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The Oil Market Outlook in 1986: Continued Volatility, Greater Uncertainties

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An Intelligence Assessment

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GI 86-10011
February 1986

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An Intelligence Assessment

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Declassified in Part - Sanitized Copy Approved for Release 2011/11/18 : CIA-RDP97R00694R000500630001-6

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The Oil Market Outlook in 1986: Continued Volatility, Greater Uncertainties

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Key Judgments

Information available as of 17 January 1986 was used in this report.

The international oil market is teetering on the edge of a price collapse. The mid-January decline in spot prices and the futures market suggests that oil prices could fall well below $20 per barrel over the next several months. We believe there is a 50-percent probability that prices will average below $20 per barrel in 1986, in contrast with the consensus in the oil industry that expects oil prices to average in the $22- to $24-per-barrel range. The major factor propelling the market downward is the Saudi move to increase its market share rather than defend the price level. At this time, no other producer seems willing to cut production voluntarily to make room for higher Saudi output. Moreover, even if producers get through the next few weeks without further price declines, they will face another key test over the next three months when seasonal factors cut oil demand by about 3 million barrels per day (b/d) from current levels.

OPEC's decision announced in mid-December to defend its "fair share" of the oil market is intended to pressure non-OPEC producers and oil companies to share the burden of maintaining prices. Barring a decline in prices to well below $20 per barrel, however, we believe non-OPEC producers are unlikely to bow to OPEC pressure and reduce output significantly. One problem is that non-OPEC producers are a large group with disparate interests and no formal mechanism for communication or coordination. Under these circumstances, we believe the burden for stabilizing the market will ultimately fall on the OPEC group. We believe OPEC's ability to reach agreement, however, is dissipating because of widely varying needs and policy objectives.

Demand prospects also will provide no relief. We estimate that non-Communist oil consumption will hold steady and non-OPEC production will rise by about 400,000 b/d in 1986. Under these conditions, demand for OPEC oil, including natural gas liquids, will average 17.3 million b/d for 1986, about the same as last year and almost 2 million b/d below current production levels. If OPEC maintains production at or near current levels, prices will continue to decline.

How far oil prices fall is difficult to predict and will depend primarily on how aggressively OPEC follows through on its decision to defend market share:

- *Price erosion.* We believe prospects of greater financial pressures for many OPEC members could encourage the group to adopt a production

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target of about 18 million b/d or less. Even under this scenario, we believe prices this year could still average as little as $20, compared with last year's average price of about $27 per barrel.

- *Price collapse.* If OPEC attempts to maintain oil production near its current level of 19 million b/d, however, oil prices would have to fall sharply. Under this scenario, oil prices would fall perhaps to as low as $15 per barrel. Because oil demand is relatively unresponsive to price declines in the short term, declining revenues would increase pressure on most producers to raise output to maintain revenues.

Market psychology and uncertainties about producer actions is likely to cause wide price fluctuations over the near term. Moreover, a move toward market-related pricing and competitive pressures will likely cause substantial price volatility throughout the year.

The prospect of lower oil prices is good news for the global economy, but a sharp price reduction would have a strong and adverse impact on oil-exporting debtor countries. Erosion of oil prices to below $20 per barrel, for example, would push the financial needs of the heavily indebted oil-exporting countries—such as Mexico, Nigeria, and Venezuela—beyond the resources of the Baker plan unless additional strong austerity measures were taken. A decline could also cause some countries to try to follow the examples of Peru and Nigeria to limit debt service to a fixed percentage of export earnings. The impact of reduced revenues on internal political stability even in countries like Saudi Arabia could also be significant if the inevitable adjustment to greater austerity is not carefully managed. For the longer term, lower prices would tend to slow oil and gas supply development, dampen conservation and substitution efforts, and hasten a return to heavy dependence on Persian Gulf supplies.

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Price Volatility

This paper addresses expected average annual trends in oil prices over the next year. Market factors and psychology, however, are likely to cause wide fluctuations in prices during 1986. Uncertainties over OPEC actions will fuel volatility over the coming weeks, especially in the speculator-dominated market. These changes are impossible to predict. Seasonal demand trends, inventory behavior, and the changing nature of oil marketing and pricing will also contribute to short-term market fluctuations. For example, in mid-January the spot prices of similar quality crudes traded at a price differential of more than $6 per barrel. At one point, spot North Sea Brent traded for $20.50 per barrel and at $19 per barrel on the futures market while Saudi Arab Light sold at $27, primarily because little Saudi crude was being sold on the spot market. Nevertheless, spot prices for key crudes, such as Brent, remain a valid leading indicator of oil price trends.

Abandonment of official prices and the trend toward using market-related prices have exacerbated price movements. According to a recent study, oil producers are now depending heavily on innovative sales techniques to maintain market share. The study estimates that approximately 90 percent of OPEC sales are made at market-related prices. Only a small percentage of sales are transacted on the spot market, although many term arrangements are negotiated at spot-related prices. The following is a list of various pricing techniques:

- ***Official or contract prices.*** *Oil purchased on contract is based on predetermined or government-established prices.*
- ***Spot prices.*** *Market-determined prices for prompt delivery of a single cargo are often determined at the time of transaction. Many short-term contracts are now based on spot-related prices.*
- ***Netback prices.*** *Crude prices based on the market value of individual products are derived from the crude minus transportation and refining costs.*
- ***Equity price.*** *The cost of oil to a producing company for that portion of output owned by that company as a result of its equity holdings in an oilfield. This price is composed of the royalty and tax payments to producer governments and the production costs.*
- ***Futures prices.*** *Prices based on contracts traded on official futures or commodity markets. Contracts are traded for specific grades and quantities of oil for various future months and represent speculators' and hedgers' opinions about likely price trends. Although future prices are often a leading indicator, little oil actually changes hands—most trades are merely paper transactions. Last year only about 400,000 b/d of crude oil changed hands, roughly 4 percent of total future crude oil sales.*

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The Oil Market Outlook in 1986: Continued Volatility, Greater Uncertainties

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Introduction

The international oil market is in disarray. The sharp fall in spot and futures oil prices in January suggests that downward pressure and substantial volatility will intensify in the months ahead. Prices for some North Sea and US crudes plunged to below $20 per barrel in mid-January. Futures prices, which are heavily influenced by speculators, fell even further. Spot prices for OPEC crudes, however, remained about $25 per barrel. Taken together, we estimate that average oil prices declined to as low as $23 per barrel in January, down from the 1985 average of about $27. The resolve that OPEC producers show in maintaining increased market share will play a key role in determining oil price trends, especially in the critical next few months.

Recent Market Developments

Consumption Down

Following a 1-million-barrel-per-day (b/d) rise in 1984, non-Communist oil consumption dropped by about 1 percent last year to 44.9 million b/d, despite a 2- to 3-percent rise in economic activity, according to our estimates. Conservation gains, substitution away from oil, and a slowdown in economic growth in the industrialized countries caused a roughly 500,000-b/d fall in OECD oil consumption, with the largest declines occurring in fuel oil use (figure 1). On the basis of fragmentary data, we estimate that consumption in LDCs rose by about 200,000 b/d last year.

Temporary factors probably caused the slight growth in consumption in the fourth quarter of 1985. Preliminary data indicate that oil consumption in that quarter rose about 1 percent above year-earlier levels, the first quarterly increase in more than a year. In our judgment, this reflected stronger economic growth in the United States and colder-than-normal weather in Western Europe. It also reflected lower oil prices in Western Europe and Japan resulting from a decline in the value of the dollar and a subsequent decrease in the cost of oil imports in local currency of about 20 to 25 percent during last year.

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Destocking Continues

Industry efforts to reduce inventories continued last year in response to high real interest rates and expectations of falling prices, placing additional downward pressure on the market. We estimate that non-Communist oil stocks on land at yearend stood at 3.8 billion barrels—about 200 million barrels below year-earlier levels. Some companies believe oil stocks were near minimum operating levels at the end of the third quarter; one major oil company experienced some minor spot shortages last fall. Indeed, low inventory levels caused companies to increase liftings from OPEC countries in the fourth quarter to meet high seasonal winter consumption. Some companies believe the sharp rise in production in the fourth quarter, however, may have overshot demand and caused an unexpected counterseasonal stock build in the fourth quarter.

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Supply Side

Non-OPEC supplies, including net Communist exports, rose by about 400,000 b/d in 1985, the smallest increase in four years and only about half as much as many forecasters had anticipated. A roughly 300,000-b/d drop in net Communist exports caused by a similar decline in Soviet production was mainly responsible for the slowdown in the growth of non-OPEC supply. Nevertheless, production continued to grow in numerous countries, including the United Kingdom, India, Norway, Australia, Canada, Brazil, Egypt, and Oman. Non-OPEC output now represents more than 60 percent of total supply, compared to only about 40 percent in 1973 before the first oil price shock.

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Following a summer of production restraint, OPEC oil output (including about 1.1 million b/d of natural

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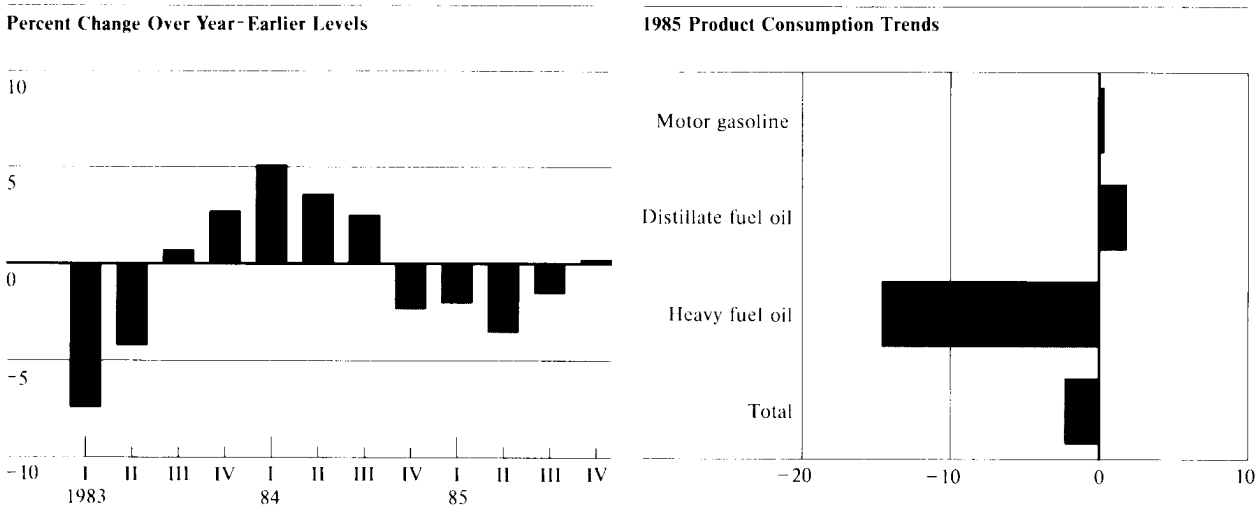
Figure 1
OECD Oil Consumption Trends, 1983-85



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gas liquids) in the fourth quarter rose to 19 million b/d, up 3 million b/d from third-quarter levels. For the year, OPEC production averaged 17.3 million b/d. The Saudi decision to abandon its role as swing supplier and move aggressively to increase its exports propelled Saudi crude output to more than 4 million b/d (excluding natural gas liquids) in the fourth quarter. Riyadh boosted sales by selling oil at a discount using new pricing arrangements—netback deals—that link crude prices to spot oil product prices. This policy change marked an end to the Saudi defense of the official OPEC price structure (figure 2). Most oil producers have now abandoned official sales prices in favor of spot-related prices (figure 3).

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Outlook for 1986

Consumption Projection

The consumption outlook for 1986 offers no relief for producers. We believe non-Communist oil consumption will approximate 44.9 million b/d in 1986—the same as last year—with efficiency improvements offsetting the effects of lower real prices and modest economic growth (table 1). We believe lower oil consumption in the developed countries will offset an expected small increase in LDC oil use. Oil consumption in the OECD is expected to decline by roughly 200,000 b/d, mainly reflecting lower oil use in Western Europe. We expect sharply lower fuel oil sales in the United Kingdom during first-half 1986 compared to the same period in 1985, reflecting the end of the coal miner's strike in March 1985 (figures 4 and 5). Under our forecast, consumption during the peak winter quarters will approximate 46 million b/d, compared with low seasonal requirements of 43 million b/d during the spring and summer quarters (figure 6). Our forecast is in line with industry projections.

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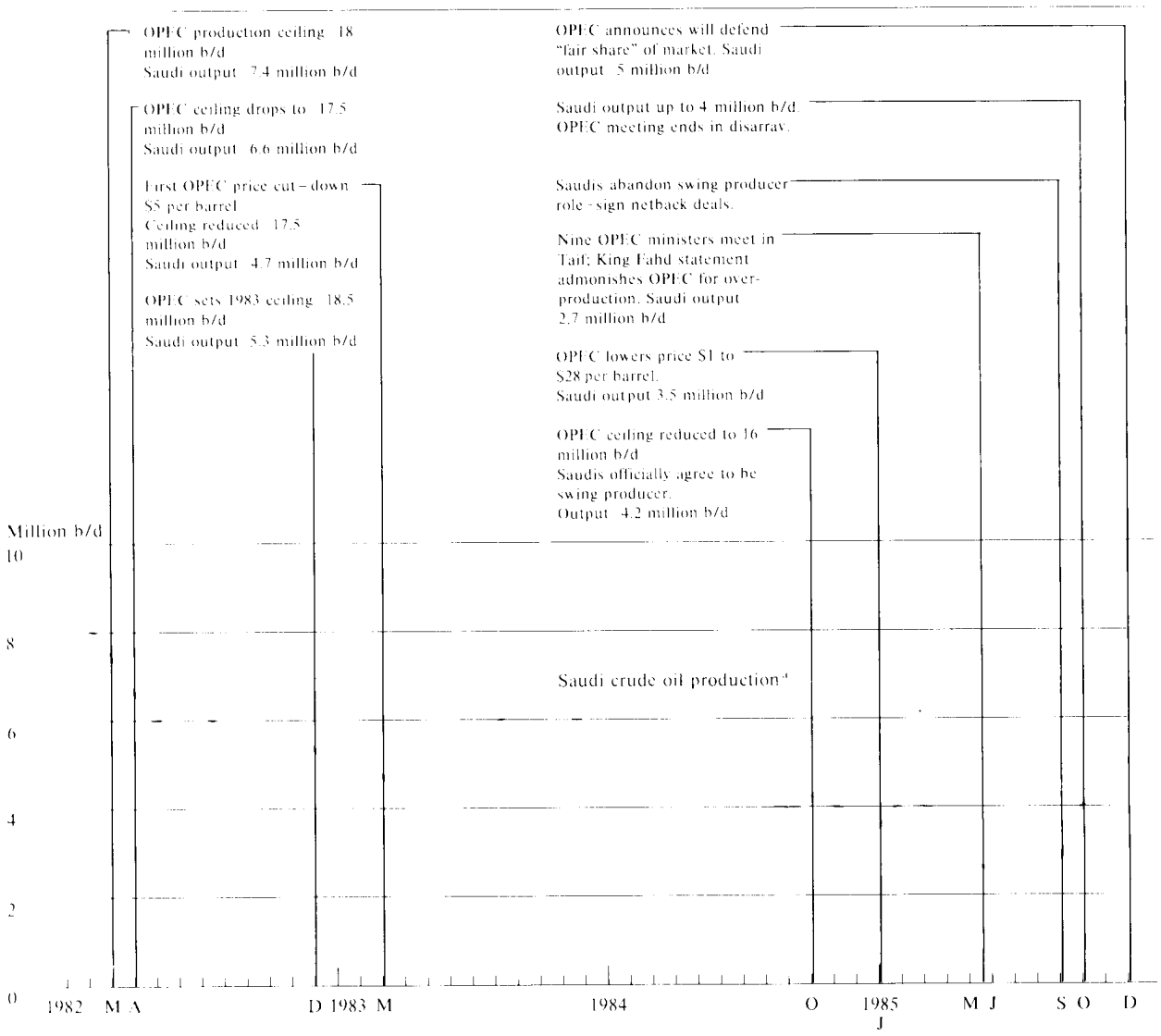
Figure 2
Evolving Saudi Oil Policy



[a] Including Saudi share of Neutral Zone production.

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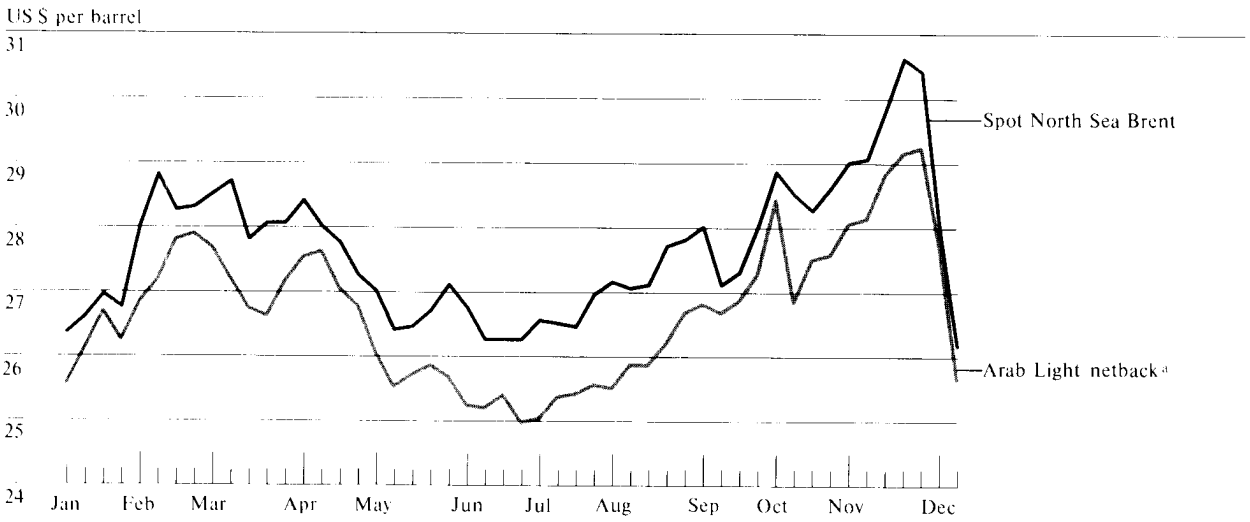
Figure 3
Oil Prices, 1985



a Netback prices represent the value of the products obtained from refining a barrel of crude oil minus transportation and refining costs.

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Table 1
Non-Communist Oil Demand and Supply Outlook a

Million barrels per day

	1985					1986 b				
	Quarters				Year	Quarters				Year
	I	II	III	IV		I	II	III	IV	
Consumption	46.6	43.3	43.6	45.9	44.9	46.3	43.1	43.8	46.4	44.9
Inventory change	−2.6	0.2	−0.2	0.7	−0.6	−1.1	0.2	0.3	−0.3	−0.2
Supply c	44.0	43.5	43.4	46.6	44.3	45.2	43.3	44.1	46.1	44.7
OPEC	17.7	16.7	16.1	19.0	17.3	18.1	16.1	16.8	18.3	17.3
Non-OPEC d	26.3	26.8	27.3	27.6	27.0	27.1	27.2	27.3	27.8	27.4

a CIA estimates excludes refinery gain.
b Includes natural gas liquids.
c Includes net Communist exports.
d Projected.

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Key Assumptions Behind the Consumption Forecast

On the basis of the CIA linked econometric model and industry assessments, we estimate that non-Communist oil demand will hold steady in 1986. Key assumptions underlying our forecast include:

- *Organization for Economic Cooperation and Development countries will experience a 2.9-percent increase in real GNP, about the same as last year. Japanese and US growth are expected to be about 4 percent and 3 percent, respectively, while West European growth will approximate 2.4 percent. This outlook is consistent with the latest OECD Secretariat assessment. Real growth in LDC countries will approximate 4 to 5 percent.*

- *OECD energy demand will grow by 1.2 million barrels per day oil equivalent (b/doe) or 2 percent above year-earlier levels. Continued conservation gains are expected, albeit at a slower rate. We estimate the overall energy-to-GNP ratio fell by about 1.5 percent in both 1984 and 1985. The replacement of older household and industrial equipment with more fuel-efficient equipment continues to hold down energy demand growth. Continued apparent conservation gains also reflect the ongoing structural shift toward less energy-intensive industries such as high technology and services. We assume that the energy-to-GNP ratio will fall by 1 percent this year as declining real oil prices slow efficiency gains (figure 4).*

In 1986, we assume that nonoil energy supplies in OECD countries will rise by 1.4 million b/doe, compared with an estimated 1.7-million-b/doe increase recorded last year. Nuclear power and coal usage will continue to climb, albeit at a declining rate. Nuclear power and coal supplies will rise by 600,000 b/doe and 400,000 b/doe, respectively (figure 5). Although most forecasters expect fuel oil demand to remain weak, the rate of decline will probably slow, reflecting in part a smaller increase in nuclear power.

Inventory Behavior

Surplus available production capacity, increased refinery flexibility, and prospects of lower oil prices will encourage companies to minimize inventories. We believe oil companies have some flexibility to reduce inventories because of overbuying in fourth quarter 1985. We assume total stocks will decline by 200,000 b/d this year and most of the excess stocks added during the fourth quarter of 1985 will be depleted by midyear. As a result, we assume a first-quarter drawdown of 1.1 million b/d, followed by a 200,000- to 300,000-b/d stockbuild in the second and third quarters, and a 300,000-b/d drawdown in the fourth quarter.

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Non-OPEC Supplies

Based on industry projections, we expect non-OPEC supplies to increase by about 400,000 b/d in 1986 (figure 7). Production increases in several countries will more than offset a further 100,000- to 200,000-b/d decline in net Communist exports:

- Among the OECD countries, Norway is expected to increase production by an additional 100,000 b/d. A small increase is also expected from several offshore fields in Australia.

- In Latin America, Brazil and Colombia are both expected to register annual gains of approximately 50,000 b/d or more.

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- In the Middle East and Africa, Angola is forecast to boost production substantially. According to Embassy reporting, Syrian output will increase by 50,000 b/d. Oman is also likely to raise output this year.

Demand for OPEC Oil

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Given our estimates of oil consumption, inventory behavior, and non-OPEC supplies, demand for OPEC oil in 1986 should approximate 1985 levels, which averaged about 17 million b/d, including 1.1 million b/d of natural gas liquids. With the anticipated

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Figure 4
OECD: Energy and Oil Efficiency Trends, 1973-85

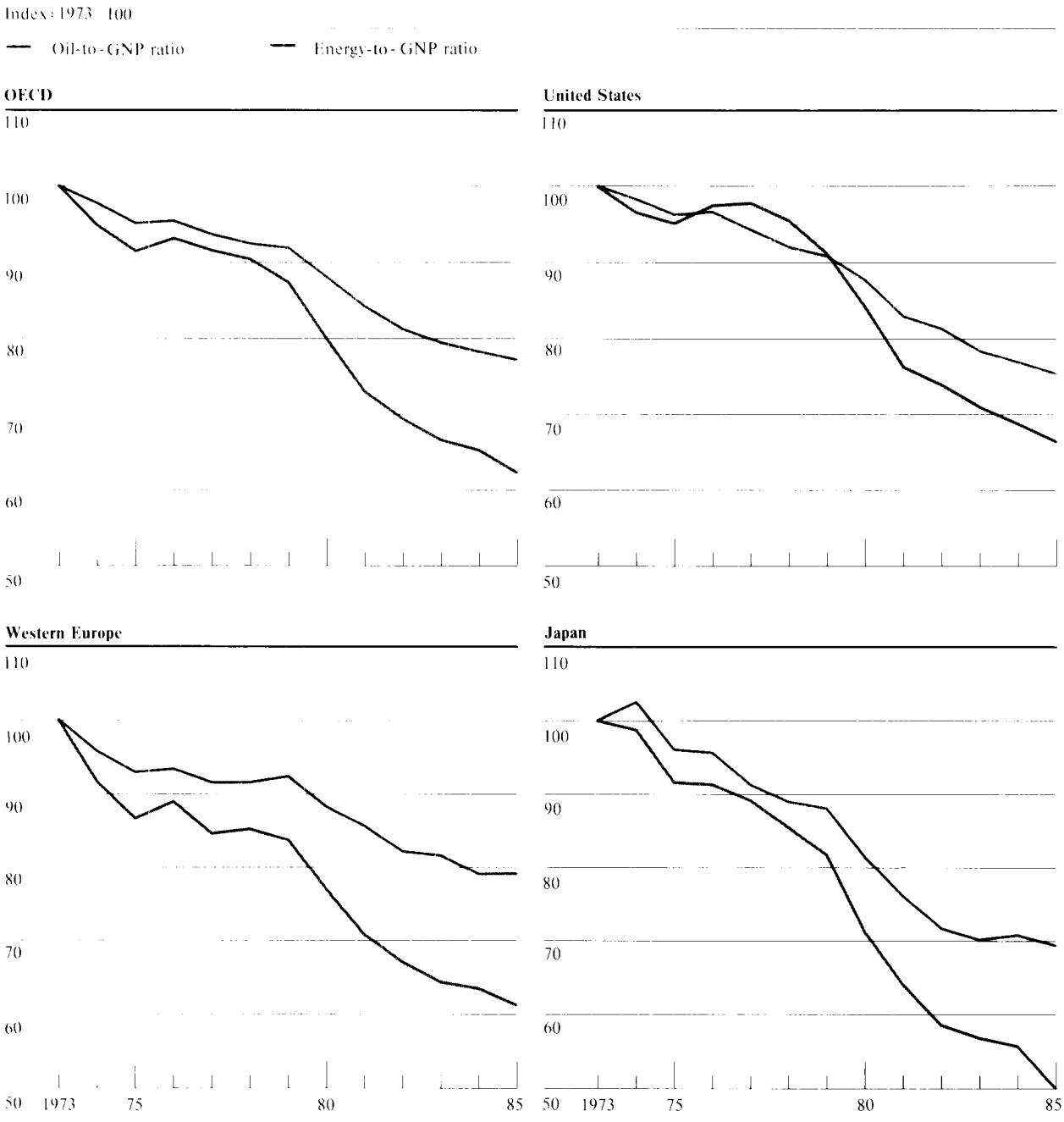

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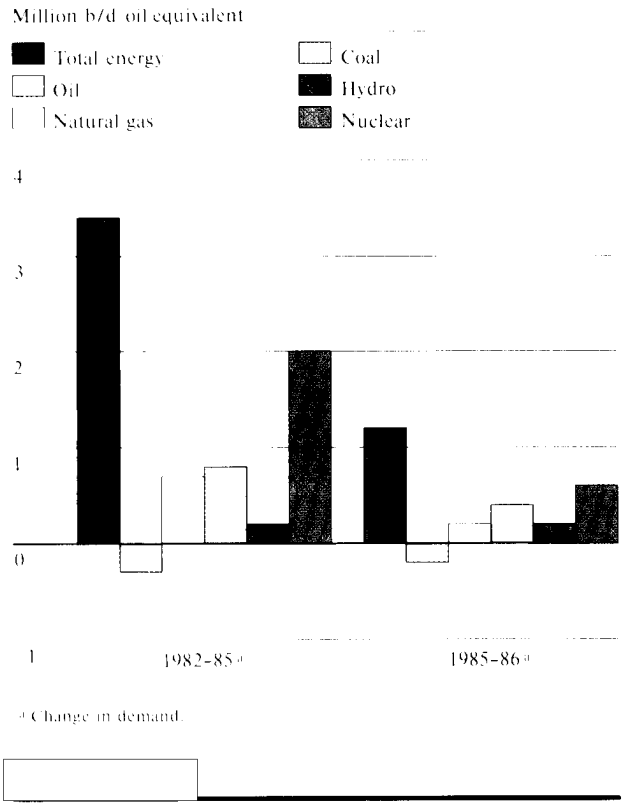
Figure 5
Substitution Erodes OECD Oil Consumption, 1982–86



seasonal decline in consumption, we estimate demand for OPEC oil will approximate 16 million b/d in the second quarter—3 million b/d below fourth-quarter levels (table 2). We believe that companies inadvertently built inventories in the fourth quarter; therefore, efforts to draw down excess inventories could reduce demand for OPEC oil before spring. This forecast is in line with most industry estimates we have reviewed (table 3).

New OPEC Strategy

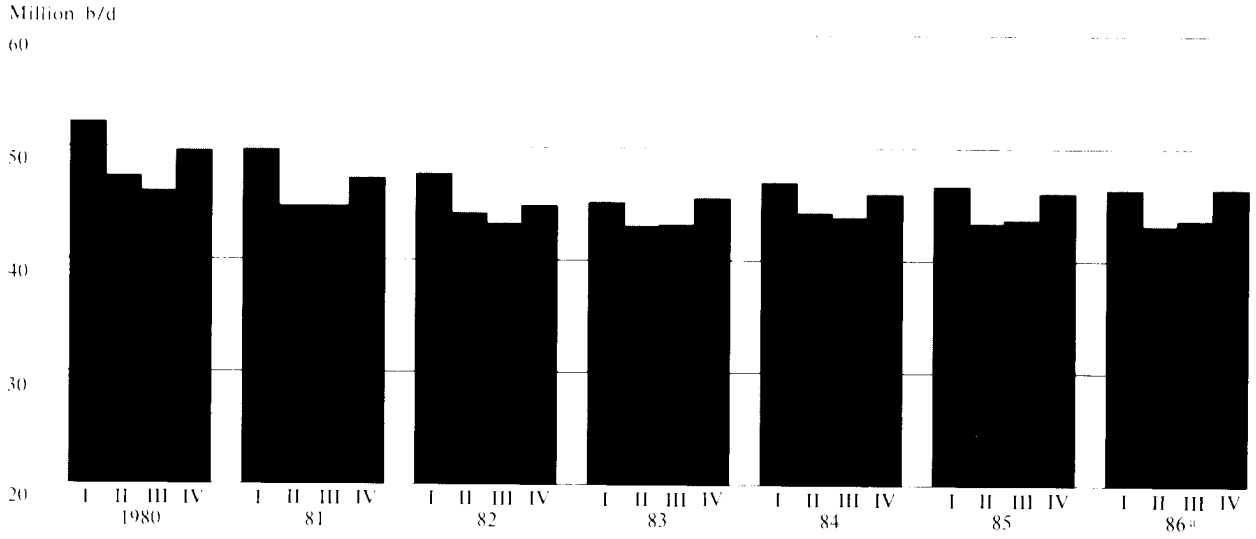
Faced with Saudi Arabia's decision to increase production and prospects of a continuing decline in demand, OPEC has in effect announced its intention to defend market share rather than prices. This is an attempt to force non-OPEC producers to restrict output. Since 1979, demand for OPEC oil has fallen by more than 14 million b/d, or almost 50 percent, while non-OPEC production has risen by almost 6 million b/d, or almost 30 percent (figure 8). The mid-January period of price declines is a direct result of OPEC's market share position. This initial round of price pressures has focused on non-OPEC crudes, but market forces are almost certain to transfer at least some of the price pressures back to OPEC producers within a few weeks. 25X1

Non-OPEC Reaction

In our judgment, non-OPEC producers will be reluctant to bow to OPEC pressure and to reduce oil production to help stabilize prices, particularly in the early stages of a price slide. Non-OPEC producers are a large group with disparate interests and no formal mechanism for communication or coordination. Because of low operating costs for most fields, prices would have to fall dramatically before operators consider shutting in production for economic reasons. Some oil companies estimate that only about 750,000 b/d of production—mostly in the United States—25X1 may be uneconomic if prices fall to the $15-to-$20 range. North Sea operating costs are below $10 per barrel. Remedial action by oil companies—such as moving forward maintenance schedules to temporarily lower output—is a more 25X1 likely possibility but would have limited impact. In the event prices fall well below $20 per barrel, non-OPEC producers probably would reevaluate their willingness to cooperate with OPEC. 25X1

Industrialized Countries. Although London could legally invoke depletion laws to restrict oil output, the *United Kingdom* is not likely to use this power. Overt action to support prices would be politically sensitive at home, given that Britain is also a major energy consumer. Many government officials and private academicians have argued that there are broad economic benefits of lower prices. Although at times the government has "talked up" the benefits of price stability, generally UK energy policy has mirrored US policy—to allow market forces to determine world oil 25X1

Figure 6
Non-Communist Oil Consumption, Seasonal Trends, 1980-86



[a] Projected.

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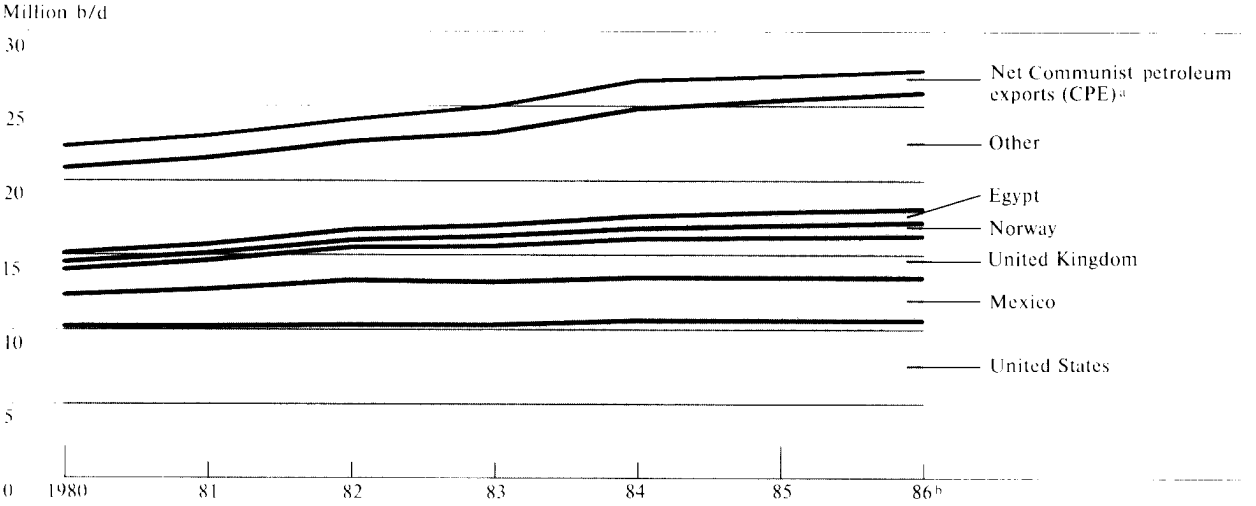
Figure 7
Non-OPEC Oil Production, 1980-86



[a] Includes natural gas liquids.
[b] Estimated.

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Table 2
1985 OPEC Production [a]

Million barrels per day

	Third Quarter	Fourth Quarter	1985 Average
Total OPEC	**16.1**	**19.0**	**17.3**
Saudi Arabia [b]	3.1	4.9	3.9
Rest of OPEC	13.0	14.1	13.4
Algeria	1.0	1.1	1.0
Ecuador	0.3	0.3	0.3
Gabon	0.2	0.2	0.2
Indonesia	1.3	1.3	1.3
Iran	2.2	2.3	2.3
Iraq	1.5	1.7	1.4
Kuwait [b]	1.0	1.0	1.1
Libya	1.1	1.2	1.1
Nigeria	1.3	1.8	1.5
Qatar	0.3	0.3	0.3
UAE	1.2	1.3	1.3
Venezuela	1.6	1.6	1.6

[a] Includes natural gas liquids.
[b] Includes share of Neutral Zone production.

prices. We believe US reaction to oil market developments will play a key role in determining UK actions if prices fall sharply. Still, a sudden, sharp decline in oil prices could have serious negative effects on the oil sector and the value of the pound, and the UK Government could choose to take limited steps to lessen price pressures. Embassy sources believe that possible actions include:

- Public statements reaffirming the government's interest in price stability.
- Moral suasion to convince the larger industry operators to cut production.
- Push forward normal summer maintenance with tacit government approval. Last year, summer maintenance lowered North Sea output by as much as 400,000 b/d for several months.
- Shutting in as much as 250,000 to 300,000 b/d of royalty production with companies "banking" the oil for the government.

Industry trade representatives indicate *Norway* has no plans to reduce oil production to prevent a fall in oil prices, although press reports suggest that the government might take action if prices were to fall sharply. Although it is unlikely that real policy changes are pending, according to recent Embassy reporting, in the face of criticism from political opposition and rapidly falling oil prices, the Norwegian Government is currently evaluating its longstanding position of not intervening in the oil market. We believe that, while Oslo could live temporarily with lower tax revenues resulting from a cut in production, the government recognizes that unilateral moves to reduce output would have little impact and could potentially affect gas production needed to meet long-term contract commitments. 25X1

Canada is unlikely to cut oil production. The Mulroney government has been fairly successful in overturning the negative impact on oil and energy investment of the 1980 National Energy Plan and would be reluctant to make any policy change to reduce production. 25X1

Third World Producers. *LDCs* are also unlikely to cut oil output in the near term for various reasons, 25X1 including the drive for energy self-sufficiency and the need for foreign exchange earnings. In our judgment, *Mexico* and *Egypt* will not reduce production to support OPEC. Both participated in earlier OPEC production cutting and were hurt when OPEC members cheated. According to Embassy sources, Cairo may cap production in mid-1986 for a different reason—to maximize long-term oil recovery. Mexico, however, faced with severe financial pressures, may try to boost output to maximize foreign exchange. Other LDCs might also boost production to protect revenues if prices fall. *Malaysia*, for example, is considering increasing its 1986 production target if prices fall below $24 per barrel, according to Embassy reporting. 25X1

The USSR. The *Soviet Union* has indicated a willingness to participate in any OPEC discussion with non-OPEC exporters. We 25X1

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Table 3
Industry Oil Market Estimates [a]

Million barrels per day

	1985					1986				
	Quarters				Year	Quarters				Year
	I	II	III	IV		I	II	III	IV	
Non-Communist consumption										
Firm A, Dec 1985	47.8	44.1	45.4	46.9	46.0	47.2	44.5	45.2	46.7	45.9
Firm B, Nov 1985	47.5	44.2	44.3	46.4	45.6	46.8	44.1	44.5	47.0	45.6
Firm C, Nov 1985	47.2	43.9	44.4	46.0	45.4	47.3	44.0	44.6	46.1	45.5
Firm D, Dec 1985	47.5	44.3	44.6	46.0	45.5	47.2	44.3	44.5	46.3	45.6
Firm E, Nov 1985	47.1	43.9	44.7	46.2	45.5	46.9	46.9	43.9	46.5	45.5
Inventory change [b]										
Firm A	−2.7	−0.2	−1.1	0.5	−0.9	−1.1	0.4		0.6	−0.1
Firm B	−2.9	−0.1	0.1	−0.5	−0.8	−1.6	0.8	1.2	−0.5	0
Firm C	−2.1	0.6	0.1	−0.5	−0.5	−1.5	0	0.5	−0.3	−0.3
Firm D	−2.7	0.1	0.3	1.5	−0.2	−1.1	0.3	0.5	−0.3	−0.2
Firm E	−2.0	0.2	0	0.6	0.6	−1.4	0.2	0.4	−1.1	−0.5
Non-OPEC supply										
Firm A	27.6	27.7	27.9	28.5	27.8	28.4	28.6	28.9	28.9	28.6
Firm B	27.5	28.0	28.3	28.6	28.1	28.3	28.4	28.7	29.0	28.6
Firm C	27.6	28.2	28.4	28.0	28.1	28.2	28.7	28.7	28.6	28.5
Firm D	27.4	28.0	28.5	28.8	28.1	28.5	28.8	28.9	28.9	28.8
Firm E	27.6	27.7	28.5	28.2	28.0	28.1	27.9	28.2	28.1	28.1
Demand for OPEC oil										
Firm A	17.5	16.2	16.4	18.9	17.3	18.5	16.8	16.8	18.9	17.8
Firm B	17.4	16.1	16.1	16.1	17.3	16.9	16.5	17.0	17.5	17.0
Firm C	17.5	16.3	15.9	17.5	16.8	17.6	15.3	16.5	17.2	16.7
Firm D	17.4	16.4	16.4	18.7	17.2	17.6	15.8	16.1	17.1	16.6
Firm E	17.5	16.4	16.2	17.4	16.9	17.4	16.2	17.0	17.3	17.0

[a] Projections of consumption and non-OPEC suppliers include refinery gain of about 700,000 to 1 million b/d, unless otherwise noted.
[b] Because of rounding, components may not add to totals shown.

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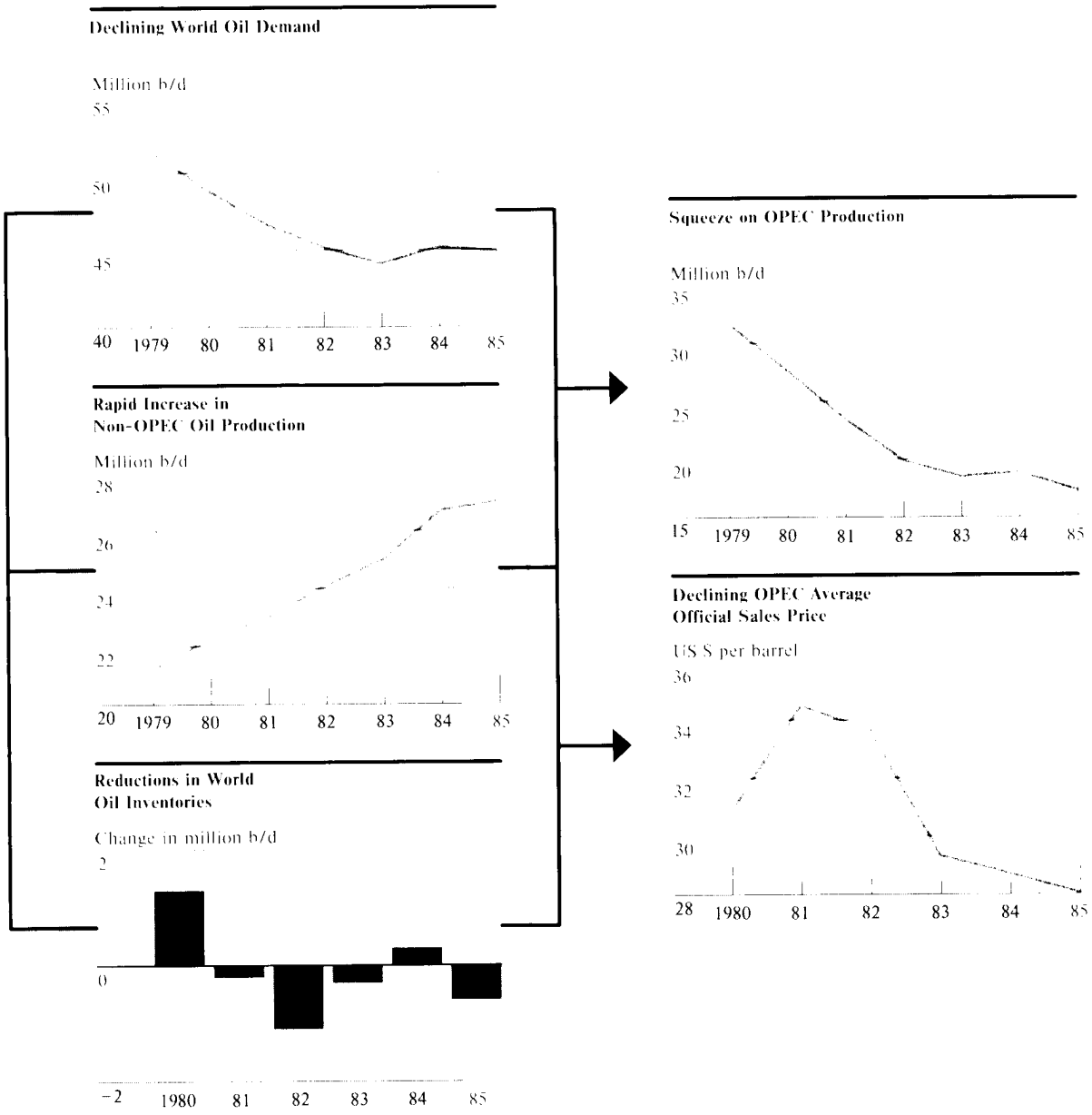
Figure 8
Squeeze on OPEC Producers, 1979-85



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believe, however, that any reduction in exports would stem from domestic production difficulties, rather than OPEC persuasion, and that this offer is just an attempt by Moscow to use a domestic problem to score points with conservative Arab nations. The trade press reported before the December OPEC meeting that the Soviets were warning longtime clients that 1986 contracts for crude oil and products would drop sharply from 1985 levels, probably to reflect more realistically what Moscow thinks it can supply. According to our estimates, the USSR exported approximately 10 percent less oil in 1985 than in 1984. The trade press reports that, for 1986, the Soviets are reportedly willing to sign full-year contracts with customers, but only at 60 to 70 percent of 1985 contracted volumes.

The Saudi Role

The level of production that OPEC ultimately decides to defend will depend in large part on Saudi actions. The Saudis have drawn down foreign reserves by more than $50 billion between 1983 and 1985 to finance current account deficits and are unlikely to accept increasingly rapid drawdowns in 1986 and beyond. We believe that financial considerations will likely lead Riyadh to produce near-current levels of 4 to 5 million b/d even at the expense of sharply lower prices. Short-term revenue needs have become the driving force behind Saudi oil policy. As the swing producer, the Saudis recognize that keeping 1986 prices at about $25 per barrel would require holding their output to perhaps 2.5 million b/d—an unacceptable situation since revenues would approximate $15 billion. By comparison, at $15 per barrel and production of 4 million b/d, Saudi oil revenue would approximate $19 billion. This approach could also maximize long-term revenues by keeping oil a more competitive fuel. In addition to the revenue issue, the Saudi policy shift also reflects an attempt to regain market share, encourage greater discipline by non-OPEC and other OPEC producers, and ensure a growing demand for its oil over the longer term. Saudi oil minister Yamani has frequently referred to the possibility of $18-to-$20 oil prices, and the Saudis, with ample excess capacity, conceivably could boost output sharply in an attempt to maintain revenue levels even if prices fell well below $20 per barrel.

Other OPEC Producers

There is no indication that other OPEC countries will voluntarily reduce output below recent levels of about 14 million b/d, including natural gas liquids:

- Most of these countries have seen steep reductions in foreign reserves since 1980 or 1981. As a group, foreign reserves fell almost 20 percent to $160 billion from 1980 to 1985.

- Even the wealthier OPEC members like Kuwait, the United Arab Emirates, and Qatar have suffered from the soft oil market. Lower oil revenues have meant recession and payment problems. In addition, ruling families are increasingly drawing criticism because of poor economic conditions and profligate spending habits.

- Completion of Iraq's spurline to Saudi Arabia's East-West pipeline to the Red Sea has raised Iraqi export capacity to 1.8 million b/d, some 400,000 b/d above the average 1985 production.

- The strong dollar, which provided some relief from falling revenues in 1984 and early 1985, has weakened by about 20 to 25 percent, bringing additional pressure on these countries that import little from the United States.

- As prices fall, reduced earnings will increase pressures to boost output even further.

Countries with relatively limited excess available capacity in the near term may argue for OPEC production restraint. Based on our capacity estimates, Algeria and Iraq would be unable to increase production much above current levels and would therefore face sharply lower revenues if oversupply caused prices to tumble. Even countries with substantial excess capacity would face serious marketing problems in an environment of large oversupply and falling prices.

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Price Outlook—Lower Prices Ahead

Producer intentions and market forces point to a continued decline in oil prices. Because predicting how far prices will fall is difficult, we have looked at two scenarios. The lack of any evidence that oil producers are prepared to hold the line on output makes us believe there is a 50-percent probability that prices will average below $20 per barrel in 1986. This is in contrast with the consensus in the oil industry that oil prices will average about $22-to-24 per barrel (figure 9).

Price Erosion

Under this scenario, average annual oil prices fall as low as $20 per barrel. For this scenario to materialize, OPEC would have to limit its market share to about 40 percent or less of non-Communist output—18 million b/d. Saudi production would have to average about 4 million b/d unless other OPEC countries cut back output. Although we have no evidence that suggests a compromise is likely, the organization has historically taken action only after a crisis is under way. Many industry analysts continue to believe that, if prices fall toward $20 per barrel or below, OPEC would agree to restrain output, realizing that sharply lower prices and revenues are worse alternatives. We are less confident than in the past that OPEC is capable of reaching a decision fast enough to halt a downward price spiral once it begins.

Price Collapse

Annual average prices fall under $20 per barrel to as low as $15 in this case. This represents an almost 50-percent decline when compared with last year's average annual price of $27 per barrel. Under this case, Saudi Arabia and other OPEC countries follow through on their attempt to maintain production at or near their fourth-quarter levels of 19 million b/d, and competitive pressures force oil prices (figure 10). The complexity of the international oil market and the switch away from using official prices toward market prices will make it difficult for OPEC to control a rapid price decline. Unless short-term prospects for demand improve more than expected, declining export earnings will increase pressures to raise output even more to maintain revenues. Although producers as a group would register higher oil revenues by holding down output and maintaining prices, the use of game theory analysis suggests individual countries may continue to try to undercut others to raise market share. oil companies representatives were unable to estimate with any confidence the floor price once the downward spiral began. The key uncertainty would be how much oil would be shut in at any given price and the short-term demand response. Some industry analysts, however, believe the floor price might be about $12 per barrel. the further prices fall, the faster they would rebound to about $15 per barrel. At a floor price of $15 per barrel, prices could be sustained for several years.

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Producer Revenue Shortfalls

Because oil demand is relatively unresponsive to price changes in the short term, producers face the prospect of lower revenues if prices fall. Based on the CIA energy model, a $10 price drop would raise oil consumption by only about 1 million b/d in the short term:

- *We estimate that, if oil prices fall to $20 per barrel, OPEC revenues would fall by $24 billion. If prices fell to $15 per barrel annually, OPEC revenues would fall by one-third or by about $45-83 billion.*
- *Lower prices would also squeeze the revenues of non-OPEC producers and could reduce the ability of some LDCs, like Egypt and Mexico, to service foreign debt.*

According to CIA estimates, Mexico will lose about $550 million in revenues for every $1-per-barrel drop in the price of oil. This would be partially offset by interest savings of approximately $130 million. Therefore, if prices drop to $20 per barrel, Mexico could require significant amounts of new money to offset a net loss of approximately $2.7 billion.

Figure 9
Oil Price Scenarios, 1986

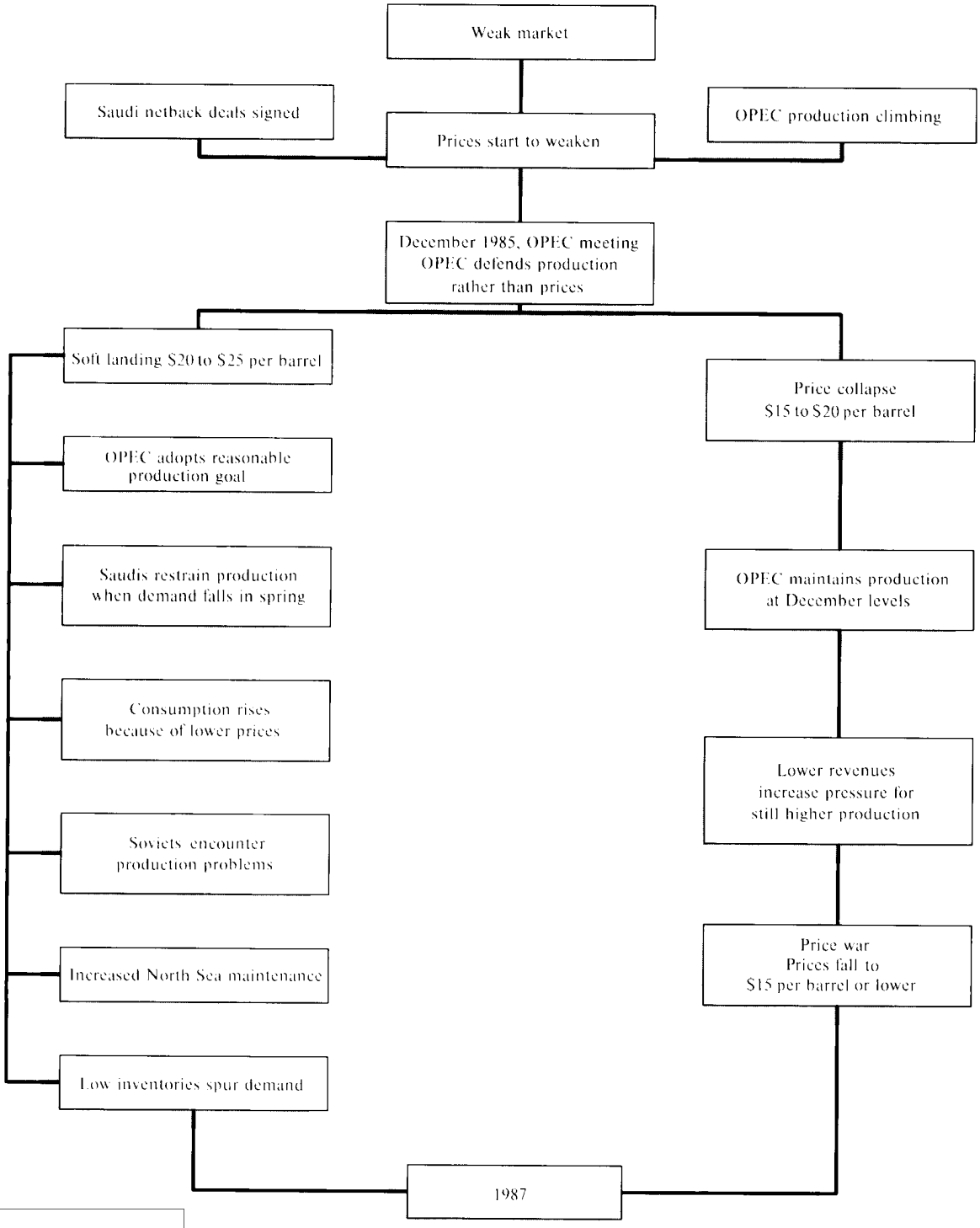

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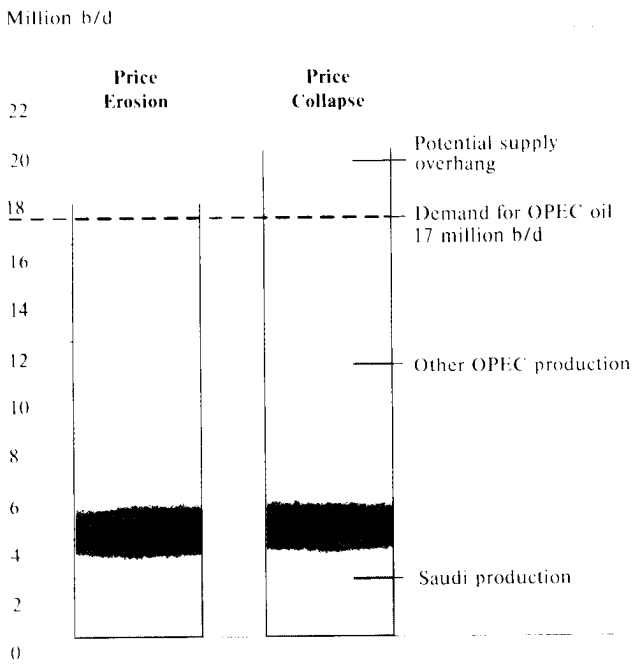
Figure 10
OPEC Supply and Demand Scenarios



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Increased Pressure in the Spring

Even if OPEC gets through the next several weeks without further price declines, oil producers will face another difficult test as seasonal factors sharply curtail oil consumption. We estimate that by early April oil demand will fall by about 3 million b/d from fourth-quarter levels. If producers do not have a new strategy for voluntary production cuts in place, prices will spiral downward.

Game Theory and the Oil Market

Game theory is used to examine situations in which two or more entities choose strategies that interdependently affect each participant. It is essentially a methodology for examining decisionmaking in the face of uncertainty and predicting the behavior of the participants. We have applied this approach to the current oil market situation and the dilemma confronting OPEC members. Our analysis indicates that the Saudi decision to abandon the role of swing producer created an unstable environment by convincing other market participants that prices would probably decline somewhat because of the absence of adequate production restraint.

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Under these circumstances, self-interest and rivalry to increase or maintain market share can produce intense competition and a price collapse. This result is in sharp contrast to traditional economic analysis that implies that producing countries will attempt to avoid touching off a price war since each realizes all would suffer from lower revenues. Game theory indicates that recognition of the problem may not be sufficient to prevent its occurrence given current, diverse pressures on individual producers.

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Avoidance of a price collapse requires a mechanism for cooperation and the exchange of information for market participants to change their operational assumptions about the behavior of other oil producers. The existence of OPEC and the likelihood of discussions between members of the organization and key non-OPEC producers—like those agreed to by Saudi Arabia and the United Kingdom—provide such a forum. For prices to stabilize, however, producers still have to use these mechanisms to convince each other that an effective system of production restraints can be implemented.

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Implications

A decline in oil prices is generally good news for energy-consuming countries.[1] Low oil prices will help keep inflation under control, give impetus to economic expansion, and, for many LDC debtors who are net energy importers, reduce the financial drain on their economies. In addition to lower oil costs, these countries will benefit from a probable drop in interest rates. Countries, like Chile and Turkey, whose exports are heavily weighted toward oil-exporting countries could, however, be hurt if the value of their exports declines by more than the import savings realized through lower oil prices.

Many oil exporters will suffer economic setbacks if oil prices decline. To compensate for lost revenues, debt-troubled LDCs, as well as the wealthier OPEC countries, will probably be forced to draw down foreign exchange reserves, cut imports, or obtain new money from international creditors. Nigeria and Peru have already restricted debt payments to a percentage of export earnings.

We see the following as likely implications of our average 1986 price scenarios:

- *Prices at $20 per barrel.* Export revenues of major oil-exporting LDCs outside the Persian Gulf would decline by as much as 35 percent. Mexico, Nigeria, and Venezuela would see a deterioration in their overall trade position and export competitiveness and would probably be unable to obtain sufficient new voluntary financing from commercial sources to cover their losses. Algeria, Indonesia, and Egypt, which are not yet considered troubled debtors, could be pushed into financial difficulties. Iran and Iraq would be pushed to make difficult decisions; with no reserves and little opportunity to significantly increase sales, they would register sharp increases in their current account deficits (tables 4 and 5).

Table 4
Change in Real GNP Growth Rates, $20-per-Barrel Oil Versus $26.50, 1986-88

Percentage points

	1986	1987	1988
OECD	0.4	0.8	0.3
United States	0.7	1.4	0.6
Non-US OECD	0.3	0.6	0.2
Canada	0.3	0.6	0.4
Japan	0.6	0.1	−0.1
Western Europe	0	0.4	0.3
Big Four	0	0.5	0.3
West Germany	0.1	0.6	0.4
France	0.1	0.2	0.4
United Kingdom	−0.6	0.6	0
Italy	0.3	0.5	0.3
Other OECD	0.2	0.1	−0.1

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- *Prices at $15 per barrel.* Erosion of oil prices to $15 per barrel would push the financial needs of the heavily indebted oil-exporting countries—such as Mexico, Nigeria, and Venezuela—beyond the resources of the Baker plan unless additional strong austerity measures were taken. A decline could also cause some countries to try to follow the examples of Peru and Nigeria to limit debt service to a fixed percentage of export earnings. At $15 per barrel, Mexico, Nigeria, and Venezuela—whose combined external debt totals $155 billion—would stand to lose nearly $20 billion in gross revenues in one year, making their debt servicing burden untenable. The current account deficit of all OPEC members as a group would increase by more than $40 billion to more than $65 billion in 1986 (tables 5 and 6).

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For the Long-Term Oil Market

Lower oil prices could raise oil demand, slow supply development, and hasten a return to a tight market situation. Unless offset by tax hikes, lower oil prices would dampen conservation and substitution while boosting economic growth and oil demand. A decline

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Table 5
Oil-Exporting LDCs:
Impact of Changing Oil Prices

Million US $
(except where noted)

	Revenue Loss	Interest Savings	Estimated Export Gains [a]	Combined Impact	Combined Impact as a Share of Reserves [b] (*percent*)
	World oil at $20 per barrel				
Algeria	−1,661	38	49	−1,574	58
Ecuador	−475	51	8	−416	71
Egypt	−650	26	16	−608	68
Indonesia	−3,575	57	75	−3,443	71
Malaysia	−546	111	41	−394	9
Mexico	−3,575	862	104	−2,609	58
Nigeria	−3,630	169	46	−3,415	416
Venezuela	−3,322	205	45	−3,072	32
	World oil at $15 per barrel				
Algeria	2,938	67	91	2,780	102
Ecuador	840	90	15	735	125
Egypt	−1,150	46	29	−1,075	120
Indonesia	−6,325	101	139	−6,085	125
Malaysia	−965	195	75	−695	16
Mexico	−6,325	1,525	193	4,607	102
Nigeria	−6,422	299	85	−6,038	735
Venezuela	−5,876	363	82	−5,431	58

[a] Estimated export gains to OECD countries only.
[b] Include central bank reserves less gold.

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in nominal oil prices to $20 per barrel this year would reduce oil prices in real terms near 1973 levels (figure 11). Based on the CIA linked econometric energy model and industry estimates, a drop in oil prices to $15 per barrel this year could raise demand for OPEC oil by about 10 million b/d by 1995, to 27 million b/d. Given the long leadtimes necessary to develop new supplies and the substantial excess capacity in the Middle East, these producers would eventually recapture market share if lower prices persisted for several years, leaving the market more vulnerable to supply disruptions and renewed upward price pressure.

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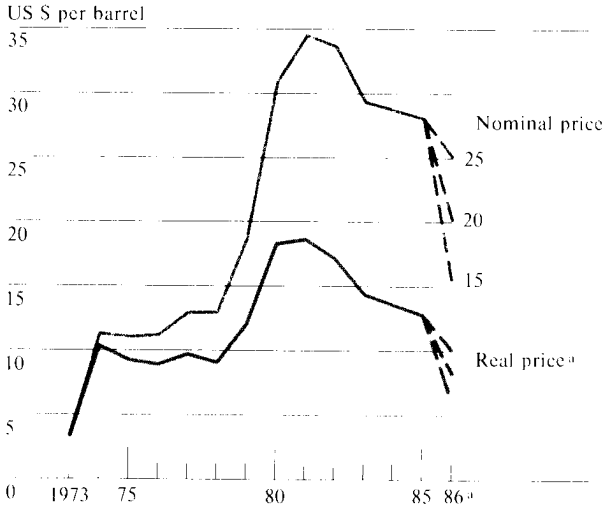
Table 6
OPEC Oil and Financial Prospects

	1985	1986 Scenarios	
		$20 per Barrel	$15 per Barrel
	Thousand b/d		
Production [a]			
Total	**17,300**	**18,300**	**19,300**
Saudi Arabia [b]	3,810	4,500	5,000
Kuwait [b]	1,064	1,000	1,100
UAE	1,271	1,250	1,300
Qatar	315	300	300
Iran	2,346	2,350	2,500
Iraq	1,403	1,800	1,800
Other OPEC	7,091	7,100	7,300
	Billion US $		
Revenues			
Total	**130.6**	**104.0**	**83.1**
Saudi Arabia	27.5	25.0	21.5
Kuwait	8.2	5.4	4.6
UAE	11.5	8.5	6.6
Qatar	3.1	2.2	1.7
Iran	14.8	11.2	9.1
Iraq	11.1	11.4	8.3
Other OPEC	54.4	40.2	31.3
	Billion US $		
Current accounts [c]			
Total	**−18**	**−44**	**−66**
Saudi Arabia	−18	−23	−27
Kuwait	5	3	2
UAE	6	3	1
Qatar	2	2	1
Iran	−1	−4	−7
Iraq	−5	−6	−8
Other OPEC	−7	−17	−28

[a] Includes natural gas liquids.
[b] Includes Neutral Zone.
[c] Based on 1985 import levels.

[redacted]

Figure 11
OPEC Average Crude Oil Sales Price, 1973–86



[a] 1973 dollars.

[redacted]

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Market Vulnerability

The unstable situation in the Middle East could cause a turnaround in the oil market. Continued Iraqi attacks against the Khark Island oil export terminal increases the risk that Tehran may move to interdict oil shipments from the Persian Gulf. Tehran's recent moves to build alternative export facilities at Ganaveh and Bandar-e Taheri—both of which we expect will be completed by yearend—substantially reduces the risk that Iran will move against other Gulf oil exports. Substantial surplus production capacity primarily in the Gulf countries provides the oil market considerable flexibility. 25X1

Although the risk is small, the loss of most Persian Gulf oil supplies for a prolonged period could cause oil prices to rise sharply. Last year, Persian Gulf countries provided about one-fifth of total non-Communist supplies. Most of the oil flowed through the Strait of Hormuz. No new pipeline capacity avoiding the Strait is likely to be added this year, leaving less than 1 million b/d of surplus export capacity in the event of a Gulf disruption. Surplus available production capacity averages about 11 million b/d, but only about 3 million b/d of this lies outside the Gulf region, with about one-quarter of that amount in Libya. The United States, Western Europe, and Japan import about 1, 20, and 60 percent of their oil, respectively, from the Persian Gulf. 25X1