

**WILL OIL PRICES COLLAPSE?**

by Harry S. Rowen and John P. Weyant

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# WILL OIL PRICES COLLAPSE?

HENRY S. ROWEN AND JOHN P. WEYANT

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*Chances are they will, which would mean not only lowered inflationary pressure, but possible reductions in energy investment and conservation efforts.*

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A decline in the price of oil has become a surprising, and dramatic, feature of the world oil market. The first signal was a falling off in the prices of oil company stocks beginning last December; these de-



clines have now reached 50 percent for some companies. The price of nearby heating oil futures, which reached a peak of \$45 per barrel last fall, have fallen to under \$40 per barrel. Posted prices for some oil exports have declined and there has been more substantial price discounting. Oil importing companies have been refusing to renew contracts of prices they deem to be too high. If the market forces which have produced this downward pressure are supplemented by a substantial increase in oil production from Iraq and Iran in the next 12 to 24 months, Saudi Arabia and other oil exporters may face an unmanageable problem: to maintain the price of oil at anything close to the present level. Although this is not a firm prediction (if for no other reason than that the course of the war between Iraq and Iran is so uncertain), there is a good chance that the real price of oil will be sharply reduced in the next two years. If this happens, industry and government will face a set of energy issues strikingly different from those that have dominated their concerns for nearly a decade.

## *The recent experience*

The main cause of this price softening is the decline in world demand for oil since the marked increases in price in 1979 and 1980. The coming to

HENRY S. ROWEN is Professor of Public Management, Graduate School of Business, Stanford University.  
JOHN P. WEYANT is Deputy Director of Stanford University's Energy Modeling Forum.

power of the Khomeini regime in Iran removed about 4 percent of the noncommunist world's oil supply in 1979; the outbreak of the Iran-Iraq war in September 1980 took away another 6 percent. Although these losses were partly offset by increases in output in Saudi Arabia and other oil exporting countries, the net effect was a loss of 4 million barrels per day (mmbd) in oil availability between late 1978 and early 1981. As a result, long-term contract prices for marker crude increased from \$14 to \$35 per barrel—about a doubling in price in constant dollars.

But there was a significant difference in world reaction to this recent spurt in prices, as compared with the oil price shock of 1973-74: this time there has not been a substantial reduction in world economic output. Economic growth in 1979 and 1980 slowed but remained positive; for the noncommunist world it was around 2 percent in 1980.

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The past three years have also seen a large increase in oil stocks worldwide, by about 0.7 billion barrels (adjusted for seasonal variation). Stock building, largely in private hands, consumed about 2 percent of total world oil production over this period. It was probably motivated by the belief that there might be further disruptions in oil supply and further price increases. So far, these additional stocks have generated large inventory profits. However, if the price of oil softens further, and if it appears to the market that there may be a period of stability in the Persian Gulf, stocks are likely to be substantially drawn down in the next two years.

A question of great importance for the world economy, for political relations between exporters and importers, and for the behavior of the oil importers, is how much downward pressure there might be on the world oil price in the coming months and how the exporters will deal with it. The answers to three important questions in this regard are uncertain:

- When will the Iran-Iraq war end, and how soon and to what degree will their oil exports increase?
- How will oil consumers respond to a possible oil

price decline?

- How deeply will Saudi Arabia and other oil exporters cut their production?

### *Balances in the oil market*

Oil consumption in the noncommunist world in the spring of 1981 was around 48 mmbd, a decline of about 3 mmbd since 1978 and 1 to 2 mmbd less than in 1980. Moreover, a reduction in (seasonally adjusted) stocks may also be occurring; at least the reductions in amounts of oil now being taken by importers is consistent with the companies' attempts to reduce their stock levels. A quick political settlement between Iran and Iraq is unlikely; but if the war winds down to the point where damage to production and loading facilities is repaired and tankers freely use the main loading facilities in both countries, then much expanded exports could probably resume before long. Within 12 to 18 months, exports from Iraq might come close to the prewar level of 3 mmbd, an increase of more than 2 mmbd over the present level. The prospects in Iran are much less clear because of uncertainties about the oil production policies of the government and about its effective control over the country. Iran physically might be able to produce about 3.0 mmbd and export around 2.0 mmbd by the end of 1982 or in 1983.

Of course, there is no guarantee that the war will quickly fade away. It might flare up again and even spread to nearby countries, interrupt more oil supplies, and throw the market into even greater turmoil than it was in late last year. Such possibilities should be regarded as a permanent feature of the world oil market. In any given year during the 1980s, there could well be a revolution, internal or intraregional conflict, or deliberate action by producers to reduce the supply of oil, cause a sharp price increase, and inflict huge economic losses on oil importers.

### *Long-run world consumption*

World oil demand during the 1980s will be largely determined by three factors: (1) the continued response to past price increases; (2) the response to any additional price changes (up or down) that may occur; and (3) the rate of economic growth. Faster economic growth will result in higher de-

mand, and price increases or decreases will lead to lower or higher demand, but with a lag.

The experience of the last decade can be used to approximate the rate and level of the response of oil demand to higher prices. Assuming that increases in economic output (GNP) result in equal proportional increases in oil demand, the evolution of the oil consumption-to-GNP ratio can be summarized with one parameter that expresses rates of demand adjustments to prices, and another parameter that represents the full long-run adjustment.

If we examine the recent history of the world oil market, we see that the price response during the 1978-80 period seemed to be far greater than it had been during the 1972-78 period. There are three possible explanations for this. First, during the earlier period there were marked gains in other major currencies against the dollar. Thus, the real price of oil in other currencies increased far less than the dollar price. In contrast, most of the dollar exchange rates moved in favor of the dollar during 1979-80 and caused the oil price to increase more in most foreign countries than it did in the United States. Moreover, the European countries allowed the real value of their gasoline taxes to decline from 1972 to 1978. The result was, surprisingly, *no change* in the average real price of gasoline during this period. These shifts help explain the seemingly greater world price response during the later period.

Second, price controls kept the price of oil produced in the United States far below the world oil price from 1972 to 1978, but by 1980 these controls were phased out. Since more than half of the oil consumed in the United States is produced domestically, this pricing policy insured that the increase in average oil price faced by U.S. consumers during the earlier period was lower than the increase in the world oil price. This attempt to insulate the U.S. economy from the inflationary effects of higher world oil prices had the undesirable side effect of reducing the responsiveness of U.S. oil demand to those price increases.

Finally, during the mid-1970s many authorities voiced the opinion that oil prices would soon decline. Thus, perhaps, many consumers hesitated to adjust their consumption patterns to the suddenly higher prices. By 1979, however, consumers seemed finally to have adopted the view that higher rather than lower oil prices were more likely in the fu-

ture. This change in expectations helps to explain the observed increase in price responsiveness.

It will be as difficult to predict economic growth rates, exchange rate adjustments, and changes in expectations during the 1980s as it was during the 1970s. Thus, the task of projecting world oil consumption will continue to be plagued with uncertainty. Fortunately, the 1970s included a period when conditions resulted in a relatively small response of oil demand to the dollar price of oil on the world market, and a period when conditions resulted in a relatively large response. Thus, these two levels of price responsiveness can plausibly be expected to bracket what might happen during the 1980s.

Suppose there is no economic growth during the 1980s and the real price of oil remains constant at its current level. Then we could expect continued reductions in the level of oil demand as adjustments to the real price increases in 1973-74 and 1979-80 took place. With a small price response, oil consumption outside communist areas would drop from its all-time high of 51.6 mmbd in 1979 and 49.0 mmbd in 1980 to about 39 mmbd by 1988, a 24 percent reduction in nine years. With a large price response, the reduction would be to 37 mmbd, or 28 percent, by 1988.

Fortunately, some economic growth is expected during the coming years. A 2 percent real world economic growth rate is about the most that can be expected this year. As to what will happen afterwards, opinions vary widely. For example, the Reagan economic plan projects a 4 to 5 percent an-

Table 1 World Oil Consumption Projections (mmbd)

Year	Large price response			Small price response		
	GNP growth rate			GNP growth rate		
	2%	3%	4%	2%	3%	4%
1979	51.6	51.6	51.6	51.6	51.6	51.6
1980	49.0	49.0	49.0	49.0	49.0	49.0
1981*	47.8	47.8	47.8	48.7	48.7	48.7
1982	47.0	47.5	48.0	47.7	48.2	48.7
1983	46.1	47.0	47.9	47.1	48.0	49.0
1984	45.3	46.6	48.0	46.5	47.8	49.2
1985	44.5	46.3	48.1	46.0	47.9	49.8

\*A 2% GNP growth rate is uniformly assumed during 1981.  
Source: Calculated by the authors.

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**“Saudi Arabia is unique in its ability to swing production over a wide range and thereby affect the world price.”**

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nual growth of the U.S. economy for the next few years. For the world, the relevant range in the 1980s is probably 3 to 4 percent real growth. If the price response during the 1980s turns out to be as large as it was during the 1978-80 period, even such a relatively high level of economic growth would result in a drop in world oil demand below 48 mmbd until about 1985. Demand would then rise to only about 51 mmbd by 1990. Even if the price response were low, world oil demand would not exceed 50 mmbd until 1986. Table 1 shows how world oil demands would respond to both higher and lower growth rates. A plausible conclusion is that world oil demand will not increase—and could conceivably decrease—between now and 1985 if oil prices are held at their current level (about \$35 per barrel) in real terms.

In sum, looking beyond 1981, the main sources of downward pressure on the market will be:

- Increased output from Iran and Iraq which *might* amount to an additional 2 to 4 mmbd by late 1982 or in 1983.
- A further decrease in world oil demand of 1 to 2 mmbd over the next few years in response to past price increases.
- Possible reduction in oil stocks in private hands which might result in a reduction in demand of around 1 mmbd during the next year or two.
- An annual increase in non-OPEC oil production of 0.5 to 0.7 mmbd from the North Sea, Mexico, and elsewhere.

The main sources of upward pressure will be:

- Economic growth, which is likely to increase demand at a constant real price by 1 to 2 mmbd per year.
- Further interruptions in the world's supply of oil.

Therefore, if the world oil price is to be held at \$35 per barrel, supplies might have to be reduced by from around 1.0 to around 6.0 mmbd, perhaps within the next 12 to 24 months.

### *Cuts in production*

If production is to be cut, Saudi Arabia will be the

main nation to do it. The Saudi government has an announced policy of creating a single OPEC price, at a lower level than the one now prevailing, which is then to be indexed for changes in world inflation, the value of the dollar, and the rate of growth in industrialized countries. Saudi Arabia is unique in its ability to swing production over a wide range and thereby to affect the world price. Sheik Yamani, the Saudi oil minister, has recently said that his country could reduce its oil output to 6 mmbd from its current rate of 10.3 mmbd and live happily with this level.

Kuwait has already reduced production drastically, from a level of around 3 mmbd in the early 1970s to 1.25 mmbd. Qatar, the United Arab Emirates (UAE), and Libya have high oil production levels relative to the size of their populations but their combined output is only one-half that of Saudi Arabia. As buyers refuse to renew contracts at prices they deem too high, production cuts are occurring in Mexico, Nigeria, and elsewhere. However, OPEC has never adopted an explicit production sharing formula. A look at the record of the oil output of the OPEC countries during the 1970s in relation to their production potential shows no extended period with much shut-in, or excess, capacity. Most members of OPEC, with Saudi Arabia as the principal exception, behave like competitive producers. The view of OPEC as a cartel has been largely mythical; whether it becomes a reality remains to be seen.

Part of the explanation for OPEC's generally competitive behavior is their impressive ability to absorb imports. One estimate (by Eliyahu Kanovsky in the *Wall Street Journal*, May 22, 1981) is that the Saudis plan to spend \$90 billion during their current fiscal year. They are now generating resources from oil at the annual rate of around \$120 billion and have financial reserves (estimated at \$125 billion) which probably yield an additional \$15 billion per year. These numbers are consistent with a Saudi production level of around 6 mmbd, selling at \$35 per barrel, without liquidating any foreign currency holdings or reducing their development program. But there is a good deal of uncertainty in these estimates, and Sheik Yamani's claim that the country could easily cut to this level should not be taken at face value. (For instance, as Kanovsky points out, the record suggests that the Saudis are likely to spend much more than they

have announced in their plans.)

The numbers seem to imply that Saudi Arabia and other producers might, within a year or two, face pressures ranging from the manageable to the very difficult. It would be easy to manage cuts of one or a few mmbd. But if the required cuts turn out to be as large as 6 mmbd, these nations are likely to be in serious trouble. After such a reduction, the OPEC countries would be producing about 18 mmbd out of a production capacity which then might be around 30 mmbd. A 40 percent "overhang" of unused capacity would be hard to control for a group of countries that has never managed to create a production-sharing system.

### *Fall in the real oil price*

A central factor in the large price increases in 1973-74 and 1979-80 was the low, short-run price elasticity of oil demand. Supply reductions of 10 percent produced price increases at the consumer level of around 50 percent (the *crude* oil price quadrupled in the earlier period and more than doubled in the later one). With increases in supply, one would expect to see this process reversed. There might even be a smaller price elasticity displayed on the down side than on the up side of oil users expected the decline to last only a short time, while the real price of oil climbed over the long run. This would lead them to go on buying more fuel-efficient automobiles and capital equipment. For instance, the U.S. electric utilities from 1978 to 1980 reduced their consumption of oil by 35 percent (from 1.7 mmbd to 11.1 mmbd; even a substantial fall in the price of oil is unlikely to cause them to switch back heavily to oil use, especially since they are building new coal-fired and nuclear capacity.

If the demand response turns out to be relatively large for price *decreases*, then every one mmbd of oil supply not absorbed through producer cuts in 1982 will result at the margin in a \$6-to-\$8 per barrel decline in the real world oil price. This could happen if, for instance, the exporters faced a 4-mmbd cutback requirement by 1982 and managed to absorb only 3 mmbd of it through production cuts. The price could fall more sharply than this if structural changes in the oil market, including the expectation of higher future oil prices, resulted in a small demand response to price *decreases* (even if consumers respond strongly to price *increases*). If

so, each one mmbd of "excess" oil in the market could produce a \$10 to \$12 price decline. Such a decline would, of course, give oil exporters a powerful incentive to cut their output further.

If the price response is small, more oil is demanded at the constant dollar price (as consumers continue to adjust to earlier price increases), but larger price reductions are required to clear the market for every million barrels a day the producers fail to cut back. The stronger price response by consumers yields a lower demand at \$35 per barrel, but it also implies that price decreases by producers will induce more additional demand.

A useful perspective on this subject is provided by comparing the state of the oil market in 1978, the last year before the collapse of Iranian production, with what might happen in 1982 or 1983. The price of oil in 1978 was around \$14 per barrel. In 1981 dollars and allowing for changes in international exchange rates, the 1978 price would now be around \$20 per barrel. It is not implausible that one or two years from now, the essential differences with 1978 could be (1) a stronger impetus toward reducing oil use; (2) a stronger incentive to increase the supply of oil throughout the world and to substitute fuels such as natural gas and coal for oil; (3) the more-or-less-permanent disappearance of about between two and four mmbd of Iranian oil; and (4) real world GNP growth of 10 to 14 percent. The net effect of these influences might be an oil price close to that prevailing in 1978 in 1981 dollars, namely, from \$20 to \$25 per barrel.

This observation is not a prediction. But it should

Table 2

	WOCA* Oil Consumption (Million Barrels per Day) 3% GNP Growth		
	Real Oil Price Change Annually <sup>a</sup>		
	0	-5%	-10%
1979	51.6	51.6	51.6
1980	49.0	49.0	49.0
1981	47.8	47.8	47.8
1982	47.1	47.3	47.5
1983	46.6	47.1	47.6
1984	46.4	47.1	48.1
1985	45.9	47.4	49.0

<sup>a</sup>Beginning in 1982.

Source: Calculated by the authors.

\*WOCA: World Outside Communist Areas.

not be cause for great surprise if the real price of oil declines substantially in the next two years. For example, if world inflation continues at around 10 percent per year, the real price in 1981 dollars could decline to \$28 per barrel in 1983 with the nominal price remaining at \$35 per barrel.

Table 2 shows the implications of various rates of reduction in real oil prices for the high price response case and a world GNP growth rate of 3 percent per year. Under these assumptions, the oil producers might hold oil demand at its current level of about 48 mmbd through 1984 by allowing the real price of oil to decrease by 10 percent per year. If inflation continues at its recent rate, that real price decrease could be attained by keeping the nominal oil price constant at around \$35 per barrel.

Some might wonder if price declines will be passed on fully to consumers. They should be because this is a highly competitive sector. The only major impediment would be government action in the form of increased taxes on oil products or a tariff on imported oil to generate revenues, keep oil demand from growing, or (in the case of the tariff) to provide an "umbrella" to shelter domestic oil and gas exploration and production in the face of falling world prices.

If a substantial real price decline occurs, how long might it last? This would depend on a number of parameters, not the least of which would be expectations in the market about future oil prices. As we have seen, if consumers regard the "normal" price of oil as higher than the then prevailing one and continue to make fuel-saving investments, demand and price will be held down for some time. However, even if the price erodes in the next year or two, a sustained period of vigorous world economic growth could result in increased upward price pressure by 1984-85.

### *Some implications*

It is perhaps most important to recognize that any softening in the market is likely to create the impression that the energy security problem has greatly receded. This would be far from the truth. Political instabilities persist within the Persian Gulf area; so does its exposure to Soviet power. At any time we and our allies could find ourselves in a great crisis with little notice.

A lower level of imports at the outset of a crisis

Table 3 Data for World Oil Market Calculations

	WOCA oil consumption <sup>a</sup> (mmbd)	World oil price <sup>b</sup> (1980 \$/BBL)	WOCA GNP <sup>c</sup> (Billions of 1980 \$)	Oil/GNP 10 <sup>6</sup> BBL 10 <sup>9</sup> Dollars
1972	44.4	6.01	8,160	2.00
1973	47.8	6.51	8,671	2.00
1974	46.3	16.95	8,816	1.92
1975	45.1	16.35	8,834	1.87
1976	48.1	16.53	9,334	1.88
1977	49.5	16.35	9,712	1.86
1978	51.0	15.29	10,099	1.84
1979	51.6	20.35	10,427	1.79
1980	49.0	30.87	10,568	1.70

<sup>a</sup>From "BP Statistical Review of the World Oil Industry," 1980.

<sup>b</sup>Energy Information Administration, Department of Energy, "Monthly Energy Review," May 1981.

<sup>c</sup>From "Economic Report of the President Together with the Annual Report of the Council of Economic Advisers." Transmitted to Congress in January 1981, U.S. Government Printing Office.

means fewer barrels on which to pay a much higher price during a sudden disruption; it also means that the amount of spare oil production capacity in the world to offset unanticipated production disruptions would increase. However, if the shortfall were larger than the amount of spare capacity available or if those who owned the spare capacity were unwilling to put it into production during the crisis, the effect on the world oil market could be quite severe. A projection for 1982 would show that each uncompensated one mmbd decrease in OPEC production that was not offset by stock releases in the oil-importing countries or increased production elsewhere would result in an increase in the world oil price of \$10 to \$15 per barrel. This story should be familiar by now, and the modest amount of slack in the world oil market at present should not blind us to the continuing danger.

In the circumstance which seems most likely that of a supply overhang which is adequately managed by the Saudis and a few other countries (in other words, 3 to 4 mmbd), a "single" price will be established, presumably in the range of \$32 to \$34 per barrel by late 1981. This implies a Saudi level of production of 7 to 8 mmbd. It may also produce a slightly smaller *net* Western dependence on vulnerable Persian Gulf oil of 1 to 2 mmbd fo



a few years.

If, however, the oil price declines in real terms, there will be several implications for the country and for the Reagan administration.

1. Inflationary pressures will be lower; for instance, a \$10 per barrel decline in the price of oil would reduce the consumer price index by about 2 percent.

2. Revenues from the domestic oil "windfall profits" tax will be lower; a \$10 per barrel decline would reduce revenues from this tax by about \$20 billion per year.

3. The gap between the controlled price of natural gas and oil could be narrowed; therefore, the financial effects on gas users of decontrolling natural gas would be lessened.

4. The cost of putting oil in the Strategic Petroleum Reserve would be reduced.

5. The government might have to decide whether or not to allow oil dependence on vulnerable Persian Gulf supplies to increase to its earlier level; if it were thought important to keep oil dependence down, then a tariff on oil imports or additional taxes on various products would be needed.

For industry, the possibility of a real reduction in oil prices, even if only a dip for a few years, would pose some important strategic questions. For instance, would consumers swing back to buying larger cars (as they did in 1975-78 as the real price of gasoline stabilized), or would they look across an assumed price "valley" to higher future prices and continue to buy small cars? What would happen to exploration for oil and gas which has grown so strongly in the past several years? Declines in airline fuel costs and fares would revive the demand for air travel which has recently been lagging. The costs of oil-using electric utilities would ease off, perhaps putting them in a better position to get relief from state public utility commissions. In short, the management of every firm whose activities are affected directly or indirectly by the price of oil products needs to think hard about the effects of a decline.

Of course, a substantial real price decline is a possibility, not a certainty. Indeed, the opposite could occur—another sharp price escalation if further trouble erupted in the Persian Gulf. This wide range of possibilities makes strategic planning even more difficult than usual but it also means high rewards for those who adopt the right strategy.

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