

An OPEC obituary

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At the end of 1981, oil prices were suffering their greatest decline in half a century, but many industry executives and forecasters cautioned that the attendant “glut” was a temporary phenomenon. Despite many signals to the contrary, that opinion persisted well into 1982, with Occidental’s Chairman Armand Hammer and others predicting \$100-per-barrel oil in ten years. The “scarcity” mentality that fed the price leaps of 1974 and 1979, plus a belief that unpredictable Middle Easterners control the world oil market through OPEC, gave such assumptions nearly axiomatic status during the past decade. But the exporting nations’ boast that “oil in the ground is a better investment than money in the bank” is turning out to be so much wishful thinking.

The truth is that neither an end to the recession, nor OPEC attempts at production quotas, nor continued wars in the Middle East, will long be able to shore up a sagging crude-oil market. It is, indeed, because oil prices climbed so rapidly and so high in the 1970s that they are now almost certain to fall and keep falling—perhaps as steeply and as far as they rose. Today’s prices are still higher than markets can tolerate, and the forces that led to the enormous price hikes of the past decade work just as effectively in reverse.

While real (constant-dollar) crude-oil prices are unlikely to rise to their 1980-81 levels again in this century, forecasting prices for any specific future year is a nearly hopeless task. The fall in crude-oil prices that began last year will eventually give way to another price rise, another decline, and so on. For crude-oil markets are inherently *cyclical* and, except during a unique period of almost four decades when the state of Texas dominated both U.S. and world crude-oil markets, oil-price fluctuations have been large and frequent. History shows us no long-term oil-price trends, but only a series of cycles of uneven duration and amplitude. The era of OPEC's opportunistic price-gouging is over, and no other entity is in sight with the power to move oil prices in any consistent direction or to stabilize them at any given level.

The power of the Texas Railroad Commission

To understand OPEC's helplessness in today's crude oil-market, it is useful to review how the market operated before OPEC came to power, and how the Texas Railroad Commission (TRC) managed to exercise control for nearly forty years.

The TRC's rule emerged in the mid-1930s from circumstances quite different from those that nurtured OPEC in the 1960s and 1970s. Between 1859 (the year Colonel Drake first discovered oil in Pennsylvania) and the Great Depression, crude-oil markets everywhere were dominated by events in the United States, where one black-gold rush after another unleashed an oversupply and sent prices plummeting. Growing oil demand rapidly restored prices after most of these crises, as petroleum captured markets that were previously held by whale oil, gas, or coal, and as the number of automobiles swelled.

The Yates field in Texas, for example, was first tapped in 1926. It was the biggest field yet found, and over its first year of production average crude-oil prices in the United States fell 24 percent. Prices recovered quickly, but in 1930, the beginning of the depression coincided with discovery of the even larger East Texas field. Oil literally ran in the creeks, and prices fell locally to 10 cents per barrel.

Much of this market chaos resulted from the common-law "rule of capture." The principle that nobody owned oil until it was brought to the surface generated frenzied competition among drillers to lift as much oil as they could from each newly-discovered pool before their neighbors got it. The East Texas drilling rush ended

in 1931 only when the governor sent the National Guard into the field to shut down production. The next year, a bitterly divided Texas legislature granted the TRC authority to limit output from individual wells in the interest of conservation and market order. Under "market-demand prorationing," refiners told the TRC how much oil they wanted to buy each month, and the Commission parceled out the "allowable" share of this demand to each well. This system assured every Texas producer a buyer for at least some of his oil, no matter how much excess production capacity other producers held. The TRC's ability to stabilize the market was bolstered by market-demand prorationing in several other states, including Louisiana, the number-two U.S. producer. Under state regulation, physical shortages and surpluses both became a thing of the past, "conservation" replaced physical waste, and the violent short-term fluctuations of crude-oil prices ended.

Even more important was a series of federal actions supporting TRC authority. In the 1935 Connally "hot-oil" law, Congress made it a federal crime to ship oil produced in violation of state conservation orders. After World War II, the executive branch acted to prevent uncontrolled imports of low-cost foreign crude oil from undermining the states' control of U.S. oil supplies. For a while, the handful of largely U.S.-based oil companies that controlled the oil reserves of the Middle East and the Caribbean had cooperated successfully in limiting their foreign petroleum production to just about the amount demanded by their own foreign refineries.

Nevertheless, by 1948 the huge, low cost oil reserves overseas so threatened Texas regulation that the Truman administration started assigning "voluntary" import quotas to the companies. In 1958, after independents such as Hunt and Occidental developed enormous new reserves in Libya, President Eisenhower established a mandatory oil-import program (MOIP). The MOIP gave each U.S. refiner the right to import some lower-priced foreign oil, but it enabled the TRC and other state conservation authorities to continue setting the total volume of crude oil supplied to the domestic market.

Critics of market-demand prorationing and import quotas, including the 1970 Cabinet Task Force On Oil Import Control headed by George Shultz, saw the combination mainly as an arrangement that kept U.S. prices artificially high and perpetuated wasteful excess capacity. This arrangement indeed did shut in much of the nation's lowest-cost oil at the same time that it created an incen-

tive to develop domestic fields that would not have been viable in a free market. But precisely because it sheltered surplus producing capacity for four decades, Texas prorating functioned as the balance wheel of the world oil market. Texas was the "price-maker": The TRC determined the price that all domestic producers received for their oil, and at the same time was the most powerful single force in the world crude-oil market. Other producers were relegated to the passive role of "price-takers" who could always sell as much or as little oil as they wished, once they accepted the price structure established by Texas.

The TRC could play the price-maker's role because it had control over sufficient spare production capacity to supply refiners with all the Texas oil they wanted at the established price, offsetting any rise in demand prompted by short-term economic booms or long-term growth, or any drop in output by other producers at home or abroad. The Commission also had the power to enforce production cuts, if necessary, to prevent a surplus from appearing when oil demand waned or production outside Texas increased.

The Texas system lasted for nearly 40 years, through World War II, the U.S. recessions of the 1950s, and several supply disruptions caused by Middle Eastern political upheavals in the 1950s and 1960s. Oil supplies were seriously curtailed in 1952-54, for example, following Mossadeq's nationalization of the Iranian oil concessions, during the Suez crisis of 1956, and again during the 1967 Arab-Israeli War. U.S. and world crude-oil prices remained relatively stable, however, as the majors produced more oil in the unaffected Persian Gulf countries, while the TRC and other state commissions increased production at home. From 1935 to 1972, roughly the period of the TRC's domination of the world market, the average annual change in real crude-oil prices in the United States was only 4 percent, a stark contrast to the average annual change of 21 percent between 1871 and 1935.

One reason for the TRC's success was that it did not exploit its market power opportunistically. The Middle Eastern conflicts in 1952, 1956, and 1967 offered Texas producers, the state of Texas (a major royalty owner), and the big international oil companies a chance for huge short-run profits. But each time, the TRC and the majors opted for long-term stability, forestalling the kind of consumer panic that generated the price run-ups of 1974 and 1979.

Once domestic production reached full capacity in 1972, the U.S. government had no choice (politically, at least) other than to do away with import controls, leaving consumers exposed to whatever

upheavals might occur in the oil-exporting countries. Meanwhile, nationalization of the major oil companies' overseas concessions, plus the growing influence of independents (including national oil companies such as those of France, Italy, and Brazil), had stripped the majors of their ability to balance supply and demand outside of North America. A supply curtailment by the Arab oil producers, which hardly would have caused a ripple in oil prices ten years or even two years earlier, transformed world energy markets and, for a few years at least, handed control of those markets to OPEC.

A decade of panic pricing

OPEC's spectacular successes in the 1970s were due more to market psychology than to anyone's direct manipulation of crude-oil supplies. OPEC *per se* did not engineer either of the decade's great price leaps; instead, these came out of consumer panics that spread through the spot market after the 1973-74 Arab embargo and the 1978 Iranian revolution. In both cases, OPEC merely voted, after the panic had run its course, to establish the prevailing spot prices as the base prices for all crude-oil sales.

Crisis psychology was thus the key to the short-term oil market behavior that ratcheted prices upwards. The physical shortfall that provoked the panic of 1973-1974 was proportionally no greater than the shortfalls (or excess supplies) that the industry faced periodically because of unusual weather or the business cycle, and there was no reduction in output immediately before the 1979 price spiral. In neither case was the actual shortage greater than the sum of: (1) the oil then being consumed by electrical-generating and manufacturing plants that had the capacity to use other fuels; (2) the standby or underutilized oil-producing capacity of U.S. and uninvolved foreign producers; and (3) the inventory cushions that industry ordinarily would have drawn down in order to prevent market turmoil.

Rather, the price run-ups both began with a handful of large buyers who believed that the "shortage" was real, and who were thus willing to pay almost anything. This crisis mentality had a powerfully perverse effect on the market. Instead of restraining demand, soaring spot prices gave the shortage credibility and helped propagate the panic to every class of consumer, so that demand actually *increased*. Much of the apparent supply deficiency was caused by hoarding, the most memorable example of which was the practice of "topping-off" gasoline tanks daily.

However socially irrational hoarding may have been, it seemed quite reasonable at the time from the standpoint of an individual company or consumer. In 1973-74, both the Arab producers and the Western media were insisting that the embargo and production cutbacks were in fact harming the consuming countries. Congress had passed an Emergency Petroleum Allocation Act; President Nixon had declared an "energy emergency" and had begun allocating crude-oil and petroleum products.

No one knew how long the apparent shortage would last or how high prices might go before it was over; hence it made sense for anyone with an advantageous position in the allocation scheme to take every drop of price-controlled gasoline or fuel oil allowed under the rules, regardless of current need, and for every other consumer to buy as much at the prevailing price as he could store. Motorists, households, and businesses all sought to build up and maintain high inventories in case things "really got bad" later, while producers, refiners, and others expected to profit from holding products for resale at higher prices in the future. All of these anticipations were of course self-validating: Supplies did get tighter and prices continued to rise.

The OPEC mystique

Oil producers and refiners usually try to plan their physical operations and to budget their purchase outlays and revenues well in advance. For this reason, the great bulk of the world's crude oil moves in "captive" channels from producing companies to their own refinery affiliates, or on relatively long-term contracts between producers and refiners. "Spot" transactions—sales of a single tanker-load or less—usually account for only a small percentage of world supply, but they are an indispensable part of the total market because they allow any company or government to dispose of a temporary oversupply or to fill a temporary shortfall. A general surplus or shortage equal to only, say, 3 percent of total world demand may thus show up as a surplus or shortage amounting to 50 or 100 percent of normal spot-market demand. As a result, spot prices tend to fluctuate daily and seasonally, and to range widely above and below "posted" or contract price levels, which typically change slowly and infrequently.

Changes in crude-oil spot prices occasionally herald fundamental market changes, but more often they are only exaggerated reflections of unexpected weather or business conditions, the buildup or

drawdown of inventories, or political events. After some such contingency has caused spot prices to diverge sharply from contract prices, the spot market normally returns to a relatively narrow range of prices around previous contract-price levels. What was extraordinary about the OPEC-dominated markets of the 1970s is that they twice failed to respond in this normal way. After the panics of 1973-74 and 1979, spot prices did *not* fall back to pre-crisis levels; instead, contract prices rose (by OPEC decree) to the peak values to which the panic had carried spot prices. This feat was OPEC's great triumph—a triumph which, ironically, is now begetting its downfall.

The TRC had determined prices by actively manipulating the aggregate supply of crude oil; as a state agency, it had the power to enforce its orders on the many thousands of Texas producers regardless of their conflicting individual interests and viewpoints. OPEC, on the other hand, has never had any authority over the diverse and sometimes warring sovereignties that make up its membership.

Nevertheless, once the surplus capacity of Texas and Louisiana had disappeared in the early 1970s, Saudi Arabia by itself conceivably could have taken over the TRC's role as balance-wheel. Its potential authority came from a combination of the world's largest reserves of conventional crude oil and a population of approximately five million. The Saudis thus have the same mix of assets, at least theoretically, that earlier gave the TRC its power—the ability to increase or decrease output over a wide range.

Proved and indicated reserves in Saudi Arabia number in the hundreds of billions of barrels—how many hundreds, no one knows or much cares, because it has never been worthwhile to carry out the intensive exploration and development work needed to get an accurate estimate. The known reserves are, in any event, so large and so easy to develop that it would take Saudi Arabia only a few months to double its exports from the current level of less than 6 million barrels per day. (After all, production was almost 11 million barrels per day in mid-1981.) With two or three years for drilling of development wells and construction of gathering lines and terminals, exports probably could rise to something like 18 million barrels per day. Indeed, before the 1973 embargo, the big oil companies (the Aramco shareholders) that controlled the Saudi concession were planning for production on the order of 20 million barrels per day by 1976.

Saudi market power rests on the ability to curtail as well as to

increase production. The country's small population has permitted Saudi Arabia to reduce its output by almost half over the last year, from 10.6 million barrels per day in August 1981 to about 5.5 million in May 1982, without suffering a fiscal or foreign-exchange crisis. Throughout the 1970s, therefore, Saudi Arabia, with or without the cooperation of other OPEC nations, had much of the power to stabilize the market in much the same way as the Texas Railroad Commission once did.

So it was a worldwide obsession with scarcity, rather than deliberate management of total world supplies, that underpinned the OPEC mystique and locked in the high prices OPEC decreed in 1974 and 1979. In the 1970s the doctrine of "imminent resource exhaustion" came to be embraced by a large number of parties, and for quite different reasons. Environmentalists hoped to slow the wasteful plundering of the earth's riches; oil companies were seeking to ward off price controls and attacks on their tax preferences; alternative-energy entrepreneurs sought business; politicians found in the energy crisis a moral equivalent of war; civil servants made it the rationale for massive expansion of their agencies and intervention into almost everything; and an army of academics, consultants, and journalists became rich and famous by studying, interpreting, or advocating national energy policies. Each group wanted to believe, or at least to persuade others, that "the wolf is really here."

In this intellectual climate, each price increase, regardless of its proximate cause, helped convince the oil-exporting nations that "oil in the ground is a better investment than money in the bank." This doctrine could remain valid for just as long as most producers believed in it, because it encouraged them to hold oil off the market in the hope that its value would be much higher in the future. It was therefore the most effective and durable weapon in OPEC's ideological arsenal. Although the organization had no enforcement machinery, and did not even attempt a prorationing scheme until 1982, its members did reduce production when preservation of the price gains of 1974 and 1979 required it.

When the OPEC nations cut back their total exports in 1974 and again in 1979, it is important to note that they made the required cuts individually. They did so without coordination or urging by OPEC, because they had more money than they needed at the moment, and because they believed that their oil would be worth more later. Even the 1973-74 price rise had been so immense that most OPEC countries had substantial financial surpluses; only Al-

geria, Ecuador and Indonesia were in deficit. In 1975 OPEC as a whole had a \$59 billion (or 14 percent) surplus of export revenues over import expenditures. Several countries understandably concluded that their economies could not absorb further increases in oil income without generating intolerable inflation and social unrest.

It also seemed obvious to the producers that oil prices would continue to advance at a higher rate than their surplus cash would yield in risk-free financial instruments. Thus, Kuwait, Libya, and Venezuela together reduced their exports by 4 million barrels per day after the 1974 price rises. Saudi Arabia abandoned Aramco's 20 million barrel-per-day target in 1974, and cut production sharply in January 1979 and then again in April—ostensibly to offset an imminent oil glut, which was in fact an aftermath of the price panic that followed the overthrow of the Shah. In neither price rise did OPEC as such have any role in initiating or orchestrating the curtailments.

Thus, a short-lived belief in acute scarcity twice created a real scarcity that caused spot prices to soar. A belief that chronic energy shortages would engender a permanent seller's market then led producers and consumers alike to interpret an unusual and otherwise transitory market phenomenon as a fulfillment of prophecy. The belief that oil in the ground was the world's best investment not only encouraged OPEC officially to adopt spot market prices generated by consumer panic; it also enabled those prices to stick. In 1973-74, the world price of crude oil (measured at the Persian Gulf) increased five-fold in real terms, and then in 1979-80 it again tripled.

The end of the OPEC era?

OPEC's hold over world energy markets in the 1970s, though mainly psychological, was no less real. However, the cartel's hold is far more fragile than the earlier market power of Texas, which stemmed from the TRC's direct control over production volumes. Today, few of the material requisites for further OPEC success remain. Its share of the world oil market has fallen from 55 percent in 1974 to 31 percent in August 1982; and Saudi Arabia's share is already less than the share Texas held as late as the mid-1960s.

Some recognition of these shifting realities began to strike the Saudi leadership only after two deliberate production cuts in 1979 had locked in a series of huge price increases voted by OPEC.

Saudi Arabia's actions have now become more-or-less consistent with the pronouncements of the kingdom's oil minister, Sheikh Yamani, who had long given lip-service to the cause of moderation and market order. Explicitly invoking the memory of the TRC, Yamani claims to have engineered the 1980-81 "oil glut"—increasing production from less than 8 million barrels per day to almost 11 million, specifically in order to bring prices down to \$34 per barrel and to persuade his OPEC partners to join a prorationing scheme under Saudi leadership. In 1982, after succeeding too well, perhaps, the Saudis have reversed course, now *cutting* their exports by more than half in an attempt to support the \$34 price.

But Saudi Arabia appears to have been too late in discovering the market power it alone possessed. While the TRC held crude-oil prices in the United States above short-term free-market levels, it still kept them low enough to encourage ever-increasing oil consumption and stave off the development of alternative energy sources. The Saudis, however, wittingly or unwittingly had a key role in both OPEC price hikes of the 1970s, unleashing inexorable and profound reactions from both producers and consumers, which today threaten to make OPEC oil a dispensable commodity.

Contrary to a near-perfect consensus of industry, government, and the academic-consulting community during the 1970s, crude-oil demand does respond—slowly but massively—to price changes. In the long run, higher prices have a profound effect on oil supply, too; non-OPEC output has grown rapidly and will continue to grow. Production from the North Sea, Alaska, and Mexico, for example, increased by 4 million barrels per day between 1977 and early 1982, and Mexico's exports—driven now by economic necessity—could increase another 3, 5, or more millions of barrels per day before 1990. Most clearly and most importantly, however, high oil prices are shrinking oil demand, both by reducing total energy consumption and by making coal, natural gas, nuclear power, and other energy sources more attractive.

After a modest dip in 1974, total world oil consumption resumed its growth, and finally turned down only in 1979. This experience reinforced the impression that oil demand was insensitive to price changes, misleading economists as well as industry executives and government officials in both oil-producing and oil-consuming countries. An absolute decline in U.S. oil consumption was first visible in 1979; the rest of the industrialized world followed a year later. In retrospect, it is remarkable how many were unable to see what was happening.

In 1977, Exxon forecast the U.S. consumption of petroleum liquids would be 20.3 million barrels per day in 1980. In 1979, Shell predicted 18.6 million barrels per day consumption in 1980, and both the *Oil and Gas Journal* and the Independent Petroleum Association of America forecast 18.4 million. As late as mid-1980, Shell had only revised its published estimate downwards to 17.2 million barrels per day, while the Independent Petroleum Association of America had come down to 17.4. At year-end in 1980, however, average consumption for the year stood at only 16.3 million barrels per day.

The drop in total oil use over the last three years, and the experts' tardiness in recognizing it, stem from profound changes in the structure of world energy demand, changes which have actually been under way since 1974. From 1960 to 1973, oil prices were low and declining in real terms. As a result, absolute oil consumption in the industrialized countries grew at an annual rate of 7.6 percent. Japan led this growth with an 18 percent average over the thirteen-year period. After 1974, however, the quadrupled crude-oil price led to a gradual leveling off of demand for oil everywhere. Total oil consumption in the industrialized countries dropped slightly in 1974-75; growth resumed between 1975 and 1979 at an annual rate of about 1 percent, but this partial recovery only concealed the fundamental shift that had taken place in the world energy-use patterns.

More telling than gross consumption figures is the change in oil use per unit of economic activity, or "gross domestic product"—the oil/GDP ratio. After rising at an annual rate of 1.3 percent from 1960 to 1973, the oil/GDP ratio for the major industrialized countries showed a 1.5-percent annual decline between 1973 and 1979. The 1979 upheaval initiated an even more decisive and long-lasting shift away from oil, reflecting both an immediate reaction to the second OPEC price surge and the delayed but accumulating response to the price increases of the early 1970s. During the years 1979 to 1981, oil consumption in the industrialized countries fell 7 percent per year, and the oil/GDP ratio fell at an annual rate of 8 percent.

Since the latter measure represents the amount of oil used per unit of economic activity, rather than an absolute figure, its fall implies that an end to the present recession will not be the panacea for the oil market that much of the energy industry and many analysts still seem to anticipate. The die has been cast. It is unlikely that individual homeowners will tear the insulation out of

their houses if the price of home heating oil drops, or scrap their new fuel-efficient automobiles in response to lower real prices for gasoline. Nor will the construction and automobile industries abandon their new energy-efficient designs. Those who attribute the oil glut and the current "softness" of oil markets primarily to the world recession forget that economic recovery will mean a more rapid replacement of existing vehicles, industrial machinery, and buildings, with models designed since 1974 in response to high energy prices.

Except in a couple of OPEC countries, no new base-load electrical generating plants fired by oil, or large-scale oil-fired boilers of any sort, have been built since the mid-1970s; over the past decade, industry has been relentlessly converting existing oil-burning equipment to coal, natural gas, and other energy sources. Because changes in the world's fuel-use patterns are generally embodied in long-lived capital-intensive instruments such as buildings, transportation equipment, and industrial machinery, the extended period it has taken for the 1974 price rises to produce an absolute decline in oil consumption only reflects the time required to replace these assets. This long lag in adjusting the world's capital stock to changed energy-supply conditions also suggests that the all-time high oil prices of 1974-1982 will influence consumption patterns for many more years, *even if world oil prices now fall as rapidly and as far as they rose in the 1970s.*

The truism that the world's petroleum resource is finite thus does not mean that oil prices will continue to rise. The world has no demand for crude oil as such, but only for the heat, motive power, chemical building blocks, and other vital commodities that it provides. Thus, oil is in demand only so long as it is the cheapest source of these goods. No matter how scarce natural petroleum liquids become, their prices cannot rise and remain above the cost at which each of these wants can be dispensed with or served in some other way.

It should be fairly obvious now that predictions of \$100 per barrel oil are ludicrous. At \$15 per barrel, oil was already more expensive than coal in most of the world, and had consequently priced itself out of electrical-generation and other large-scale stationary-heat and boiler-fuel markets. At well under \$50 per barrel, given a few years for market and infrastructure development, liquid petroleum products would have become marginal even as a source of transportation fuel, which increasingly would be replaced by some combination of compressed and liquefied hydrocarbon gases and

alcohols. A world that is already fleeing from oil at \$32 per barrel would have little use for it at two or three times that price.

A buyer's market

This situation does not bode well for OPEC, or for the ability of Saudi Arabia or anyone else to manipulate or stabilize the market. When demand falls, the power of a price-maker is tested. Can the OPEC nations, many of whom are deeply in debt, now afford to cut back production, as they must?

On this point too, the OPEC of 1982 is as different from its predecessor, the Texas Railroad Commission, as it is from the OPEC of the mid-1970s. In comparing OPEC with the TRC, it is essential to remember that the Commission's power developed during the Depression, and that its institutions were designed expressly to manage a chronic excess of production capacity. Once that excess was gone, the TRC became impotent and economically irrelevant. OPEC, in contrast, showed its muscle under totally opposite conditions. It twice seized upon a brief moment of consumer panic, convinced itself and consumers alike that a permanent world oil scarcity existed, and for a while reaped the benefits of a seller's market even after the foundations of that market had vanished.

There is little prospect that OPEC can function effectively in a chronic buyer's market, especially in the face of the organization's current internal dissensions and the precarious financial situation of its members. At its March 1982 meeting the group made its first serious attempts at TRC-style prorationing. The experiment was an instant failure, with at least three members brazenly exceeding their quotas from the beginning. By July 1982, Iran was selling 1.0 million barrels per day above its quota, Nigeria .3 million, and Libya .25 million. Venezuela, the sole advocate of OPEC prorationing before 1980, had threatened to start selling more than its assigned 1.5 million barrels per day if the other countries did not get in line, and in August the Saudis, who had already reduced their output by 45 percent in the hope of supporting the \$34 marker price, were also hinting that they would increase their exports if the cheating did not stop.

The greatest source of downward pressure on prices is the shaky financial condition of the exporting countries, a drastic turnaround from the situation of 1975. Since 1973, the OPEC nations' spending for imports has risen at an average annual rate of 30 percent because of ambitious industrialization plans in every one of them,

and extravagant purchases of military hardware in many. Already, the combination of declining oil demand and rapidly rising expenditures has resulted in trade deficits for all but three OPEC members. Unless oil production or prices increase sharply, every member, including Saudi Arabia, will soon slip into deficit.

These deficits, exacerbated by the continuing Iran-Iraqi war, are already beginning to take their toll as the most hard-pressed countries, in search of revenues to pay for today's imports, produce as much oil as they can sell. Moreover, with declining or even stable prices, and real interest rates at their highest level in history, the slogan, "oil in the ground is a better investment than money in the bank," is obsolete even for countries that do not have an immediate cash-flow or foreign-exchange deficit. In the 1980s it is hard for even a cash-surplus oil-exporter to avoid recognizing that oil in the ground is a non-earning asset, one that ought to be cashed out so the proceeds can be invested in high-yielding financial instruments. This doctrine is just as true (and may be just as self-fulfilling) today as was the opposite notion in 1975 or 1979.

To put OPEC's weakness into perspective, consider that:

—In August 1982, world crude-oil production was about 54 million barrels per day. Out of this total, the Saudi share was about 5.5 million, or 10 percent; all of OPEC was producing about 17 million barrels per day, or 31 percent of world supply. If new production in non-OPEC countries plus further declines in consumption were to equal only 10 percent of present world demand, OPEC's members would have to reduce their own production by 32 percent in order to maintain any chosen price level.

Saudi Arabia, which has already reduced its exports by 45 percent over the last year, cannot and will not accommodate much of this burden, as a 10 percent shift in world supply or demand would be just about equal to the country's current export volume. Further growth in non-OPEC production and a further fall in world consumption are not only plausible but nearly inevitable. Thus Saudi Arabia's reign as world price-maker is ending, virtually as soon as it began.

—Conservation, fuel-switching and recession caused the non-communist world's oil consumption to fall by 7.5 million barrels per day between 1979 and mid-1982. If consumption declined by only half as much over the next two years, OPEC's output would have to fall by an amount equal to the combined production of Kuwait, Libya, Algeria, and Indonesia in August 1982, or by 68 percent of current Saudi output.

—Crude oil production from Alaska, Mexico and the North Sea increased by more than 4 million barrels per day between 1977 and 1981. If all non-OPEC producers were to increase their output by another 4 million, OPEC could maintain control of prices only if its members could cut production by at least the equivalent of 73 percent of August 1982 Saudi Arabian production.

—Production from Iran, the world's former number-two oil exporter, has fallen 4 million barrels per day from its 1974 peak. The former number three exporter, Iraq, is producing 2.6 million barrels per day less than the peak it reached in 1978. If the war between these countries should end and they returned to the market with their 1978 sales volumes, other OPEC countries would have to curtail production by an amount equal to 90 percent of August 1982 Saudi output.

—Finally, if the last three hypothetical situations *all* took place, and if OPEC hoped to sustain world prices at current levels, it would have to find places to cut production by at least 12.7 million barrels per day—75 percent of the organization's current output, or 231 percent of August 1982 Saudi production.

The range of conditions within which OPEC, Saudi Arabia, or anyone can continue to dictate or even defend the level of world oil prices is thus extremely narrow. The reckless opportunism of the 1970s is now taking its toll. Long-term changes in supply and demand adverse to OPEC's interests have been under way ever since the cartel's first big coup in 1974. As these changes become visible to everybody, the mystique that has been OPEC's chief source of power will vanish along with forecasts of hundred-dollar oil. The world market will soon be, if it is not already, out of anyone's control.

Eleven lessons for the future

A new, large disturbance in world oil markets could push prices either up or down. It is still conceivable, if only barely, that a sharp economic upturn and an exceptionally cold winter could combine with the right kind of Middle Eastern political crisis, and send prices soaring for a third time to levels significantly above those reached in 1980-81.

The probabilities, however, weigh heavily on the other side. There is a huge overhang of excess production capacity in the oil-exporting countries. Several of them are in extreme fiscal distress; Mexico in particular has both the ability and a desperate need to

increase oil exports. Meanwhile, the price-induced flight from oil is still gathering momentum that will not be spent for years, no matter what happens to oil prices today.

All of these forces together, not to mention a worldwide economic slump that is far from over, add up to significant downward pressure on oil prices. Prices must eventually go down, and they must go down substantially. The serious questions are whether they will descend smoothly or chaotically, and how far they will drop. There is still a sliver of a chance that prices could remain steady for weeks or months, or even increase once more. But a market collapse this year or next—a collapse every bit as spectacular as the two price eruptions of the 1970s—is far more likely.

Looking back across the years of OPEC and the “energy crises” to the relative tranquility of the TRC era and beyond, there are several lessons for the future.

1. *Worldwide scarcity and rising real resource cost had little or no direct responsibility for the worldwide energy-price upheavals of the 1970s.* The earth’s known resources still include plenty of crude oil that could be developed and produced at resource costs (capital, material, and labor costs) well below 1973 real prices. Considering these resources alone, there is enough low-cost oil left to satisfy the world’s current rate of consumption for several decades.

2. *In the absence of an effective price-maker like the Texas Railroad Commission, crude-oil markets are inherently cyclical.* Oil demand is highly responsive (“elastic”) to price changes, but this response is very slow, because fuel-use patterns are embodied in capital goods whose turnover is measured in decades. For the same reason, demand is exceedingly inelastic to price changes in the short run. This contrast between short- and long-term price-responsiveness inevitably fosters cyclical price behavior. In the 1970s short-term price-inelasticity spawned a steep cyclical upswing after years of artificially-maintained stability, and in 1981, a high long-term price-elasticity finally began to show itself in the beginning of a downswing.

3. *Market structure and psychology can exaggerate an episodic oil-price fluctuation, up or down, far out of proportion to the original supply-demand imbalance that triggered it.* Inventory accumulation or liquidation, the financial position of major producers, and consumer panic can all cause markets to behave perversely over a “short-run” that can last for several years. In a mockery of the “normal” supply-demand map, an oil-price rise can for a while

create an incentive to build inventories, and sustained price rises can encourage the withholding of production. A price reduction, likewise, can provoke liquidation of inventories and the expansion of output.

4. *A small excess of demand or supply, real or imagined, can send the market soaring or plummeting far beyond the price level that ultimately could have brought it back into balance.* Thus, there is no stable equilibrium toward which an unregulated petroleum market unfailingly moves once it is disturbed. The upheavals of the 1970s, which carried prices well above any level that could be sustained in the long run, have now set the stage for a descent far below the range of sustainable prices.

5. *No cartel or regulatory system could have held world oil prices at the low levels of the early 1970s, and none can do so in the future.* As we have seen, the energy crises were not caused by a permanent worldwide scarcity of "cheap" oil, but rather by the absence of short-term oil-demand flexibility, together with the disappearance of the short-run supply flexibility that had previously been exercised by governmental and private institutions striving for market order. In these circumstances, a relatively small curtailment of sales by a few producers openly aiming at market disruption could and did trigger an upward explosion of prices. If world oil prices now fell to pre-1973 levels (in constant-dollar terms) once more, a world-wide "energy crisis" would be with us again sooner or later.

6. *No group of producers could long hold world oil prices at the high levels of the early 1980s, and it is unlikely anyone will ever be able to do so.* Today's prices are not viable because they are pricing oil out of both the industrial fuels market and the market for petrochemical feedstocks. If prolonged, today's prices would even begin to erode oil's monopoly in transportation-fuels markets. Oil at \$30 and up has, therefore, guaranteed the emergence of excess producing capacity not in just one or a handful of political entities (Texas and Louisiana, for example, or Saudi Arabia, Kuwait, and Abu Dhabi), but all over the globe.

7. *Market stability at any price requires the supply-demand balance to respond promptly and in the normal direction to any price change, and prices to respond promptly and in the normal direction to any change in the supply-demand balance.* If the world is to avoid repeated violent swings in oil prices, market arrangements must be such that a small rise in oil prices can cause either a sizeable increase in effective oil supply or a sizeable decrease in oil consumption, or both. A small drop in prices must, likewise, be

able to induce a prompt reduction in supply or increase in consumption.

8. *Short-term supply-side adjustments to maintain price stability rather than instability require a TRC-style price-maker, but none is now in sight.* Any supplier or group of suppliers that hopes to regulate the market must have the ability and the will to swing world oil production upward to satisfy any surge of demand or supply interruption, or (more importantly now) to swing it downward in order to make room for a surge of supply or slump in demand. The system run by the TRC underpriced away its power to increase output whenever it was needed. OPEC as such never had either the will or the capacity to take responsibility, and Saudi Arabia blew its chance. It has now overpriced away its ability to reduce production sufficiently to support world prices at present levels or, most likely, at any level. The only plausible new candidates for price-maker may be PEMEX (Mexico's state oil company) and the U.S. Strategic Petroleum Reserve. Even if one of them maneuvers itself into the right strategic spot in the world market, however, there is only the barest chance that domestic politics in the United States or Mexico would permit either institution to move quickly, independently, and responsibly enough to serve as the world's oil-supply balance wheel.

9. *The only price level that even a supply-side price-maker can maintain for long is one that fosters demand-side stability as well.* If the price of oil remains within a range where oil, natural gas, and coal effectively compete for industrial sales in North America, Europe, and East Asia, many of the world's large energy-consumers will find it worthwhile to install dual or multi-fuel capacity, expressly in order to take advantages of small shifts in relative prices. The ability of a large consuming sector to switch fuels rapidly in response to changes in relative fuel prices or availability would preempt the perverse market behavior that has permitted small market shocks to explode into global crises. Multi-fuel consumers would simply let go of enough oil in a tight market, and absorb enough additional oil in a slack market, to avoid even the illusion of a physical shortage or surplus. The greater this demand-side flexibility becomes, the more modest will be the world's need for a supply-side price-maker like the TRC.

10. *The most stable and easily sustainable price range is probably on the order of \$10 to \$18 per barrel (in 1982 constant dollars), delivered to the world's major consuming regions.* Unlike pre-1973 prices the \$10-to-\$18 price range is high enough to cover the cost

of mining and transporting coal, and of burning it in an environmentally acceptable fashion, almost but not quite everywhere in the world. These prices are also enough to justify shipping liquefied natural gas (LNG) from any low-cost gas-producing area near tidewater to almost any port in the world, and to justify building transcontinental natural-gas pipelines (though probably not the Alaska or Yamal pipelines). Prices in this range would still leave oil a significant fraction of the markets for electric-utility and industrial boiler fuels and for petrochemical feedstocks. Any price excursion outside of this range, however, would still carry the threat of steep price fluctuations further away from, or substantially overshooting, any attainable equilibrium.

History offers some empirical support for the viability of a long-term world oil price in the \$10-to-\$18 range. Over the past 110 years, the average price in 1982 dollars has been almost exactly \$13 per barrel and, despite an average constant-dollar prime fluctuation of more than 20 percent per year, no long-term trend can be detected. (The average 1982-dollar price between 1871 and 1925 was \$12.96 per barrel, and the average price between 1926 and 1980 was \$13.04 per barrel).

11. *World oil prices will fluctuate both randomly and cyclically. In any given future year, however, the most likely price will be far below 1979-1982 levels.* In the absence of a secure mechanism for getting world oil prices into this range and keeping them there for several years, and in the absence of a competent and responsible successor to the Texas Railroad Commission, the prospect is for wide and unforeseeable fluctuations in world oil prices, like those that occurred before the TRC took control in the mid-1930s. The managing director of Royal Dutch Shell, D. de Bruyne, summarized the new outlook well when he wrote that "we are in for a period of severe and unpredictable discontinuities."

In summary, there is no basis in geology, resource-economics or history for predicting a never-ending increase in the real price of oil. Private investments and governmental institutions founded on that proposition are sure losers.