2000. While the author does not indicate what fraction of this shortfall will be met by the combined deliveries of Dutch and Norwegian gas, he points out that appreciable quantities of Soviet gas could find a ready market in Western Europe.

[Redacted]

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Soviet Marketing Strategy and Successes

Soviet marketing strategy is designed to capture new or incremental Western demand for natural gas in order to help meet hard currency revenue needs. Moscow's pricing policies have been pragmatic and flexible, allowing it to adapt to market fluctuations to achieve its goals. In our view, recent Soviet marketing efforts could also undermine the development of alternative gas projects, leaving Moscow well placed to meet additional West European import requirements in the 1990s.

[Redacted]

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We expect the Soviets to continue to market their gas aggressively in the West, undercutting competitors' prices when necessary. Because of low production costs for Siberian gas and the Soviet's capability to expand their pipeline system, Moscow will be able to offer additional gas at low prices if it chooses to do so. Moscow has already been offering spot sales and discounts on gas deliveries above 80 percent of contracted volumes

[Redacted]

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with spare capacity in existing lines, Moscow could use these pricing tactics to capture incremental growth in West European import demand and limit access of potential suppliers to the European market. Additional Soviet sales, for example, could undercut sufficiently the volume of new gas supplies needed from the Norwegian Troll field and make its development uneconomic in the next decade.

[Redacted]

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[Redacted]

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Moscow also has proven to be quite adept at tying sales to goods and equipment purchases to put further pressure on the West Europeans and Japanese to import Soviet gas. The possibility for large-scale, Soviet coal-slurry pipelines in the 1990s--each of which would reportedly involve an investment comparable to that required for the Siberia-to-Western Europe natural gas pipeline--could lure the West Europeans to purchase Soviet gas in exchange for lucrative Soviet equipment contracts. In our judgment, Japanese interest in Soviet energy projects is based principally on a desire to sell equipment. [redacted]

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So far this year Moscow has concluded three new gas export agreements with Finland, Italy, and Austria, and an agreement in principle with Turkey. In each instance, Moscow has shown willingness to market natural gas at prices competitive with other fuels, and has been receptive to bilateral trade proposals or to proposed purchases of goods from the gas consuming countries. [redacted]

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- o Finland agreed early in 1984 to increase its purchases of Soviet gas from the current level of about 0.7 bcm to over 2.5 bcm by the end of the century. Helsinki has been under pressure from Moscow to buy more gas to help reduce Finland's growing surplus on the bilateral trade account. [redacted]

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- o Italy agreed in May of this year to purchase an additional 4.4 - 4.5 soviet gas amounting in 1990 and from 4.8 - 6.0 bcm in 2000, at a price of about \$3.60 per million Btu. This price is the lowest yet granted to any purchaser of Soviet gas since the 1979-1980 oil price hikes. At the same time the gas sales agreement was concluded, another agreement was signed obligating the Soviets in principle to increase imports of Italian machinery, including compressor station equipment, and consumer goods. [redacted]

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- o This past summer Austria also signed a new gas supply contract with the USSR. At the same time, Austria also announced a new agreement with the Soviets on the delivery of oil field pipe to the USSR. Such deliveries, begun in 1969, are linked to Soviet counter-deliveries of natural gas. According to published reports, Austria has flatly rejected the possibility of diversifying gas imports, arguing that Soviet gas holds a 30 percent price advantage over North Sea gas. [redacted]

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- o The USSR also concluded in September 1984 a 25-year agreement in principle with Turkey. This agreement calls for the export of up to 1.5 bcm of Soviet gas in 1987, rising to 6.0 bcm in 1990. Moscow has agreed to deliver the gas at less than the price of fuel oil, with payment in as-yet unspecified Turkish goods. [redacted]

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Further Soviet Efforts

Moscow has also stepped up gas marketing efforts in other countries as well. Currently, Greece is conducting a feasibility study to decide whether to import up to 2 bcm of Soviet gas. The decision could be influenced by the Turkish-Soviet agreement, since the same pipeline through Romania and Bulgaria could be used to supply both Greece and Turkey. Should Greece decide in favor of Soviet gas imports, these might begin before 1990. According to Embassy reporting, Greek firms hope to win some of the construction contracts associated with the new gas pipeline system, and Greece may pay for the gas with aluminum products from a new plant. An extension of the Soviet pipeline network into Turkey or Greece could effectively block access to the West European market by suppliers in the Middle East. Markets in Turkey and Greece are key stepping stones for Middle Eastern suppliers because they will need to sell gas in transit to minimize the cost of delivery. Moreover, the cost of shipping LNG to Western Europe from the Middle East would be more than 30 percent more expensive than pipeline shipments, according to industry sources. [redacted]

Another West European country where the USSR has tried to develop a new market is Sweden. To date, Sweden has not been persuaded to import Soviet gas. In October, Swedegas, Sweden's state natural gas supplier, concluded that the proposed project to deliver 1 bcm of Soviet gas via Finland by 1988 was not economically feasible. Swedegas also noted the reluctance of Swedish industrial customers to become dependent on the Soviet Union as sole supplier, according to Embassy reporting. [redacted]

The flexibility in gas pricing and trading terms shown so far is indicative of the Soviet determination to meet incremental gas demand and increase gas sales to the West. Recent price competition from the Soviets is forcing the Dutch to reevaluate their price terms with their European customers. [redacted] Soviet gas could be delivered to Western Europe at about \$2.37 per million Btu. [redacted]

Alternatives to Soviet Gas

We believe that competitive Soviet pricing policies could forestall development of more secure alternatives as West European demand recovers. Alternative gas sources are available, but unless decisions to proceed with development are made soon, these gas supplies will not be forthcoming when existing supply contracts begin to expire after 1992. Moreover, the cost of these new gas supplies will be high. [redacted]

- o With more than one-third of Western Europe's total proved gas reserves, Norway could supply an additional 40 bcm in the 1990s. Development of West Troll has been declared commercial by Norske Shell based on a \$6 billion

development plan that would make the project about 1.5 times more expensive per unit of capacity than any other offshore development project. Total development costs could approximate \$30 billion.

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Because of the Troll Field's long development leadtime--at least 10 years--a contract would have to be signed soon if the field is to start production by the mid-1990s. Compared with a current price of about \$3.60 to \$4.00 per million Btu for imported gas supplies in Western Europe, the cost of delivering Norwegian gas from the Troll Field is placed at \$5.50 to \$8.50 per million Btu by Norwegian Government sources.

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- o Additional gas fields have been discovered off Northern Norway, including Troms, Askeladden, and the Haltenbanken fields. All of these could provide substantial additional volumes of gas.

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the costs associated with deepwater offshore development, difficult pipeline routes to shore, and liquefaction facilities may make these projects uneconomic until after the turn of the century, given the existing tax structure and expectations of future gas prices.

- o The cost of new gas supplies from the Middle East or Africa could be even higher. Capital costs for a large-scale, 15- to 20-bcm LNG project could approximate \$15-20 billion. Long-distance gas pipelines from the Middle East or Africa, moreover, could pose security problems and leadtimes for these projects could be up to 10 years.

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Given the likelihood of continued softness in world energy markets, we believe new gas export projects will be difficult to justify on near-term commercial or even regional economic grounds.

Contingency Planning

Because of concerns about the level of dependence on Soviet gas supplies, increased storage facilities probably need to be constructed. As a result, the cost of building and operating gas storage facilities can serve to narrow the price difference between relatively inexpensive Soviet gas and new non-Soviet supplies. While there is little evidence to date on historical or proposed costs, the expense of developing storage facilities can vary quite significantly. A West German estimate from 1981 gives the capital cost of storage in an abandoned gas field at \$0.27 per cubic meter in 1981 prices. In the absence of a suitable gas field, cost can increase to almost prohibitive levels. A West German estimate of 1977 places the capital cost alone of gas storage in non-gas field areas at about \$33 per cubic meter in 1977 prices. The high cost estimate reflects the preparation of new underground gas storage caverns. In the future, new storage facilities involving high capital costs are

likely to be needed, because in our view, sufficient old or abandoned gas fields are not likely to be available to provide needed capacity. [redacted]

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In addition to raising capital costs, the increased use of gas storage also raises operating costs. A 1983 Dutch estimate suggests that the operating cost per million Btu to remove gas from storage ranges between \$0.08 and \$0.25. In addition, the transport of this gas to end-users leads to an increase of about \$0.02 per million Btu in distribution costs. None of these calculations includes the cost of gas used as fill for the storage facility or the fact that not all gas stored may be ultimately recoverable when needed. Additional contingency planning for potential natural gas supply disruptions, beyond planned gas storage, is required in all West European gas consuming countries. These plans should provide for interruptible gas contracts, local surge production capacity, and flexibility in supply contracts, to be used separately or together in the event of an interruption in gas flows. Currently, there are large variations in planning between countries, and in many cases plans are designed to deal with accidental, technical or seasonal swings in demand, rather than deliberate interruptions in supply. [redacted]

25X1

Detailed simulations of the West European gas distribution system that we conducted suggest that the integrated gas network can meet most of the demand arising from a gas disruption under existing supply arrangements. Effective use of the physical distribution system during a disruption, however, will require a degree of regional planning and cooperation that will be difficult to achieve. The problems would obviously be compounded if the level of dependence on Soviet gas were higher than current contracts indicate. [redacted]

25X1

Under present gas distribution policies, any Soviet gas embargo during the peak winter months could cause minor gas shortages in certain areas even though the physical distribution system would otherwise be adequate. Even under favorable circumstances, including extensive regional planning and cooperation, a simultaneous Soviet and Algerian embargo lasting six months--in which Algeria might seek economic leverage from Soviet action--would severely strain the West European gas network by the end of the decade. Such an embargo would require peak production from all domestic sources, including the Netherlands. At the end of a joint Soviet-Algerian embargo lasting 12 months, storage would be severely depleted, leaving Europe extremely vulnerable to any additional supply problems. Comprehensive regional planning and cooperation could alleviate some of the effects of such major supply disruptions. Moreover, we believe awareness of such planning might discourage gas exporters from even attempting an embargo. Until West European governments view gas supply availability in a regional strategic perspective, the coordination necessary to use effectively Europe's gas system during a disruption is highly unlikely.

Implementations of current national West European gas supply emergency plans--which vary widely in scope and depth--could even aggravate shortages in other countries during a major disruption. [redacted]

25X1

Energy Security Implications

According to our analysis, surplus gas supplies and gas distribution flexibility in Western Europe and Japan probably will be sufficient to handle even a major gas supply disruption during the remainder of the decade. The surplus of gas during the 1980s, together with Soviet marketing efforts, however, could prevent or delay development of new projects needed to meet West European demand requirements in the 1990s. Failure to develop new gas supplies could leave the major industrialized countries more heavily dependent upon Middle East oil or allow the Soviet Union to capture a greater share of West European gas markets in the 1990s. Moreover, delays in developing alternative LNG projects for the Japanese market could bode well for Soviet efforts to sell gas from the Sakhalin LNG export project. [redacted]

25X1

25X1

Western Europe must decide within the next few years how it will meet its natural gas requirements in the 1990s. Although there are a number of new indigenous gas fields which could help satisfy European demand to the end of the century, it is uncertain whether gas produced from these structures could be competitive with Soviet supplies under current tax structures. Tax reform or reduction of the tax burden for high-cost projects would narrow the potential price differential, and serve as an incentive for firms to proceed with development. Alternatively, a price acceptable to buyers could be agreed upon and an individual tax structure for the project set up to allow production at the agreed price. Even if the Norwegians changed their position against government tax concessions or subsidies, however, we believe the West Europeans probably would have to make a political commitment to ensure development of Troll by paying a premium for security of gas supplies. [redacted]

25X1

At the same time, the estimated price differential between new indigenous gas supplies and future Soviet gas sales will be overstated if it fails to incorporate the cost of increased storage capacity required for security reasons. Even with both a reduced tax take and Soviet gas prices escalated to include required storage costs, Soviet gas may still appear less costly than alternative sources. The size of this differential will be the premium required for new and secure indigenous gas supplies. [redacted]

25X1

Western Perspective on Soviet Trade

Whether the West decides to maximize development of its indigenous resource base or to purchase increasing amounts of Soviet energy will, in large part, depend on how vulnerable they

perceive themselves to be. This perception will be shaped not only by the degree of energy dependence and the cost of alternative supplies, but also by general trade issues and expected benefits from increased East-West cooperation.

West European Attitudes

The West Europeans do not regard their present or projected energy dependence on the USSR as a serious problem. On the contrary, they believe that their overall energy security actually is enhanced by this diversification of energy sources away from OPEC. They argue that the Soviets have proven to be reliable and businesslike trade partners who would be extremely reluctant to disrupt a relationship from which they derive great benefit. In our view, this assessment is basically valid -- so far at least. The USSR has in fact established a good record of honoring contracts and there have been very few instances of it using economic leverage in an effort to get political concessions from Western Europe -- the most notable exception occurring in 1958 when Moscow cut purchases from Finland in a successful bid to force the exclusion of Conservatives from the Finnish cabinet. A recent report that Moscow had threatened Austria with economic reprisals if it tightened controls on technology transfer apparently was unfounded, and a Soviet official apparently was speaking out of turn when he said that energy deliveries to the United Kingdom would be cut off in support of the miners' strike.

To be sure, West European policymakers are not totally sanguine about the growing dependence on Soviet energy. Both France and West Germany decided several years ago that Soviet gas should not supply more than about 30 percent of their total gas needs¹ -- a level that they, along with Italy, will reach by the end of the decade when the new Soviet pipeline is in full operation. At this level of dependence a Soviet gas embargo would create difficulties, but the West Europeans are confident that they could cope reasonably well by means of conservation, fuel-switching, and increased imports of Dutch gas.

With the West Europeans now seeking additional gas supplies to cover their needs in the 1990s, the key question is how they would feel about still greater dependence on the USSR. Another major deal with Moscow would push the Soviet share of the gas market close to 50 percent in the major recipient countries, obviously increasing the vulnerability to a cutoff. To avoid this situation we believe the West European gas buyers will first try to negotiate a deal for Norwegian gas and will even be willing to pay a small premium for gas from such a secure source. If Oslo is too demanding on price, however, we think the

¹Paris recently restated this policy in somewhat different form: that no single gas supplier should provide more than 5 percent of France's total energy needs.

gas-buying countries would have relatively few qualms about turning to the USSR and would have little difficulty in reconciling this step with their IEA commitment to avoid undue dependency on a single supplier. [redacted]

25X1

The United States probably does not have much leverage to influence the West Europeans on this issue, which they regard as primarily an internal matter. In our view the single most important element in forestalling another Soviet gas deal will be Oslo's willingness to lower its gas revenue demands enough to make gas from the Troll field competitive in Western Europe. As a third party to the negotiations, the US might have some capacity to influence Norwegian thinking on this. Additional US arguments about the dangers of dependency on the USSR probably will not get far with the gas buyers, who will stress that this is something for them to decide. Arguments about the benefits to the Soviet military of additional hard currency earnings would make only slightly more headway. The West Europeans would counter by stressing their opposition to "economic warfare" and by arguing that, if more generalized economic pressure is to be used against the USSR, then grain sales restrictions should also be part of the arsenal. [redacted]

25X1

Attitude Toward Soviet Trade in General. In probably every West European country the prevailing view on trade with the Soviet Union is that it is desirable on both political and economic grounds. To be sure, estimates of the political benefits have been scaled back sharply compared with a decade ago, when many West Europeans believed that expanding trade would lay the foundation for a lasting improvement in East-West relations. These hopes were dashed when the rapid growth of Soviet-West European trade during the 1970s was followed by new Soviet missile deployments, the invasion of Afghanistan, and repression in Poland. Nonetheless, West European attitudes have only been modified, not fundamentally altered; the standard argument, in effect, is that Soviet behavior is better than it would have been in the absence of trade. A French official probably captured the prevailing view on the continent when he said that without trade, Moscow would look on Western Europe purely in military terms. [redacted]

25X1

The economic benefits of trade with the USSR are more tangible but are still modest -- and, in our view, tend to be exaggerated by the West Europeans. The basic reality is that a market that accounts for only about 2 percent of Western Europe's exports cannot have a major economic impact on the region as a whole. In terms of employment, a West German economics institute has estimated that 122,000 West German jobs were directly or indirectly dependent on exports to the USSR in 1982. Since West Germany accounts for more than 40 percent of total West European sales to the Soviet Union, the jobs figure for the whole continent probably is on the order of 300,000--roughly 0.3 percent of the labor force. [redacted]

25X1

The exaggerated importance attached to the Soviet market probably is a reflection of the nature of the trade. Deals with the Soviet Union typically are large-scale affairs, as opposed to a series of small contracts, and thus garner a disproportionate share of publicity. Perhaps even more important, most Soviet orders go to industries that have been depressed in recent years and that have powerful labor unions to help argue their cause. The struggling West European steel industry is the most obvious example: about 8 percent of its exports last year went to the USSR. [redacted]

25X1

The West Europeans also see one major benefit on the import side of their trade with the Soviet Union: reduced dependence on OPEC. Four-fifths of their purchases from the USSR now consist of energy products and these covered about 8 percent of Western Europe's total energy needs in 1983. Without the Soviet oil and gas Western Europe would have to depend much more heavily on OPEC, which currently supplies about 23 percent of its energy needs. [redacted]

25X1

Export Controls. Over the years there has been little change in the West European belief that export controls are justified only for products that contribute directly to Soviet military capabilities--and they tend to take a narrower view in defining such products than does the United States. The underlying attitude is that more generalized economic sanctions have no significant impact because the Soviet military always gets what it needs anyway. According to this strongly held view the entire burden of generalized sanctions is borne by the Soviet civilian economy--and by the Western suppliers who have lost the sales opportunity. [redacted]

25X1

We thus believe it is highly unlikely that the West Europeans will agree to any significant COCOM restrictions on the sale of oil and gas equipment to the USSR. In addition to making the points outlined above, they are likely to argue that additional Soviet oil and gas production would benefit the world economy by reducing its dependence on OPEC. The West Europeans will also be aware, of course, that a large part of any Soviet hard currency earnings resulting from additional energy production is likely to be spent in Western Europe. [redacted]

25X1

On the other hand, the West Europeans have significantly tightened the terms on export credits to the USSR. Throughout the 1970s and into the early part of this decade--when large contracts for gas pipeline equipment were being negotiated--they competed with each other in a counter-productive effort to boost exports by offering favorable credit terms. As the Soviets became adept at playing one country off against another, the West Europeans gradually realized that they were net losers in this game. As a result they joined in a new OECD consensus agreement that significantly boosted interest rates on export credits to the USSR. Moreover, they appear to be adhering closely to the

agreement, with even the French and the Italians holding out against on-going Soviet efforts to get them to break ranks.

Japanese Attitudes

While the Soviet Union could become increasingly important as a natural gas supplier to Western Europe in the future, and will continue to aggressively market the Sakhalin project, Moscow is and will remain only a marginal energy supplier for Japan. Japanese interest in Soviet energy projects is based principally on a desire to sell equipment rather than to purchase coal, oil or natural gas.

- o The Sakhalin project is stalled because the Japanese have not yet made a commitment to buy the LNG.

[Redacted]

- o The Japanese were to receive 100 million tons of coal over 16 years from South Yakutsk, but the Soviets missed the first deadline in 1983. Tokyo wants to cut deliveries because of the slow recovery of the steel industry. The relatively slow growth and restructuring of the Japanese economy toward less energy-intensive industries will also help keep a lid on demand for Soviet energy.

Since the oil crises of the 1970s, Japan's energy policy has been based on conservation and diversification to ensure stable supplies. Given traditional Japanese mistrust and dislike of the Soviet Union, we believe Tokyo would go to great lengths to avoid any semblance of dependence on Moscow. The Japanese may, however, purchase competitively priced Soviet LNG, coal and oil as part of their strategy to reduce energy costs and increase their sources of supply. We believe one reason Tokyo has supported energy projects worldwide--in addition to promoting equipment sales--is to increase competition among suppliers to allow Japanese firms to extract better contract terms.

Purchases of Soviet energy products will affect Japan's primary suppliers more than the United States. The United States is only a marginal supplier of coal and LNG--goods for which other major producers generally offer lower prices. US metallurgical coal, for example, although of high quality, is priced \$10-15 per ton higher than that of Japan's other suppliers. Most steam coal from the United States is also relatively expensive. Japanese users will probably not significantly increase their purchases until prices fall, in spite of Washington's pressure on Tokyo.

The Japanese will buy Soviet

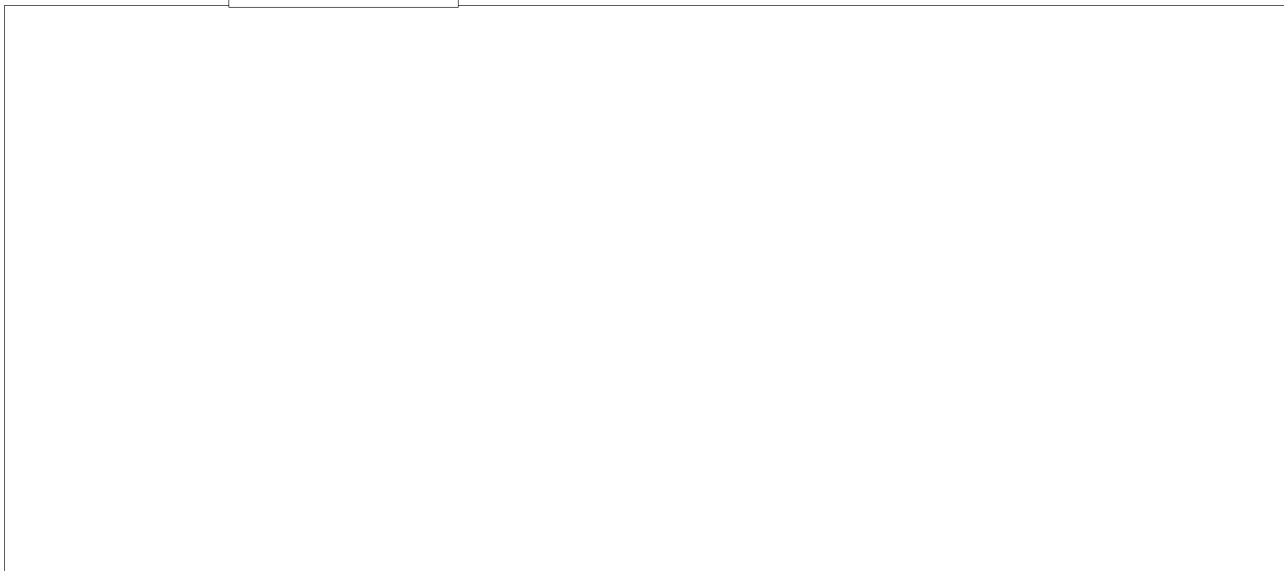
25X1

Yakutsk coal that is competitively priced, but the higher quality of US metallurgical coal will help US producers maintain market share. [redacted]

25X1

The Sakhalin LNG project is only one of many the Japanese are involved in which will compete with Alaskan natural gas development projects. All are moving slowly because Japanese LNG consumers have been unwilling to make new purchase commitments since their needs through 1995 are fully covered by existing and prospective contracts and demand is growing more slowly than originally projected. The participation of Japanese banks, trading companies and equipment manufacturers--frequently with government encouragement--does not automatically imply large purchases by Japan's nine influential power companies. But LNG consumers would no doubt like to see increased competition help them break the rigid take-or-pay clauses in their current contracts. [redacted]

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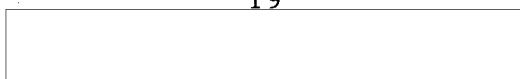


25X1

Trade. There is a consensus in Japan that it is time to improve ties with the USSR, and both Prime Minister Nakasone and Foreign Minister Abe have made smoothing relations with Moscow a priority. The Japanese also want to promote economic cooperation.

- o Steel companies, some of which have a large stake in pipe sales to the Soviet Union, are just coming out of a three year depression.
- o Equipment manufacturers are reluctant to give up the expanded market shares they have developed over the past two years, especially at a time when sales seem to be leveling off. [redacted]

25X1
25X1



25X1

- [REDACTED]
- o. The government would lose the \$181 million dollars it had invested as of November 1984 in the Sakhalin project if the contracts are abrogated and might have to pay insurance on any funds invested by private firms. [REDACTED]

25X1

Export Controls. Tokyo would probably react strongly to a US demand for further restrictions of energy equipment exports to the Soviet Union at this time and would be skeptical that all the allies could be induced to cooperate. Tokyo will probably argue that restrictions are not justified at this time--unlike after the Polish crisis or the invasion of Afghanistan. Since most of the items concerned are not COCOM controlled, Tokyo would insist upon a multilateral consensus on any sanctions by the Western allies before taking action. The Japanese felt betrayed when West European firms sold equipment to the USSR after Japan had cooperated with the United States on sanctions after the Afghan invasion. Business interests will continue to argue that energy equipment is not strategically significant, is widely available, and has been freely sold in the past. They will also maintain the United States is promoting export restrictions to further US business at the expense of foreign firms. [REDACTED]

25X1

Implications

On balance, we believe that Western attitudes and Moscow's marketing strategy will lead to additional purchases of Soviet energy, particularly natural gas. Concerns over an undue dependence on Soviet imports, however, should help limit the size of additional purchases. Nevertheless, if substantial progress on the development of indigenous Western gas resources is not achieved over the next few years because of weak demand, the high price of new gas, and stringent tax structures, Soviet gas may make significant further inroads. Thus far the West Europeans have shown little indication of taking the steps necessary to prevent this outcome. [REDACTED]

25X1

Table 2West Germany: Natural Gas Supply and Demand^a(billion cubic meters)

	<u>1983^b</u>	<u>1990</u>	<u>2000</u>
Production	15	18	16
Import demand	32	35	43
Contracted Supplies	32	46-49	46-49
USSR	10	20-23	20-23
Netherlands	17	15	--
Norway	5	10	10
Denmark	--	1	1
Shortfall (surplus)	--	(11-14)	9-12

25X1

^aNumbers may not add to totals shown due to rounding.^bActual trade.

25X1

Table 3France: Natural Gas Supply and Demand^a(billion cubic meters)

	<u>1983^b</u>	<u>1990</u>	<u>2000</u>
Demand	28	35	45
Production	6	3	2
Import Demand	22	32	43
Contracted Supplies	22	24-26	24-26
USSR	4	11-13	11-13
Algeria	9	9	9
Norway	2	4	4
Netherlands	7	--	--
Shortfall (surplus)	--	6-8	17-19

25X1

^aNumbers may not add to totals shown due to rounding.^bActual trade.

25X1

Table 4Italy: Natural Gas Supply and Demand^a(billion cubic meters)

	<u>1983^b</u>	<u>1990</u>	<u>2000</u>
Demand	25	36	45
Production	12	14	14
Import demand	13	22	31
Contracted Supplies	14	31-33	25-27
USSR	7	11-13	11-13
Libya	--	2	2
Algeria	2	12	12
Netherlands	5	6	--
Shortfalls (surplus)	--	(9-11)	4-6

25X1

^aNumbers may not add to totals shown due to rounding.^bActual trade.

Table 5

Belgium: Natural Gas Supply and Demand^a(billion cubic meters)

	<u>1983^b</u>	<u>1990</u>	<u>2000</u>
Demand	9	12	12
Production	--	--	--
Import demand	9	12	12
Contracted supplies	9	8-10	5-7
Netherlands	5	3	--
Norway	7	2	2
Algeria	2	3-5	3-5
Shortfall (surplus)	--	2-4	5-7

25X1

^aNumbers may not add to total shown due to rounding.^bActual trade.

Table 6United Kingdom: Natural Gas Supply and Demand^a(billion cubic meters)

	<u>1983^b</u>	<u>1990</u>	<u>2000</u>
Demand	48	58	60
Production*	34	44	41
Import Demand	14	14	19
Contracted Supplies	13	--	--
Norway	13	12	--
Shortfalls (surplus)	--	2	19

25X1

^aNumbers may not add to totals shown due to rounding.^bActual trade.

*Low end of UK future production estimate.

25X1

Table 7Norway: Natural Gas Supply and Demand^a(billion cubic meters)

	<u>1983^b</u>	<u>1990</u>	<u>2000</u>
Demand	--	--	--
Production*	22	28	16
Import demand	(25)	(28)	(16)
Shortfall (surplus)	--	(28)	(16)

25X1

^aNumbers may not add to totals shown due to rounding.^bActual trade.

*No future production from Sleipner or Troll.

Table 8Netherlands: Natural Gas Supply and Demand^a(billion cubic meters)

	<u>1983^b</u>	<u>1990</u>	<u>2000</u>
Demand	36	32	32
Production [*]	68	67	54
Import demand	(35)	(35)	(22)
Shortfall (surplus)	--	(35)	(22)

25X1

^aNumbers may not add to totals shown due to rounding.^bActual trade.^{*}Continued high future production.

Table 9
Japan: Natural Gas Supply and Demand
 (billion cubic meters)

	<u>1983^a</u>	<u>1990</u>	<u>2000</u>
Demand	28.0	51.8	61.1
Indigenous Production	1.6	4.3	5.0
Import Demand	26.4	47.5	56.1
<u>Contracted supplies</u>	<u>28.5</u>	<u>40.0</u>	<u>28.4</u>
Abu Dhabi	2.9	2.9	--
Alaska	1.4	1.4	--
Brunei	7.3	7.3	--
Indonesia	15.2	19.9	19.9
Malaysia	1.7	8.5	8.5
<u>Renewable or Planned Contracts</u>	--	<u>12.6</u>	<u>22.8</u>
Abu Dhabi	--	--	2.9
Brunei	--	--	7.3
Canada	--	4.1	4.1
Australia	--	8.5	8.5
<u>Potential contracts</u>	--	--	<u>up to 43.5</u>
Alaska	--	--	22.1
Qatar	--	--	up to 8.5
Thailand	--	--	4.3
USSR-Sakhalin	--	--	4.3
Indonesia	--	--	4.3
Supply shortfall (surplus)	(2.1)	(5.1)	(up to 38.6)

^aActual trade.