



Viewpoints Special Edition

# The 1979 “Oil Shock:” Legacy, Lessons, and Lasting Reverberations

The Middle East Institute  
Washington, DC





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## Viewpoints: 1979

The year 1979 was among the most tumultuous, and important, in the history of the modern Middle East. The Middle East Institute is marking the 30<sup>th</sup> anniversary of these events in 2009 by launching a year-long special series of our acclaimed publication, *Viewpoints*, which offers perspectives on these events and the influence that they continue to exert on the region today. Each special issue of *Viewpoints* will combine the diverse commentaries of policymakers and scholars from around the world with a robust complement of statistics, maps, and bibliographic information in order to encourage and facilitate further research. Each special issue will be available, free of charge, on our website, [www.mei.edu](http://www.mei.edu).



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# Introduction

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The 1979 “oil shock,” which was precipitated by the Iranian Revolution and compounded by the outbreak of the Iran-Iraq War, was the second major market disturbance of the decade. The curtailment of oil supplies and the skyrocketing of oil prices had far-reaching effects on producers, consumers, and the oil industry itself. The 21 essays comprising this volume examine the causes and consequences of the 1979 “shock” as well as current trends and future prospects in the global oil market in light of recent geopolitical shifts, changes in the structure of the market, global economic turmoil, and heightened concern about climate change.

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# I. Changing Markets

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# OPEC's Adaptation to Market Changes

*Jahangir Amuzegar*

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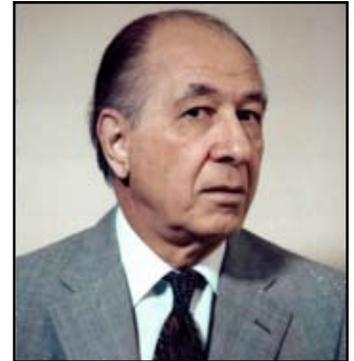
From its improbable and uneventful birth in September 1960 through its headline-grabbing era in 1974-79, frequent news of its impending demise during the 1980s, its renewed strength and subsequent weakness during the 1990s, and its current “side-show” reverberations, the Organization of Petroleum Exporting Countries (OPEC) has shown a remarkable knack for adapting to market changes, albeit with a checkered record of success. While the “1979 oil shock” brought OPEC’s “golden age” to a premature end, the organization has managed to survive and function in a largely hostile global environment through sheer tenacity and resilience.

OPEC was born in September 1960 with the principal objective of taking a collective stand against blatant transgressions by the major oil companies — the Seven Sisters.<sup>1</sup> The five original founders — Iran, Iraq, Kuwait, Saudi Arabia, and Venezuela — wanted the organization to act as a manager of the world oil market, comparable to the Texas Railroad Commission in the United States, but with a more “benevolent” intention of providing “a steady income to the producers, and an efficient, economic, and regular supply of petroleum to consumers.”

Ignored, ridiculed, rejected, and denied recognition by the oil majors for nearly a decade, OPEC’s notable action was the *Declaratory Statement of Petroleum Policy*, issued in 1968, stating the producers’ “inalienable” right to exercise permanent sovereignty over their national resources. Beyond this declaration, the group’s only major achievement was to stop the oil concessionaires from further cutting the “posted price” on which the countries’ share was calculated — unilaterally, as they had done in 1959-60.

With oil demand rising by 7% annually in the second half of the 1960s, reaching 9% in the early 1970s and thereby changing the world energy balance, OPEC found its first superb opportunity to exercise its sovereignty. In pursuit of the 1968 declaration, the six Persian Gulf oil producers managed to sign a five-year price-fixing agreement with a number of multinational oil companies in Tehran on February 14, 1971. The 1971 Tehran Agreement a) abolished the unilateral price fixing by the oil majors and established the new principle of price determination through bilateral negotiations; b) increased the 20-year-old 50/50 profit sharing formula to 55/45 in the producers’ favor; c) raised

1. The Seven Sisters refers to the seven companies that dominated oil production, refining, and distribution in the mid-20<sup>th</sup> century: Standard Oil of New Jersey (Esso), Royal Dutch Shell, the Anglo-Persian Oil Company (APOC), Standard Oil Company of New York (“Socony”), Standard Oil of California (“Socal”), Gulf Oil, and Texaco.



*Dr. Jahangir Amuzegar is an international economic consultant. He served as Iran’s Minister of Commerce (1962-63), Minister of Finance (1963), and Ambassador-at-Large (1963-79). His many publications include *Managing the Oil Wealth: OPEC’s Windfalls and Pitfalls* (I.B. Tauris, 1999).*

the posted price to \$2.18/b for the standard Arabian Light crude from \$1.80/b; and d) obtained a host of other smaller concessions. A series of further OPEC victories followed the Tehran Agreement. By 1973, with the 20-year oil glut at its end, the oil demand rising, OPEC's membership now encompassing all 13 major oil exporters, a lack of spare oil production capacity anywhere in the world, and the tight oil balance following the Yom Kippur war, OPEC's Ministerial Committee of the Persian Gulf members took another historic action. On October 16, 1973, the Committee announced an immediate rise in the posted price to \$5.12/b — close to the spot market price. Thus for the first time in oil history, the producing countries assumed power to consider and set the oil price *unilaterally*, and independently of the oil majors. Taking advantage of the 1972-73 commodity boom, and the feverish bid for crude oil in the aftermath of the Arab oil embargo, in late December 1973 OPEC raised the producers' share of oil exports to \$7/b for Arabian Light 34 (the marker crude)<sup>2</sup> — thus raising the posted price at the Persian Gulf to \$11.65/b. Subsequent annual incremental hikes by the oil producers brought the price up to \$13.54/b in 1978.

OPEC's consecutive victories, however, turned out to be short-lived, and were followed by a number of partially self-inflicted setbacks. The more than seven-fold increase in the oil price from \$1.80/b in 1970 to \$13.54/b in 1978 created profound and far-reaching changes in the world oil balance, as well as the prevailing relationships among major oil producers, principal oil importers, and the major oil companies. As a result of various countervailing measures taken by the major oil importing countries (conservation initiatives, promotion of alternative energy sources, greater use of non-OPEC supplies) to compensate for the so-called "OPEC tax," the demand for OPEC oil, which stood at 27mb/d in 1973, rapidly declined to 24mb/d (and OPEC's earnings dropped to \$108 billion from \$124 billion) by 1975.

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**Thus for the first time in oil history, the producing countries assumed power to consider and set the oil price *unilaterally*, and independently of the oil majors.**

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The spectacular jump of the crude spot price to more than \$40/b following the 1979 Iranian Revolution, turned the global oil market into total disarray, and by December 1979, there were no unified or posted prices anywhere as OPEC members followed their own supply policy. The outbreak of Iran-Iraq war in September 1980 (and a sudden loss of 4mb/d of oil supply) pushed up spot prices beyond \$41/b once again. After several months of different prices charged by members, OPEC's official benchmark price was finally set at a uniform \$34/b in October 1981. The second oil boom of 1980/81 marked the zenith of OPEC's glory, power, and fortune. From then on up until the Persian Gulf War of 1990, OPEC faced a downward trend as the oil boom produced another and sharper global downturn. Thereafter, OPEC lost its dominant position in determining the global oil supply, and its principal price-setting responsibility. Following a worldwide recession in 1981-82, global demand for oil fell to 53.5 mb/d from 62.9 mb/d in 1979, or about 15%. OPEC's output fell to 18.1 mb/d from 30.5 mb/d in 1979 — a drop of about 40%. OPEC thus became a "residual" producer when non-OPEC's supply overtook its output by 1 million b/d in 1982.

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2. Marker crude oil is also known as "benchmark crude." Markers/benchmarks serve to provide simplified reference points for the price of oil, as there are dozens of varieties and blends of crude oil.

As a result, OPEC's "official price" of \$34/b could not be maintained in an increasingly competitive market, if members were allowed to produce at will. Total OPEC production had to be regulated. After a long and contentious meeting in London in 1983, OPEC finally turned into what it had always denied to be — a cartel. It established a total output ceiling of 17.5 mb/d; assigned individual quotas to all members except Saudi Arabia (who agreed to act as a "swing" producer); and lowered its official price by 15% — three decisions made for the first time in the organization's 23-year history. Nevertheless, pressures on the oil price continued, and oil itself continued to lose markets to cheaper alternatives. By 1985, having failed to prop up the price through output restrictions, OPEC oil ministers decided to abandon the defense of a given oil price in favor of securing and defending a "fair share" in the global oil export market. This new strategy, however, actually meant: a) the end of OPEC as a residual producer and Saudi Arabia as a swing supplier; b) the end of members' effective daily output quotas; and c) a *de facto* end to unified pricing.

The new "market share" strategy also proved a disaster. With Saudi output increasing, and non-OPEC producers ignoring repeated pleas for cooperation, the average OPEC oil price skidded to less than \$10/b in mid-1986. The value of total OPEC exports fell to \$79 billion — the lowest since 1973 and about one fourth of the 1980's. Output was thus temporarily cut to about 15.8 mb/d — the lowest level in the organization's history. Member quotas were re-established. And the target price of \$18/b was renamed "reference price." With the market firming up in the late 1980s, OPEC output gradually reached 24 mb/d by early 1990 — the highest in eight years. Iraq's ill fated adventure in Kuwait in 1990 produced the third short-lived mini-boom, with the oil spot price again reaching \$40/b. To ease the situation, all member quotas were temporarily suspended. But as production in both OPEC and non-OPEC subsequently increased, and prices fell once again, OPEC daily production ceiling (the market share), and the "reference price" were correspondingly adjusted, and individual quotas were reinstated in 1993.

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**The September 11, 2001 terrorist attacks and the subsequent invasions of Afghanistan and Iraq prompted a surge in oil prices beyond OPEC's target and expectation.**

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A fateful decision in December 1997 to raise the self-imposed ceiling to 27.5 mb/d, which coincided with a number of adverse developments including a severe recession in Southeast Asia, pushed the oil price to less than \$10/b in mid-June 1998 — a ten-year low. Subsequently, political rapprochements between OPEC and some non-OPEC members gradually restored the price to \$30/b in March 2000. OPEC's production gradually reached nearly 36% of global output. During 2001-2009, rising world demand for oil, with OPEC and non-OPEC producers operating at near full capacity and oil futures speculators pursuing their activities at a fever pitch, spot crude price of West Texas Intermediate followed an upward trend with minor daily fluctuations. The September 11, 2001 terrorist attacks and the subsequent invasions of Afghanistan and Iraq prompted a surge in oil prices beyond OPEC's target and expectation. Steady price rises between 2004 and 2008 were further supported by massive demand in Southeast Asia, turmoil and terrorist threats in some oil producing countries, a weakening US dollar, and an unprecedented rise in "oil-paper" transactions.

The zenith came in July 2008 when a barrel of crude fetched nearly \$140. Shortly thereafter, however, the price began to drift downward, reaching a low of \$37/b in March 2009 before moving back toward \$50/b, with OPEC virtually

incapable of fighting the ticker tape one way or another. In March 2009, OPEC's output had again reached 31mb/d, with members producing some 800,000 b/d over their assigned quotas. OPEC's recent market strategy has focused on periodic changes in its oil supply in order to influence market prices. Success, however, has been rather limited for two main reasons. First, the absence of sufficient excess capacity has prevented OPEC from raising total output and pushing prices down. Second, OPEC supply could not be drastically cut to drive prices up due to nearly all members' critical dependence on annual oil export revenues.

A summary look at the nearly half-century of OPEC trials and tribulations leads to three sobering and unexpected conclusions. First, despite widespread accusations in the West of being a malevolent cartel, OPEC has never been or acted as such since it has never been able to enforce allocated quotas, or maintain market sharing agreements. Traditional differences in members' national interests and outlook always have been significant factors behind individual output decisions — exceeding or missing allocated quotas charging less or more than target prices, and even leaving or returning to the fold. OPEC members, unable to adopt a unified and coherent policy between high prices or high volumes, have drifted toward *ad hoc* crisis management. Second, while one of OPEC's principal objectives was to ensure “stable” oil prices, the last quarter of the 20<sup>th</sup> century and the first decade of the 21<sup>st</sup> has been the most volatile oil price period since the discovery of oil in 1857, due to the organization's inability to respond fully to changes in market conditions. Crude prices fell by nearly 80% in 1980-86; soared by more than 400% in 1987-1990; declined by about 50% in 1991-94; rose 450% between 2000 and 2008; and plummeted by 72% between June 2008 and February 2009. And third, while OPEC has been routinely castigated as a greedy bunch responsible for continually raising global oil prices, history shows that real (i.e., inflation-adjusted) oil price actually *fell* from 1974 through 2003! And temporary price rises thereafter have had nothing to do with OPEC's effectiveness as a “cartel.” In fact, the latter's decisions to cut or raise total output in recent years have often been totally ignored by the market. The original founders' lofty goals have yet to be realized.

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**Despite widespread accusations in the West of being a malevolent cartel, OPEC has never been or acted as such since it has never been able to enforce allocated quotas, or maintain market sharing agreements.**

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# The Impact of Oil Price Shocks on Oil Demand Growth

Julian Lee

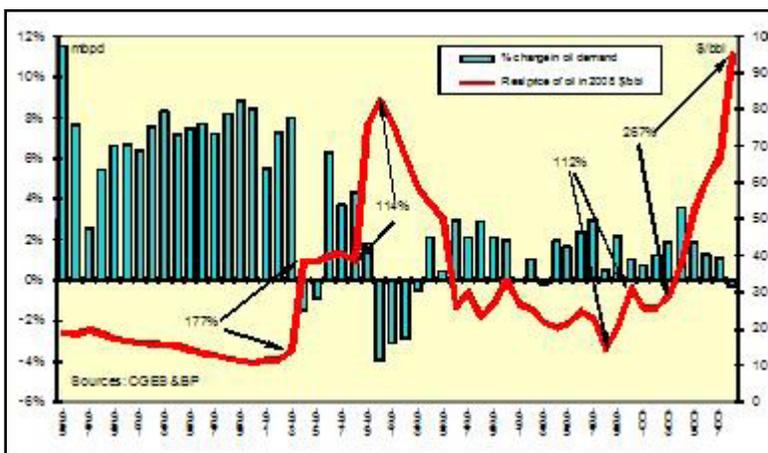
During the run-up in oil prices between early 2004 and the middle of 2008, Shaykh Ahmad Zaki Yamani, former Oil Minister of Saudi Arabia and Chairman of the Centre for Global Energy Studies, remarked on the similarities between that period and the price crisis of 1979, the aftermath of which resulted in the eventual collapse of Organization of Petroleum Exporting Countries (OPEC) oil production as global oil demand shrank for four years in a row and alternatives to OPEC oil received a huge boost from high prices. Of particular concern was the way that high and rising oil prices began to undermine the growth in global oil demand, a phenomenon to which many in the oil industry appeared blind in 2007 and 2008. Thirty years after the 1979 oil shock, the legacy of that crisis in global oil demand is clear, and the lessons it teaches are as relevant as they were in the early 1980s. Surges in oil prices have a profound and lasting impact on oil demand, as the oil shock of 1979 vividly illustrates.

Annual average oil prices soared by 114% between 1978 and 1980, as first the Iranian Revolution and then the beginning of the Iran-Iraq War wrought havoc on international oil markets. The impact on global oil production was short-lived, with Saudi Arabia, Iraq, and Kuwait stepping in quickly to more than compensate for the loss of some 2 million barrels per day (mbpd) of Iranian oil production in the immediate aftermath of the revolution. In contrast, soaring prices had a profound and long-lasting effect on global oil demand. The immediate impact of the 1979 oil shock on demand is well known: four years of declining global oil demand followed the price shock (see Figure 1), by the end of which global oil demand had contracted by almost 6.5 mbpd (10%) and was back at mid-1970s levels.



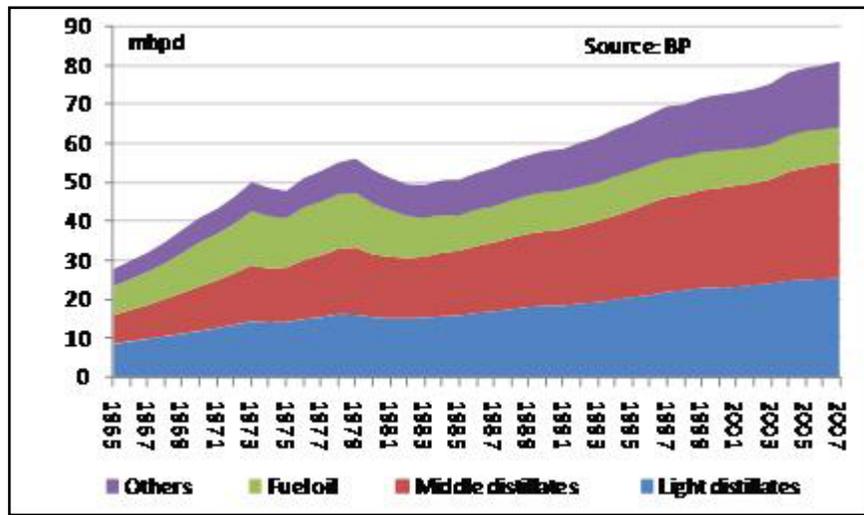
Julian Lee is Senior Energy Analyst at the London-based Centre for Global Energy Studies, where he specializes in global oil market analysis and the oil and gas industries of the Former Soviet Union.

Figure 1: Oil Prices and Year-on-Year Changes in Global Oil Demand



By 1984, though, global oil demand was again rising, the effects of the 1979 oil shock apparently laid to rest. However, it took an additional five years for global oil demand (outside the then-Soviet Union) to recover to the pre-shock level, and much of the market for heavy fuel oil was lost forever as oil was pushed out of the power generation sector in favor of nuclear energy and gas (see Figure 2).

**Figure 2: Global Oil Demand by Product Group<sup>1</sup> (excluding the FSU)**



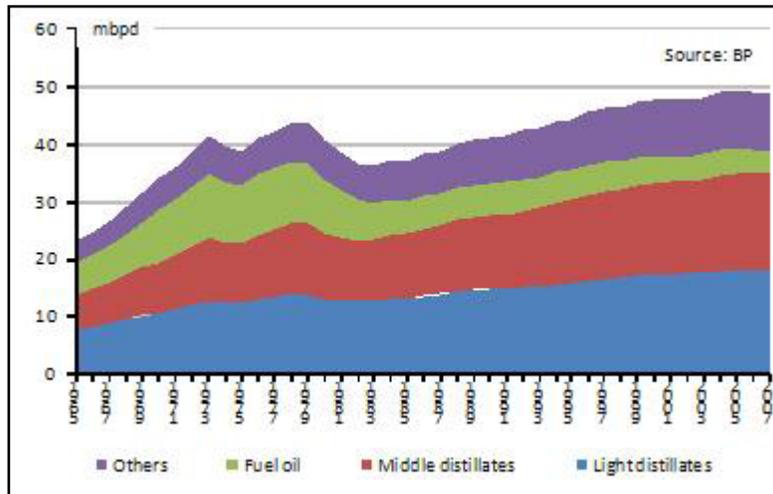
Although global oil demand growth resumed in the mid-1980s, the rate of growth was much lower than it had been before the shock. Indeed, this seems to be a recurring pattern. In the eight years between 1966 and the first oil price spike of 1973, global oil demand had risen at an average annual rate of 7.7%. After a brief period of contraction following the 1973 price spike, growth in demand picked up — this time at an average annual rate of about 4%. After the 1979 price shock, the rate of global oil demand growth outside the Soviet Union fell again, halving to around 2% annually between 1984 and 2007.<sup>2</sup> If this pattern is repeated, we might reasonably expect global oil demand growth to average just 1% annually when the immediate impact of the 2008 price spike has passed.

Within the developed economies of the Organization for Economic Cooperation and Development (OECD), the impact on oil demand of the 1979 shock was even more pronounced. Before 1973, OECD oil demand had grown at an average annual rate of 7.5%. Between 1975 and 1979, however, demand growth slipped to 3.25% annually. And in the period since the resumption of positive growth in 1984, demand growth has averaged just 1.2% annually. In 1994 — 15 years after the 1979 oil shock — OECD oil demand recovered to its 1979 level (see Figure 3).

1. “Light distillates” consist of aviation and motor gasoline and light distillate feedstock (LDF). “Middle distillates” consist of jet and heating kerosene, and gas and diesel oils (including marine bunkers). “Fuel oil” includes marine bunkers and crude oil used directly as fuel. “Others” consists of refinery gas, liquefied petroleum gases (LPGs), solvents, petroleum coke, lubricants, bitumen, wax, other refined products, and refinery fuel and loss.

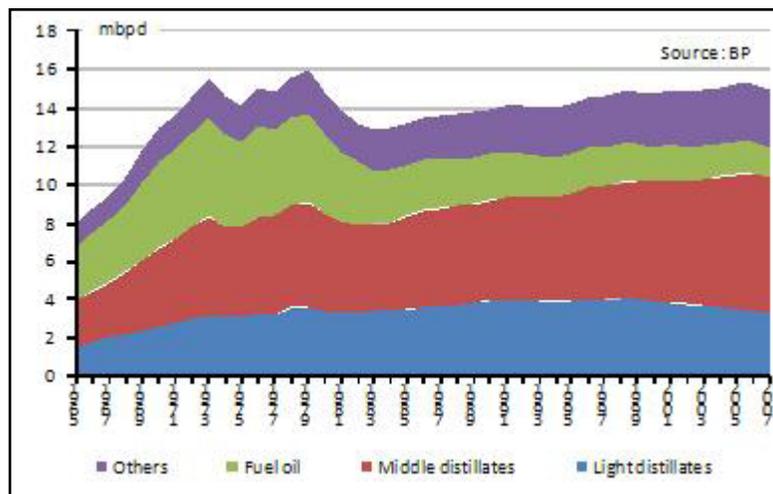
2. When we include the countries that made up the Soviet Union, we get an even lower average annual rate of oil demand growth of 1.6% over this period. Their inclusion or exclusion in earlier periods makes little or no difference to the average annual rates of oil demand growth.

**Figure 3: OECD Oil Demand by Product Group**



Among the countries of the European Union (EU), the rout of oil was almost complete, with demand growth falling from an average of 8.7% annually before 1973, to 3.1% between 1974 and 1979, and then collapsing to just 0.6% per year between 1984 and 2007. As a result of this collapse in the rate of demand growth, oil consumption in the EU countries has not returned to its pre-shock level of 15.9 mbpd (achieved in 1979) — and is unlikely to do so. In all probability, 1979 marked the peak of oil consumption in the European Union (see Figure 4).

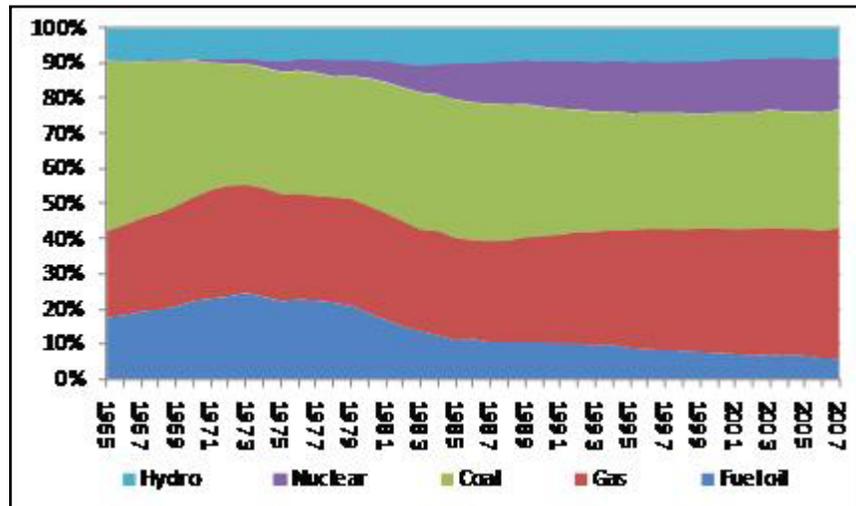
**Figure 4: EU Oil Demand by Product Group**



Within the OECD, it is clear that oil already had begun to lose its place in the static burning sector (i.e., among the fuels used for industrial processes, space heating, and power generation) even before the 1979 oil price shock (see Figure 5). Indeed, it was the first price spike in the modern era, six years earlier in 1973, that marked the peak of oil’s share in the static fuels market. However, the 1979 shock, coming so quickly after the previous one, accelerated the process of substitution of gas and nuclear energy and, by raising fears about the security of future supplies, ensured that the static burning sector in the developed countries was all but lost to oil. European countries also began imposing heavy taxes

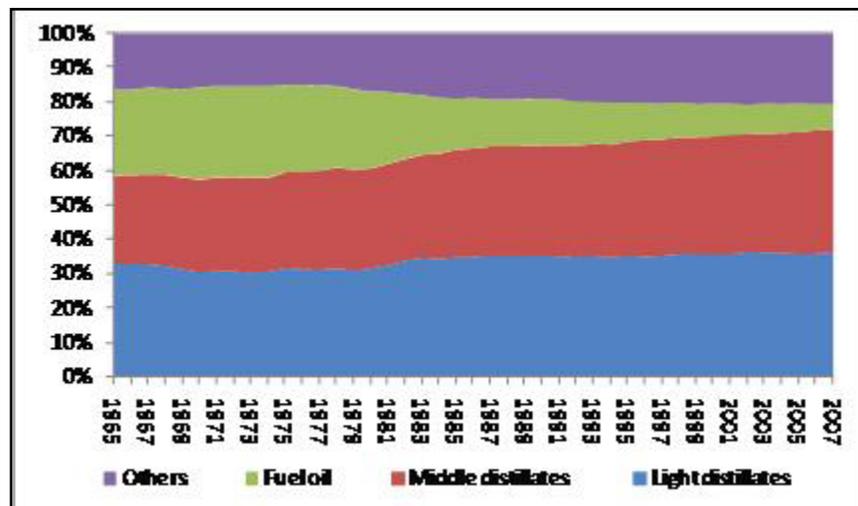
on oil as a transport fuel, partly in a (successful) bid to improve the efficiency of the vehicle fleet and limit the growth in transport fuels, and partly as a convenient means of raising revenue.

Figure 5: Relative Shares in OECD Burning Fuels<sup>3</sup> Demand



The oil price spikes of the 1970s forever changed the perception of oil as a static fuel. After the 1979 price shock, the market for oil in the developed world became increasingly concentrated in the transport sector. The share of fuel oil in the OECD oil market fell from almost 24% in 1979 to less than 8% in 2007 (see Figure 6).

Figure 6: Shares of Various Product Groups in OECD Oil Demand



It has often been argued that the 2008 price shock was different from that of 1979 — created by soaring demand rather than a curtailment of supply. But the impact on oil consumption might not be so dissimilar. Oil consumers, whether individuals or their governments, have again become concerned about the ability, or perhaps the willingness, of oil pro-

3. Fuels used in static burning for industrial processes, heating, and power generation, rather than in transportation.

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*Lee...*

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ducers to meet their future needs. The high oil prices between 2004 and mid-2008 galvanized the search for alternative energy sources and provided a boost for research into new transport fuels for the transport sector. The oil shock of 1979 should have taught producers about the damaging long-term effects that oil price spikes have on demand. However, the experience of 2004-08 suggests that the lesson was not absorbed, or if it was, that those who learned it did not pass it on to their successors.

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# Oil Price Volatility: Causes and Modeling

*Hossein Askari and Nouredine Krichene*

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Basic commodities, especially oil, are essential for world economic growth. In the past, oil shocks, in the form of sizeable oil price increases, have been inflationary and have adversely affected economic growth. Generally, commodity prices have been influenced by monetary policy through interest and exchange rates. The loose monetary policy of reserve currency central banks during 2000-2009, in the form of record low interest rates and exchange rate volatility, encouraged speculative commodity price inflation that reached a rate of 65% during August 2007-July 2008. Speculators were attracted by abundant liquidity and historically low interest rates. The ratio of paper barrels traded on futures exchanges to physical barrels actually supplied jumped from six in 2003 to over 25 in July 2008. Simultaneously, rising oil prices diverted large quantities of grains for alternative fuel production, further exacerbating food price inflation. Speculation pushed oil prices to a high of \$147/barrel in July 2008, adversely affecting world economic growth, with leading industrial economies experiencing about a 4% decline in real output during the first quarter of 2008-2009 and unemployment rising to near-double digits.



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## *OIL PRICE VOLATILITY*

Oil price behavior during 1970M1-2009M3 (1970 month 1 to 2009 month 3) is displayed in Chart 1. Its Generalized Autoregressive Conditional Heteroscedasticity (GARCH)<sup>1</sup> volatility is displayed in Chart 2. Contrasting with the long-term period of stability during 1982-1999 that followed the first oil shocks of 1973-1980, oil prices kept rising during 2000-2008. Oil price volatility was high during 2000-2009, implying increasing uncertainty in oil markets — a propitious environment for speculation. The volatility pattern during 2000-2009 demonstrated the existence of an oil shock. To explain this shock, we analyzed the relationship between oil prices and monetary policy. We estimated oil demand and supply functions, as the size of the price elasticity could help in explaining the vulnerability of oil prices to shocks (i.e., low demand and supply price elasticity would require large changes in prices to clear oil markets).

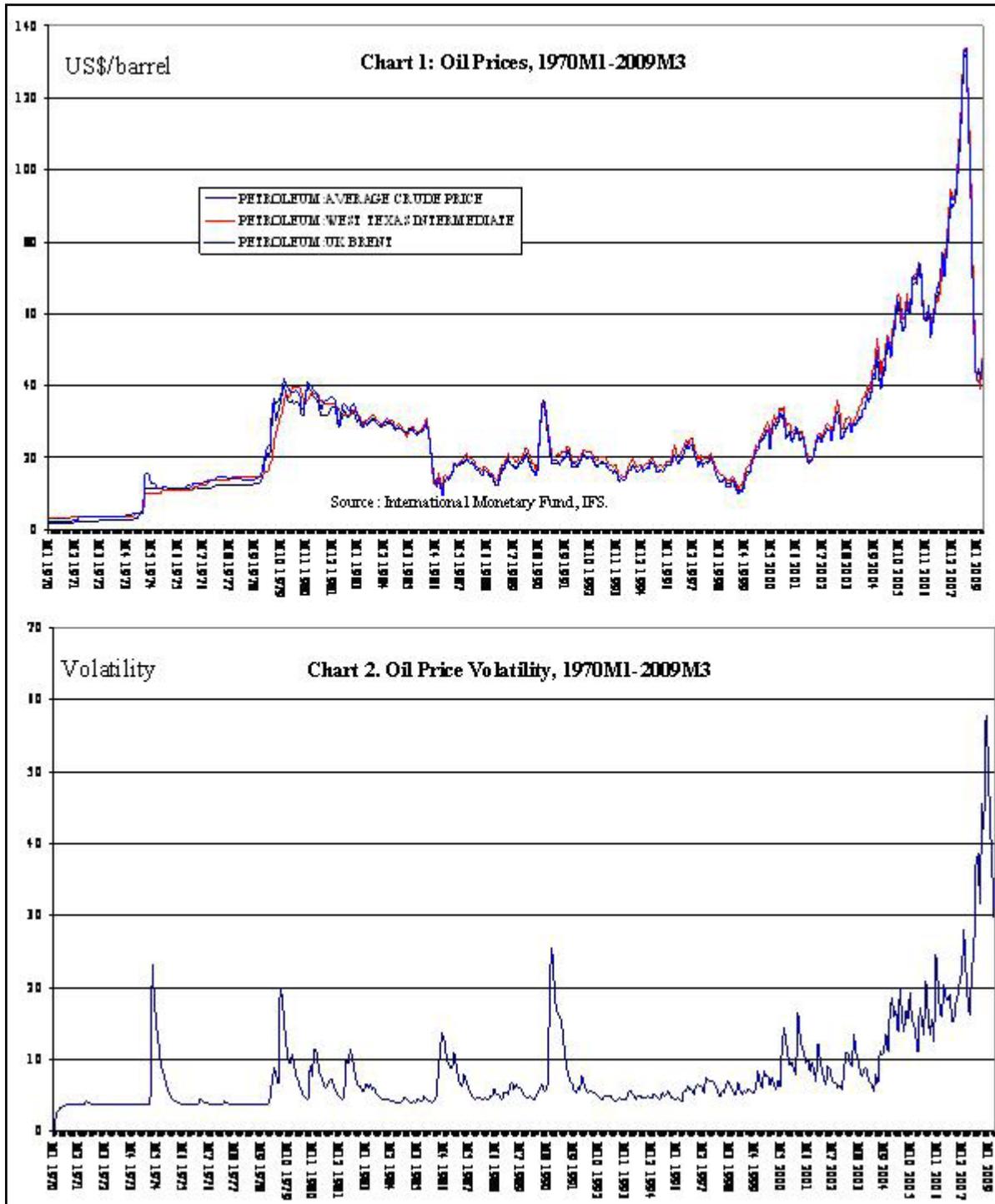


*Nouredine Krichene is an economist at the International Monetary Fund.*

## *THE RELATIONSHIP BETWEEN OIL PRICES AND MONETARY POLICY*

A relative price change is fundamentally different from a price level change. The for-  
1. GARCH is employed in modeling financial time series that exhibit time-varying volatility; that is, periods of swings followed by periods of relative calm. The aim of such a model is to offer a volatility measure in financial decisions regarding risk analysis.

mer affects a single market or a small group of related markets, while the latter affects all prices and is attributable to a depreciation of money when the general price level rises (versus an appreciation of money when it falls). To illustrate the existence of a monetary shock, the behavior of oil prices is compared with the commodity price index and with gold prices (Chart 3). The behavior of monetary variables, namely key interest rates and US dollar exchange rates, is displayed in Chart 4 and 5, respectively.



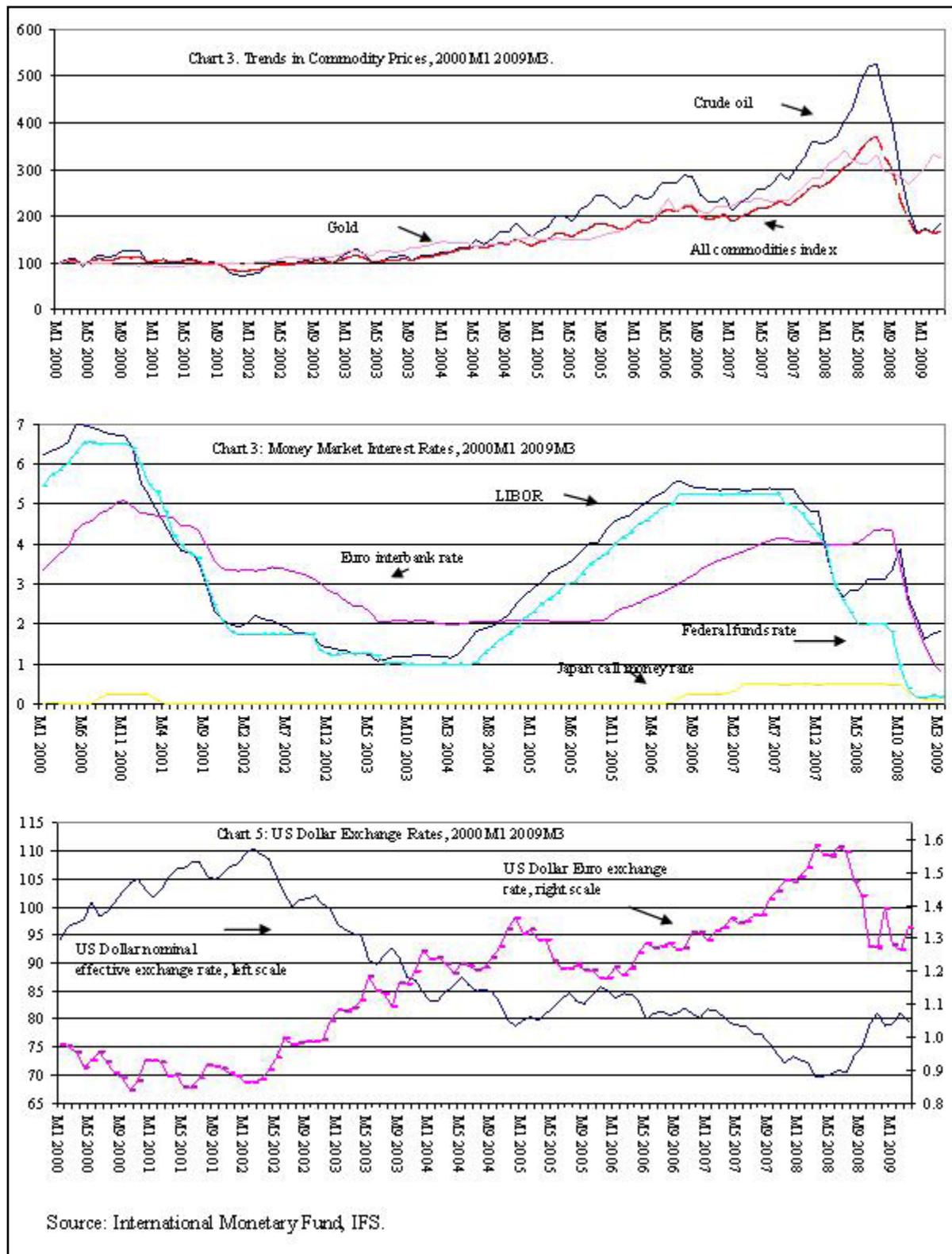


Chart 3 shows that all commodity prices had a common monetary trend. All commodity prices, oil prices, and gold prices were under rising pressure. Gold prices rose to \$1,000/ounce in March 2008 and food prices rose to levels that

resulted in food riots in a number of vulnerable countries.

Chart 4 illustrates the stance of monetary policy in key reserve currency centers that have a direct influence on world capital markets. Essentially, three distinct phases can be distinguished: 1) a relaxation phase spanning 2000-2004, when interest rates fell to record lows and became largely negative in real terms, causing a credit boom and fast economic growth that was led by demand; 2) a tightening phase that spanned 2005-2006; and 3) another dramatic relaxation of monetary policy during 2007-2009, with key interest rates falling to zero or near zero, making money excessively cheap. With the dollar as the numeraire currency for commodity prices, the dollar exchange rate has a considerable influence on commodity markets. Chart 5 displays the Nominal Effective Exchange Rate (NEER) of the dollar and the nominal exchange rate of the dollar and the Euro. The dollar exchange rate retraced the same pattern as the federal funds rate. It depreciated significantly from \$0.84/Euro in 2000M10 to \$1.36/Euro in 2004M12; it appreciated to \$1.18/Euro in 2005M12; and it depreciated again to \$1.59/Euro in 2008M3.

Monetary policy operated with a variable lag on prices and economic activity. Oil prices rose rapidly to \$74/barrel during the first phase. They retreated to \$54/barrel during the money tightening phase. They then shot up to \$147/barrel in July 2008 during the money relaxation phase. Very low interest rates in 2000-2008 caused a credit boom, which boosted aggregate demand for goods and services. World real GDP recorded an average increase of 5% a year during 2004-2006. Demand for oil expanded as a result of the general expansion of economic activity. Oil output rose from 75.3 million barrels per day (mbd) in 2000M1 to a peak of 87.1 mbd in 2008M1, an additional daily output of nearly 12 mbd. Such sizeable demand increase created pressure on oil prices.

#### *ESTIMATION OF CRUDE OIL DEMAND AND SUPPLY*

We estimated oil demand and supply using quarterly data for 2000Q1-2009Q1, in order to uncover the driver of oil prices and to see how monetary variables, such as interest and exchange rates, influence oil consumption and prices.

Sample period 2000Q1-2009Q1:

##### Oil demand

$$LQ = 0.442 * LQ(-1) - 0.016 * LP(-10) + 0.425 * LY - 0.003 * LIBOR(-6) - 0.061 * LNEER + 0.748; R2=0.98, DW=1.99.$$

(t=4.38)            (t=-2.4)            (t=4.65)    (t=-3.88)            (t=-2.23)            (t=2.43)

##### Oil supply

$$LQ = 0.742 * LQ(-1) + 0.003 * LP(-1) + 0.189 * LORSV(-2) + 0.024 * LPG - 0.229; R2 = 0.97, DW=1.69.$$

(t=9.13)            (t=0.39)            (t=2.26)            (t=1.41)            t=-0.43)

Except for the LIBOR, all variables are in logarithmic form. LQ = crude oil output, in millions of barrels per day; LP

= crude oil nominal price, in US\$ per barrel; LPG = natural gas price, in US\$ per thousand cubic feet; LORSV= crude oil proven reserves, in billions of barrels; LY = real GDP index for world economy; LIBOR = the six-month US dollar LIBOR rate; LNEER = the US\$ nominal effective exchange rate.

The results confirm a number of points. Oil prices affected oil demand with a long and variable lag. The price elasticity of demand was very low. World real GDP was the driver of oil demand. Interest rate (LIBOR) affected oil demand with a variable long lag. The dollar exchange rate had a significant negative and contemporaneous impact on oil demand that was much larger than that of oil prices. The price elasticity of supply was negligible. Natural gas prices had a negligible effect on oil supply. The latter was essentially rigid and was driven by proven reserves. These results confirm elasticity pessimism. Thus, any small excess demand would require large increases in oil prices to clear the market, while a small oil glut would send oil prices plummeting. Such price inelasticity explains both the market power of producers and the high volatility of oil prices.

Changes in oil prices exert their effect with a long delay and through many direct and indirect channels. High oil prices would tend, in time, to lead to energy substitution and to technical innovations that increase fuel efficiency and reduce oil consumption. Oil prices also work through indirect channels. These channels could seriously impede economic growth and reduce the demand for oil. Increases in oil price have an inflationary effect. They raise the general cost structure for most products and services, even disrupting certain industries, such as airlines, marine shipping, and agriculture, and thus could be recessionary. High oil prices have exerted considerable pressure on food prices, as increasing quantities of grains, cellulose, and oil products have been diverted for fuel production. Often, economic recessions were preceded by oil shocks, and oil price increases to \$147/barrel in July 2008 adversely affected world economic growth and caused rising unemployment and falling real incomes.

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**To restore stability in oil markets, monetary policy has to be stable so as to reduce interest and exchange rate instability and reduce speculation.**

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## CONCLUSION

Monetary policy has been highly unstable during 2000-2009, as shown in Chart 4. Besides the deleterious effect on the financial system of advanced economies, it has caused unprecedented exchange rate instability and commodity price inflation. Interest and exchange rates have become highly volatile and have in turn made oil markets significantly more volatile. Cheap money policy in the form of near zero interest rates and abundant liquidity will continue to keep oil markets under pressure. Volatility will remain high and will induce continued speculation. An unchecked surge in oil prices will further depress economic growth as in past oil shocks. To restore stability in oil markets, monetary policy has to be stable so as to reduce interest and exchange rate instability and reduce speculation. The return to economic growth following the 1970s stagflation was helped by stable monetary policy and concomitant long-term stability in oil markets. Simultaneously, oil producers would be encouraged to build capacity and expand output in an environment characterized by price stability and a strong dollar.

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# Energy Security

*Gawdat Bahgat*

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Energy is essential to the economic activity that sustains and improves the quality of life. The challenge is that the largest energy consuming economies (the European Union, the United States, China, India, and Japan) lack adequate indigenous energy supplies to support their large and growing economies and high standard of living. Energy deposits, particularly oil and natural gas, are concentrated mainly in the Middle East and, to a lesser degree, in other regions such as Africa, Latin America, Russia, and the Caspian Sea. Accordingly, almost every country in the world imports or exports a significant part of its energy consumption or production. Energy products are the largest commodities of international trade in terms of both volume and value.<sup>1</sup> This huge volume of trade means that energy prices have a large impact on the balance of payments of both consuming and producing regions. It is little wonder that energy security is a major concern to all participants in the international economic system.

Since the early 2000s, this concern has grown, driven by the skyrocketing demand for oil and natural gas, particularly from China and India. This rising demand has intensified the international competition over fossil fuel deposits and underscored the need to comprehensively and adequately address the quest for energy security.

This essay seeks to provide a broad definition of energy security from both the consumers' and producers' perspectives. This broad definition includes supply security, demand security, the need to secure adequate investments, and the necessity to address environmental concerns. Greater stability and predictability of energy markets are to be seen as shared goals by producers and consumers. This will further deepen interdependence between buyers and sellers and enhance the prospects for energy security.

## ENERGY SECURITY — WHAT IT MEANS

Energy security refers to the availability of sufficient supplies at affordable prices. The literature traditionally distinguishes between two different kinds of risks to energy security — short and long term. The former generally relate to supply shortages due to accidents, extreme weather conditions, terrorist attacks, or technical failures. The latter risks are associated with fundamental imbalances between supply and demand, inad-



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1. Melaku Gebeye Desta, "OPEC and the WTO: Petroleum as a Fuel for Cooperation in International Relations," *Middle East Economic Survey*, Vol. 47, No. 10, <http://www.mees.com>.

equate infrastructure, and insufficient investments.<sup>2</sup>

Analysts at the Cambridge Energy Research Associates (CERA) identify several fundamental components of energy security, including diversification, security margin, high-quality and timely information, collaboration among consumers and between consumers and producers, renewed emphasis on efficiency, investment flows, and technological advance.<sup>3</sup> Most of the literature on energy security has focused on the availability of adequate supplies and the affordability of prices. In addition to these two fundamental pillars, a comprehensive approach must consider other vital issues, such as demand security, investment flows, and climate changes.

#### DEMAND SECURITY

Concerns among consuming countries about security of supply are matched by those among producing countries about security of demand. As Nader Sultan, Deputy Chairman and CEO of Kuwait Petroleum Corporation, suggests, little attention has been paid to the concerns of the energy producers and their perception of energy security.<sup>4</sup> The risks assumed by energy producers are significant, given cyclical growth patterns and frequent calls for national energy independence. As a consequence, most energy producers have undertaken genuine efforts to diversify their economies. However, energy revenues, particularly oil revenues, still account for a high proportion of total exports and continue to play a major role in the overall balance of payments. In short, energy exporters have a real concern about securing markets for their main source of national income.

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**National and international oil companies, as well as producing and consuming governments, need to continue improving the investment climate and to address political hurdles that restrain private and public investment in energy resources.**

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#### INVESTMENT FLOWS

In order to meet the world's growing appetite for energy, the International Energy Agency (IEA) calls for a cumulative investment of just over \$20 trillion (in 2005 dollars) over 2005-2030.<sup>5</sup> These substantial investments are essential for new energy resources to be developed and to maintain the balance between global demand and supply. Within this context, the growing Chinese and Indian energy investments in recent years should be seen by other consuming countries as a positive development. More investments will make more energy available worldwide. The world's financial resources are sufficient to provide these crucial investments. National and international oil companies, as well as producing and consuming governments, need to continue improving the investment climate and to address political hurdles that restrain private and public investment in energy resources.

2. Christian Egenhofer, Kyriakos Gialoglou and Giacomo Luciani, "Market-based Options for Security of Energy Supply," Center for European Policy Studies, <http://www.ceps.be>.

3. Cambridge Energy Research Associates, "The Fundamentals of Energy Security," <http://www.cera.com/asp/cda/public1/news/articles/newsArticleDetails.aspx?CID=868>.

4. Nader H. Sultan, "Global Energy Security: A Strategic Perspective," *Middle East Economic Survey*, Vol. 47, No. 21, <http://www.mees.com>.

5. International Energy Agency, *World Energy Outlook* (Paris: IEA, 2006), p.7.

*CLIMATE CHANGE*

Over the past few decades, there has been mounting evidence of climate change and its impact on all aspects of life. The international community has taken significant steps to meet this challenge. The United Nations Framework Convention on Climate Change (UNFCCC) in 1992 was a major development in tackling global warming. In December 1997, the Kyoto Protocol was adopted. This important document committed the developed countries, which adopted the treaty to stabilize greenhouse gas (GHG) emissions and, therefore, is considered one of the most comprehensive environmental pacts. Following ratification by Russia, the Kyoto Protocol went into force in February 2005. In December 2007 the United Nations Climate Change Conference in Bali, Indonesia, adopted the so-called “Bali Roadmap,” which charts the course for a new negotiating process to be concluded before the end of the decade. This negotiation will ultimately lead to a new international agreement on climate change. Several major oil and natural gas producing countries recognized the seriousness of the climate change challenge and became parties to the Kyoto Protocol. Similarly, major international energy organizations hold observers status.

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**Self-sufficiency in energy supply, often referred to as energy independence, is incompatible with today's international economic system.**

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*THE WAY AHEAD*

The combination of oil, natural gas, and coal (fossil fuels) is projected to continue providing more than 90% of the world's commercial energy needs in the foreseeable future.<sup>6</sup> Within this context, the intense concern with oil imports, or any other source of energy, reflects a view of markets that has been rendered obsolete by globalization.<sup>7</sup> Self-sufficiency in energy supply, often referred to as energy independence, is incompatible with today's international economic system. Energy markets are entwined. No country or region can alone achieve energy security. This deepening energy interdependence between consumers and producers is a positive development — one that can serve as a basis for economic cooperation between buyers and sellers on matters of mutual interest, such as increasing investment and reducing pollution.

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6. OPEC, *World Oil Outlook*, available at <http://www.OPEC.org>, p. 20; and Energy Information Administration, *International Energy Outlook* (Washington, DC: United States Government Printing Office, 2007), p. 2.

7. Philip E. Auerswald, “The Myth of Energy Insecurity,” *Issues in Science and Technology*, Vol. 22, No. 4 (2006), p. 2.

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# Oil Price Volatility: Speculation or Market Fundamentals?

*Salman Saif Ghouri*

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Many factors recently have influenced and may continue to affect the oil market. They include the geopolitical situation, especially with respect to the Middle East, violence in Nigeria, strikes in Venezuela, speculators, a weaker US dollar, hurricanes and other natural disasters, and higher demand in China and India. These and other underlying factors are constantly changing and difficult to predict.

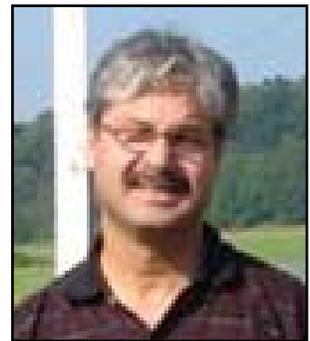
Over the past two years, the degree of oil price volatility has been exceptional. Oil prices skyrocketed in the first half of 2008, plunged in the latter part of the year, and recently regained momentum despite severe financial and economic crisis and weaker oil demand. What can explain this wild roller coaster ride, which seems at odds with basic economic concepts and market fundamentals?

This paper shows that higher oil prices in 2007/2008 were associated with huge investment in future commodities markets, particularly by speculators (hedge and pension funds), wrong market signals, the weakening of the US dollar, lower interest rates, and low OECD oil inventories. The paper also shows that the revival of oil prices during 2009 is mainly driven by strict compliance with OPEC production quotas, violence in Nigeria, a weaker US dollar, speculation, and Iran-related political issues.

## *SPECULATORS AND WRONG MARKET SIGNALS*

The rising price regime during 2008 cripples basic concepts of economics and market fundamentals. This is mainly due to excessive investment in future commodity markets. Speculators poured billions of dollars into the commodities futures markets. The assets allocated to commodity index trading strategies soared from \$13 billion at the end of 2003 to \$260 billion as of March 2008, causing the prices of the 25 commodities that comprise these indices to rise by an average of 183% percent during this period.<sup>1</sup> To protect and obtain higher returns, investors often sent wrong market signals, such as the warning by one investment bank in 2008 that oil prices could reach \$200 per barrel. It is difficult to rationalize the basis for such a forecast especially when everyone was aware at the time of the weakening of the global economy and the financial crisis. In such a grim situation one cannot expect and defend such a price. When investors and other professionals send alarming signals, the spot market reacts instantaneously, prompting

1. Michael W. Masters, Managing Member/Portfolio Manager Masters Capital Management, LLC. Testimony Before the US Senate Committee on Homeland Security and Governmental Affairs, May 20, 2008.



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oil prices to continue drifting upward.

Contrary to these forecasts, however, oil prices collapsed in the second half of 2008 and into the first few months of 2009. Oil prices then rose again to nearly \$70/bbl, contrary to market fundamentals. According to the International Energy Agency (IEA), money drained from oil and other commodity markets during the second half of 2008, but investments have since surged, partly as a hedge against inflation and a weaker dollar. J.P. Morgan Chase analysts estimate that a net \$25 billion has poured into commodities in the first half of 2009, a clear indication that speculators once again are partly responsible for the abrupt changes in oil prices.

#### *A WEAKER US DOLLAR*

In addition to the drop in US interest rates, the depreciation of the US dollar was also partially responsible for fluctuation in oil prices. Between May 2001 and May 2008, the dollar's value fell by over 70% against the euro, forcing investors to trade their dollars for other stronger currencies and commodities, such as oil, gold, wheat, and corn. Since oil is traded in dollars, petroleum traders around the world have demanded higher prices to make up for the decline. The historical daily WTI oil prices during January 1, 2000 to April, 2008 were run against the US/Euro exchange rate. The estimated model reveals that weakening/strengthening of US dollar by 1% leads to an increase/decrease in oil prices of 1.56% in the same period, if other things remain constant. In contrast, oil prices in euro-denominated terms continued to dwindle in response to the weaker dollar, making oil cheaper in euro-denominated economies. Figure 1 highlights the monthly relationship between oil prices and exchange rates during the period January 2007 to June 2009. For example, the US dollar weakened against the Euro in January 2007, peaked in July 2008, and then gained strength.

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#### *GLOBAL OIL SUPPLY AND DEMAND*

Global oil consumption in the fourth quarter of 2008 was 2.8 MMBD less than the fourth quarter of 2007 due to global economic and financial stress. The decline in oil consumption sank to an estimated 3.4 MMBD in the first quarter of 2009. About 70% of this decline is associated with the Organization for Economic Cooperation and Development (OECD), whose consumption fell by 2.4 MMBD in the first quarter of 2009, compared to the first quarter of 2008. However, as the global economy recovers, the rate of such a decline is expected to soften in the second half of 2009, especially with the beginning of the US summer driving season. Global oil demand is projected to grow by 0.7 MMBD in 2010 in response to expected positive global economic recovery.

Previous periods of higher oil prices accelerated exploration activities, especially in non-OPEC countries. Coupled

with new state-of-the-art technology, higher prices have allowed drilling in deep waters and some difficult geological formations. Strong investment resulted in a number of discoveries, in turn boosting non-OPEC supplies by 400,000 bbl/d in 2009, which are expected to remain flat in 2010. Over the longer term, decisions made regarding the pace of development in the Canadian oil sands and Brazil's major offshore resources also will have important implications for the sourcing of US crude oil imports.

Historically, economic recovery has led to a rebound in demand for oil. As the US economy recovers, domestic oil demand is expected to grow. However, whether and how the difference between incremental demand and supply is met by imports depends on several key factors: an increase in domestic crude oil production, mainly from the deepwater Gulf of Mexico, a small portion from rising biofuels production, and the anticipated dampening of demand growth due to increased levels of fuel efficiency.

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**Historically, economic recovery has led to a rebound in demand for oil.**

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#### *OPEC'S ROLE*

OPEC member countries were hard hit by plunging oil prices; their investments in socioeconomic development were severely affected. To revive and stabilize prices, OPEC cut production in September 2008 to 28.8 MMBD and in October to 27.3 MMBD (effective November 1). Despite these cuts, however, prices continued to fall, forcing OPEC to call an extraordinary meeting in December 17, 2008, which resulted in the decision by the OPEC-11 (i.e., excluding Iraq) cut 4.2 MMBD from September's actual production of 29.045 MMBD. The revised production quota of 24.84 MMBD remains in force. The relatively strict 70% rate of compliance by OPEC members also partially helped prices to recover to over \$70/bbl by the end of June, with an average of about \$50/bbl for the year thus far. For the first two quarters of 2009, OPEC production registered an estimated 85% compliance rate. The prospects for an economic recovery and a rebound in oil consumption signal a higher future demand for OPEC oil, with production projected to average 28.5 MMBD in 2009, before rising slightly to 28.8 MMBD in 2010. However, OPEC production capacity is expected to rise by 1.2 MMBD by the end of next year, as compared to 2008, increasing surplus production capacity that may help to mitigate upward pressure on prices.

#### *OECD OIL INVENTORIES*

The weak oil inventories of OECD countries compared to their previous five-year average, signaled tightness in the market and drove oil prices upward and vice versa. The revised data indicate that OECD commercial inventories (industry) at year-end 2008 stood at 2.7 billion barrels or at 58 days of forward cover — well above average levels for that time of year. Preliminary estimates indicate that OECD commercial inventories further increased by 44 million barrels during the first quarter of 2009, rather than declining at this time of the year, reaching 62 days of forward cover. The United States was the leader for this counter-seasonal buildup of OECD commercial inventories, with other OECD-member commercial stocks recording a marginal increase. As a result of healthy increases in OECD crude inventories,

especially in North America and Europe in March 2009 as compared to December 2008, days of forward demand cover of OECD industry stocks edged up by four days (to 62 days) over the previous quarter. OECD total stocks (i.e., industry plus government) also increased to 97 days in the first quarter of 2009, as compared to 90 days in the previous quarter (See Chart).

With high oil prices and the economic recession, both US and global oil demand contracted in 2008. In the United States, domestic crude oil production, refinery output, finished product net imports, and crude oil imports all declined in 2008 as compared to the previous year. (US petroleum demand had peaked in 2005 at 20.8 MMBD, remained almost flat in 2006-07, and then dropped to 19.4 MMBD in 2008). As a general rule, crude oil imports to the United States are largely the difference between US refinery crude oil requirements less domestic crude production in any given period. Crude oil imports over or under this level tends to make crude oil inventories (stocks) rise or fall.

Throughout 2008 the US monthly average crude oil stock remained well below as compared to its five years average — pushing oil prices upward. However the continued upsurge in oil prices and severe US economic slowdown significantly reduced oil demand, causing the level of monthly stocks to rise (especially after July 2008) and thus contributing significantly to the collapse of oil prices. In the second quarter of 2009 oil stocks, though still well above the historical average, appeared to be declining due to increasing summer demand, pushing oil prices upward.

#### PROSPECTS

The current rising trend in oil prices seem to be contrary to the current market conditions of weaker global oil demand, increased non-OPEC oil supplies, and healthy OECD inventories and therefore may not be sustainable for the rest of the year. The average price for the year is expected to reach close to \$55 to \$60/bbl, provided that no extraordinary events intervene. However, the global economy is expected to recover in 2010, with oil demand projected to increase as a result. Under this scenario, the average oil price is projected to be \$70/bbl. But if the recent past holds any lesson, it is that another tour on the oil price roller coaster cannot be ruled out.

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**The current rising trend in oil prices seem to be contrary to the current market conditions of weaker global oil demand, increased non-OPEC oil supplies, and healthy OECD inventories and therefore may not be sustainable for the rest of the year.**

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# Oil Shocks and the Reshaping of the Oil Industry

*Youssef M. Ibrahim*

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Two oil shocks in the past 40 years have reshaped the oil industry, creating turmoil and a new order that has yet to settle.

The first shock was near-instantaneous when, in October 1973, Saudi Arabia, followed by other Arab oil producers halted exports of crude oil to the United States and Europe in support of Egypt and Syria in the October War, or Yom Kippur War, launched against Israel. October 17, 1973 is the day that oil became a political weapon.

Beginning in 1979, the second shock evolved more slowly, as producers, led by the Organization of Petroleum Exporting Countries (OPEC), affirmed the concept of setting oil prices and establishing production quotas. That jolt is still ongoing, as more non-OPEC producers adhere to the view that restraining production is crucial to upholding prices.

Tumult and wars followed, as Western countries — then the world's principal customers for oil — resisted, and OPEC pushed back. Turmoil prevails still: New players, including juggernaut economies such as those of India and China, have entered the fray, adding dramatically to demand even as OPEC tightens supply and commercially available oil pools drop in reserves. If anything, the commotion will increase.

While these processes matured by the turn of the 21<sup>st</sup> century, the face of the oil industry changed dramatically. Among other things, the era of the “Big Oil” companies is over. They have been replaced by nationalistic oil politics and national oil companies.

These powerful players — Saudi Arabia's Aramco, Mexico's Pemex, Petrloleos de Venezuela, and the National Oil Company of Iran (NIOC), among the most controversial — are under the control of governments, friendly or otherwise, and do not share the commercial values that governed Big Oil, which they displaced. They regard their oil as patrimony, to be preserved as opposed to exploited. It matters little if they are friends or foes, because on the issue of oil they are united in withholding it from consumers to various degrees.

As result of this makeover, industry giants such as Exxon, Shell, and others — known as the Seven Sisters and once depicted as behemoths — are a mere shadow of what they were when they roamed and ruled the oil world.



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To be sure, these companies remain hugely profitable, but are now limited to lending their services in return for fees, operating only by invitation in places owned by others. They have lost their own reserves. In the 1950s, four US companies (Exxon, Mobil, Chevron, and Texaco) claimed all of Saudi Arabia's billions of underground barrels as theirs. Today, all they have left are a tiny pool of the world's oil in places such as Alaska, Canada, and the North Sea.

Naturally, these tremors generated after-shocks, including declared and undeclared wars and a few revolutions. Among those, we can certainly count the Iranian Revolution (1979), the Iraq-Iran War (1980-1988), the first Gulf War, and the US-launched second Gulf War (2003). To be sure, these seminal events have other origins and roots. Yet oil, and the control of it, are very much the background and foreground to them all.

Another way of looking at oil shocks is their consequences: the creation and expansion of so-called "free oil provinces." The North Sea shared by Norway and Britain, Alaska, and Canada are very much part of these free oil provinces. North Sea oil production was miniscule in 1970, but by 1990 had peaked at 6 million barrels a day.

While Western oil provinces saved the West in the 1980s, they are limited. The North Sea production is in steep decline, as are the US oil reserves. The truly gigantic oil pools today remain in the locked-up kingdoms of OPEC and the national oil companies of Mexico, Russia, and turbulent Africa.

If anything, these lockups are being consolidated. Each national oil company is today producing less from its existing reserves, deliberately choosing not to look further or invest in finding new oil, as Big Oil had. Witness the huge failure of what became known as the Saudi Gas Initiative (1998-2002). In 1998, dozens of major oil companies responded to an invitation by then-Crown Prince 'Abdullah to explore for natural gas and participate in giant joint-venture projects. Alas, nothing came of it.

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**It is the nature of the national oil company animal to mark its territory and keep others out.**

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Hundreds of millions of wasted dollars and four years later, the whole enterprise collapsed, as Aramco (the Saudi national oil company) defied its own monarch by blocking virtually every effort to find gas and produce it. Aramco's message? *Not in my backyard.*

This is not a Saudi peculiarity. It is the nature of the national oil company animal to mark its territory and keep others out. Neither are these nationals concerned with investing much of their income in looking for more oil. They would rather hike the price.

Indeed, in July of 2009 OPEC cut its five-year forecast for oil field spending by about a third, saying members would invest only about \$110-120 billion in exploration and production from 2009 to 2013, rather than the \$165 billion it previously had forecast. In that sense, the second oil shock is unfolding in a pattern that may very well lead to a third oil shock occurring sometime in the next few years.

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In 1974, US Secretary of State Henry Kissinger conceived the International Energy Agency (IEA) precisely as a counter-weapon to reduce excessive dependence on (OPEC) oil, as the IEA's charter says. Sadly, rather than a counter-weapon, the IEA has evolved into a vast ineffective bureaucracy inhabiting the suburbs of Paris.

Nationalistic oil politics restricting supplies have led to wild price fluctuations and promise more. These were evident when prices crossed the \$100 per barrel line in April 1980 (in current dollars) and again in 2008 (in real terms), reaching as high as \$140 per barrel. These gyrations will push consumers in both the West and the East to intensify their search for defensive policies, such as alternative energies.

In the 1970s, France demonstrated that nuclear energy, which it had aggressively adopted, saved it in the 1990s from excessive oil dependency. Nuclear energy is making a comeback. Other alternatives are kicking in slowly but surely, too. They include, among others, the dawning age of the electric car, which would revolutionize transportation, the largest oil-consumption sector. Solar energy is at last shaping up as a commercially viable solution in many industrialized countries, most notably Germany.

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**In mid-2009, the world uses 85 million barrels per day. Both OPEC and the IEA forecast that demand will rise in 2030 to about 106 million barrels a day.**

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But it remains true that if this balance becomes so disturbed as to provoke a crisis, or as the conservative *Wall Street Journal* delicately warned in a July 9 article about OPEC's production cuts, "[t]he downward revision (of production) is likely to raise new concerns among oil consumers," oil wars will also return to the horizon.

What are the numbers that will tip the balance? In mid-2009, the world uses 85 million barrels per day. Both OPEC and the IEA forecast that demand will rise in 2030 to about 106 million barrels a day. In order to close the gap, some supplier(s) will have to provide the additional required 20 million barrels a day and/or consumers will have to change the oil use equation by relying more on alternative energy sources. For the moment, the ball is still in OPEC's court. But if the future oil equation yields the need for more oil, the old West and the new East — China and India — are likely to demand a new attitude from OPEC and major producers. The old West and new East will obtain the requisite oil, one way, or the other.

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# Endless Adjustment: How the Second Oil Shock Hatched Today's Oil Market

Mary Ann Tétreault

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“Adjustment” is how market participants respond to changes in supply and demand. Theoretically, adjustment is automatic: prices compel actors to conform to market forces regardless of their desires. Unmediated exposure to market forces is so painful that individuals and societies try to avoid it. Regulation can dilute and distribute adjustment costs; hedging can compensate for unforeseeable disasters. Customs help whole societies get through relatively predictable situations. Fasting during Lent, for example, reduced demand when food stores were low — imposing constraints on consumption that distributed the impact of scarcity across the entire society of believers. Other powerful agents also engage in mediation by stabilizing market shares, regulating supply, and enforcing exchange rules.



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Antonio TX

Market power is the capacity to limit adjustment and distribute its costs. If challenged, power holders intimidate, threaten, and destroy to cut adjustment losses and affirm their authority. Powerful states and oil companies opposed the policies of the government of Iran under Muhammad Mossadeq through a boycott of Iranian oil, compensating for lost Iranian oil through additional production elsewhere and sponsoring a regime-changing coup in 1953 to reconstruct the status quo ante.<sup>1</sup>

## OIL SHOCKS

“Shocks” are sudden significant disturbances in markets. The two oil shocks of the 1970s forced all market participants to adjust, and the strategies they adopted changed the structure of the market itself. The first oil shock required adjustment to quadrupled oil prices, shifts in the ownership of crude oil resources, and changes in authority over how prices and supply would be managed.<sup>2</sup> The second required adjustment to doubled prices and the erosion of effective power to mitigate market forces.

The regime shattered by the first oil shock was managed by large international oil companies (IOCs) backed by the United States. Real prices for crude and products were sta-

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1. John Foran, *Fragile Resistance: Social Transformation in Iran from 1500 to the Revolution* (Boulder, CO: Westview, 1993); Stephen Kinzer, *All the Shah's Men: An American Coup and the Roots of Middle East Terror* (New York: Wiley, 2003); Anthony Sampson, *The Seven Sisters: The Great Oil Companies and the World They Shaped* (New York: Viking, 1974).

2. Mary Ann Tétreault, *Revolution in the World Petroleum Market* (Westport, CT: Quorum Books, 1985). Often thought of as a “price revolution,” as I argued in this volume, structural changes in ownership were the bedrock of the oil revolution. A detailed analysis of adjustment during the period 1970-85 appears in Chapter 2.

bilized by long-term contracts,<sup>3</sup> rules for intra- and inter-company trade and transfers,<sup>4</sup> and regulatory regimes favoring the IOCs and the countries to which they paid taxes and whose interests they variously pursued.<sup>5</sup> It was undermined by declining power among dominant actors. US capacity to mobilize additional supplies during crises ended after domestic production peaked in 1970. The US role in price stabilization was fatally impaired by overstretched finances, sapping its capacity to maintain the stability of exchange rates and real oil prices.<sup>6</sup> IOCs were beset by host country governments demanding contract changes that would give them a larger share of the profit stream, and by so-called independent oil companies, smaller firms with fewer or no international holdings, moving into the interstices of IOC equity concessions (contracts giving direct property rights to oil) to establish commercial beachheads, often in concert with entrepreneurial host governments.<sup>7</sup> The divergent interests of these new actors made effective coordination to mitigate adjustment difficult even during crises.<sup>8</sup>

The first oil shock transferred equity ownership of hydrocarbon properties from IOCs to host governments, which assumed greater control over pricing and production. The huge rise in crude prices was buoyed by product shortages in key markets and a fourth Arab-Israeli war in October 1973, which provoked the most successful political use of oil by producing countries up to that time.<sup>9</sup>

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**The first oil shock was all the more sharp, because so few contemporaries appreciated the collective weight of accumulated incremental changes, including the establishment of OPEC in 1960.**

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The first oil shock was all the more sharp, because so few contemporaries appreciated the collective weight of accumulated incremental changes, including the establishment of the Organization of Petroleum Exporting Countries (OPEC) in 1960. Ironically, OPEC was born from two rounds of unilateral cuts in crude prices that IOCs imposed in order to distribute some costs of adjustment to successful contract modification to oil exporting countries. OPEC members countered by devising strategies for expanding their collective authority over contract terms. Although their early victories had only marginal effects on prices, they provided useful experience, and the oil revolution was both portrayed and understood as an “OPEC revolution.”

3. Edith T. Penrose, *The Large Multinational Firm in Developing Countries: The International Petroleum Industry* (Cambridge, MA: MIT Press, 1968).

4. Theodore H. Moran, “Managing an Oligopoly of Would-Be Sovereigns: The Dynamics of Joint Control and Self-Control in the International Oil Industry Past, Present, and Future,” *International Organization*, Vol. 41, No. 4 (1987), pp. 676-607; Robert Mabro, “Netback Pricing and the Oil Price Collapse of 1986,” Oxford Institute for Energy Studies, WPM 10, 1987.

5. This is particularly clear with regard to US oil quotas. Before the quotas were made mandatory, the IOCs could undercut prices and raise their market share vis à vis smaller “independents.” When the quotas became mandatory, they locked in a price (and profit) differential favoring the IOCs even though the IOCs then had to compete in the US market on bases other than prices. See Burton L. Kaufman, *The Oil Cartel Case: A Documentary Study of Antitrust Activity in the Cold War Era* (Westport, CT: Greenwood Press, 1978).

6. Richard Chadbourn Weisberg, *The Politics of Crude Oil Pricing in the Middle East, 1970-1975: A Study in International Bargaining* (Berkeley: University of California Press, 1977).

7. Edith T. Penrose, *The Large Multinational Firm in Developing Countries: The International Petroleum Industry* (Cambridge, MA: MIT Press, 1968).

8. Penrose, *The Large Multinational Firm*; Weisberg, *Politics of Crude Oil Pricing*.

9. Tétreault, *Revolution*; Sampson, *Seven Sisters*; Weisberg, *Politics of Crude Oil Pricing*; also Christopher T. Rand, *Making Democracy Safe for Oil: Oilmen and the Islamic East* (Boston, MA: Atlantic-Little Brown, 1975); Daniel Yergin, *The Prize: The Epic Quest for Oil, Money and Power* (New York: Simon and Schuster, 1991).

Believing that, oil importers formed the International Energy Agency as an institutional counterweight to OPEC, but the new body could not organize effective structural adjustment in time for the second oil shock. States encouraged conservation. Businesses replaced capital equipment and processes to reduce oil demand over the long term. But when the recession fueled by financial crisis and oil price hikes eased, demand for oil resumed its upward trend. In spite of regular nominal price increases, households responded to falling real prices by raising thermostats and buying large cars.<sup>10</sup>

Adjustment was short-circuited because the post-oil-revolution hydrocarbon regime was understood as being just like the old one except under new management: parameters set by bargaining, authoritatively administered (if not always well controlled — OPEC was not so experienced as the IOCs in running a global regime), and reasonably predictable. Maurice Adelman, the era's chief conspiracy theorist, did not doubt that someone was in charge and that life would go on as it had in the past except that oil would cost more.<sup>11</sup>

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**The 1979 oil shock made return to an approximation of the managed regimes of the past impossible thanks to structural changes growing out of adjustment strategies.**

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#### THE SECOND OIL SHOCK

Even more than the first, the second oil shock was a “Toto moment.” It pulled back the curtain behind which a presumably omnipotent OPEC directed a re-stabilized market to reveal a shockingly anarchic arena. US power, already shown as wanting with regard to maintaining stable international exchange rates, also proved unable to maintain the regime of a client state integral to managing an unruly oil market.<sup>12</sup> What was envisioned as blocs of rational market participants pursuing strategic interests and priorities were suddenly revealed as what they always had been: fissile collections of players each out to protect and further its individual interests.<sup>13</sup>

The 1979 oil shock made return to an approximation of the managed regimes of the past impossible thanks to structural changes growing out of adjustment strategies. Spot sales of excess products and occasional cargoes of crude were routine during the IOC-managed regime.<sup>14</sup> After nationalization, oil exporters used them to dispose of excess equity oil. Spot markets became prominent arenas for adjustment when prices shot up in response to panic from Iranian Revolution-induced shortages in 1979. Contracts were canceled and new ones made at higher prices, but this linkage proved to work both ways. Rising spot prices pulled contract prices higher during the shock period, but after panic subsided and spot prices declined, they pulled official OPEC prices down.<sup>15</sup> Taking advantage of futures markets that opened in Britain and the United States in 1978, spot traders used futures prices, which were published and therefore transparent,

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10. Tétreault, *Revolution*.

11. M.A. Adelman, “Is the Oil Shortage Real? Oil Companies as OPEC Tax Collectors,” *Foreign Policy*, No. 9 (Winter 1972-73), pp. 69-107.

12. Mark J. Gasiorowski, *U.S. Foreign Policy and the Shah: Building a Client State in Iran* (Ithaca, NY: Cornell University Press, 1991).

13. Charles F. Doran, *Myth, Oil and Politics* (New York: Free Press, 1977).

14. Mabro, “Netback Pricing.”

15. The connection between spot and official prices is identified and measured in Appendix I to Tétreault, *Revolution*, pp. 247-53.

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Tétreault...

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to estimate reference prices for their murkier deals.<sup>16</sup> Meanwhile, as contract trades and durations shrank, price volatility increased, making oil derivatives more attractive to speculators.

The integration of the United States into the world oil market via domestic deregulation completed the destruction of the second concentration of market power. A glutted international market, a deregulated US oil market, and a strong-dollar policy enabled the United States to import all the oil it needed at such advantageous prices that the Reagan Administration could repudiate conservation policies at home and discipline challengers abroad. US economic rivals in Europe and Japan were denied the full effect of lower oil prices, because they had to pay in high-cost dollars to clear their accounts with exporters. The harshest adjustment costs were imposed on OPEC members.<sup>17</sup> OPEC produced nearly 27 million barrels (MBD) of oil per day in 1980, but only 17.6 MBD in 1983.

In the mid-1980s, Saudi Arabia, the dominant producer/exporter in OPEC, tried to stabilize markets which OPEC quotas and price cuts had failed to calm while retaining its authority over OPEC pricing.<sup>18</sup> To reclaim lost market share it resorted to netback pricing, a system promising to reduce the purchaser's risk by setting a crude price that nets out costs from the value of the products refined from that crude.<sup>19</sup> The parameters of netback contracts are determined by bargaining which occurs at specific times between pairs of buyers and sellers, reducing overall market transparency and thereby the ability to maintain a target price through coordination. While the Saudi move increased sales, it also contributed to the 1986 price collapse, when other producers also offered netback contracts and otherwise ceased even to pretend to defend OPEC's administered price.<sup>20</sup>

Although OPEC later reestablished some formal authority over oil pricing, the 1979-induced and -accelerated changes in market structure made effective oil market mediation a thing of the past. These trends continue. The US passion for deregulation spread from oil to financial markets where today oil derivatives are a species of currency. Derivatives trading by speculators continues to amplify price volatility:<sup>21</sup> much of the huge oil price increase of 2008 melted away in 2009. Each price movement imposed harsh demands for adjustment on the losing side. Despite prepaid contracts and sovereign wealth funds, the 1979 oil shock triggered and institutionalized adjustment strategies that guarantee price volatility and discourage measures for market stabilization. Such radical marketization ensures perpetual adjustment for all.

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**A glutted international market, a deregulated US oil market, and a strong-dollar policy enabled the United States to import all the oil it needed at such advantageous prices that the Reagan Administration could repudiate conservation policies at home and discipline challengers abroad.**

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16. Tétreault, *Revolution*, pp. 91-92

17. Mary Ann Tétreault, "Energy Policy and the Reagan Administration," *Forum for Applied Research and Public Policy* (Winter 1988), pp. 70-79.

18. Tétreault, *Revolution*, Chapter 6.

19. Mabro, "Netback Pricing."

20. Mabro, "Netback Pricing;" Tétreault, *Revolution*, Chapter 6.

21. Philip K. Verleger, Jr., "How Wall Street Controls Oil: And How OPEC will be the fall guy for \$90 oil," *The International Economy* (Winter 2007), pp. 14-17, 60.

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## II. Regional Aspects

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# In 1979 OPEC's Swing Producer Came Out Swinging

*Andrew Scott Cooper*

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When word spread in the first week of May 1979 that Los Angeles might run out of gas, the city was convulsed by scenes straight out of a Michael Crichton novel. “I’ve never seen so many hysterical people,” declared the owner of an Exxon station in Anaheim.<sup>1</sup> “Fist fights broke out at some stations,” reported *The New York Times*, “at least one service station owner had been assaulted by a motorist; and throughout car-conscious California, drivers’ nerves were as jittery as those of an alcoholic suddenly deprived of his drink.”<sup>2</sup> Drivers waited in half-mile lines for three hours to fill their tanks. Tempers flared. An elderly woman in Pasadena threatened a gas station owner with a tennis racket.<sup>3</sup> A man assaulted a pregnant woman whose car, so he said, tried to cut in front of his outside a filling station; she went into labor.<sup>4</sup> Psychiatrists reported an increase in depression among their clients.<sup>5</sup> In posh Beverly Hills, a man spotted hitching his horse to a parking meter summed up the hapless mood: “It’s a good way to express my frustration at being ridden into the gas lines by Arabs. Now I can ride my Arabian.”<sup>6</sup>



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The Great Gas Panic of 1979 holds a unique place in the social and political annals of the late 20<sup>th</sup> century. It confirmed that the first oil shock of 1973-74 had not been an anomaly. It reminded Americans — if they needed to be reminded — of their dependence on Middle East oil. And it ended an era in American politics. “The gas lines marked the beginning of the end of the Presidency of Jimmy Carter,” wrote oil industry expert Daniel Yergin.<sup>7</sup> Carter’s popularity with the American people never recovered from the scenes of bedlam witnessed on the streets of Los Angeles and other cities that summer. By the time the panic spread to the eastern seaboard in late June, 95% of gas stations in the New York area were reported closed over a single weekend.<sup>8</sup> Fed up and frustrated, in 1980 Americans turned towards the sound of steel when they voted for Ronald Reagan.

The second oil shock occurred against the backdrop of revolution in Iran, the world’s

1. Ronald Yates, “Gas Rationed in California,” *The Chicago Tribune*, May 5, 1979.
2. Robert Lindsey, “Panicky California Drivers Form Lines at Gas Stations,” *The New York Times*, May 5, 1979.
3. Yates, “Gas Rationed in California.”
4. Lindsey, “Panicky California Drivers Form Lines at Gas Stations.”
5. *The Hartford Courant*, May 10, 1979.
6. Ronald Yates, “Gas Panic, Pluck in California.” *The Chicago Tribune*, May 9, 1979.
7. Daniel Yergin, *The Prize: The Epic Quest for Oil, Money, and Power* (New York: Simon & Schuster, 1991), p. 693.
8. Knight News Wire, “Rising Cost of Filling Tank Feared Fuelling Emotional Crises,” *The Hartford Courant*, May 10, 1979.

second largest exporter of petroleum. In late 1978, anti-regime strikers turned off the spigots, effectively shutting down Iranian commerce and industry, and paralyzing Shah Muhammad Reza Pahlavi's royal dictatorship. The strike was so effective that the Shah's military government was forced to appeal to the US to send an emergency shipment of kerosene to prevent total collapse.<sup>9</sup> The loss to world oil markets of Iran's daily exports of 4.5 million barrels of oil led to fears of a worldwide shortage of crude oil. Many Americans stirred by wild images of burning flags on their television screens associated the gas shortage with the rise to power of Ayatollah Ruhollah Khomeini.

Yet, it was not just the cutoff of Iranian oil that led to the Great Gas Panic of 1979. A Library of Congress study concluded that the unrest in Iran resulted in only a "minuscule shortage" in supply because other oil producers rushed to make up the shortfall in production.<sup>10</sup>

Less well understood at the time was the role played by Washington's putative best friend, Saudi Arabia, in pulling the trigger. On December 17, 1978, at the height of the strike action in Iran, the Organization of Petroleum Exporting Countries (OPEC) unanimously agreed to raise the price of crude oil by 14.5%, ending an 18-month price freeze, and taking governments in the West by total surprise. As OPEC's biggest producer and exporter of oil, Saudi Arabia had the means to stop the price increase in its tracks. The US hoped and perhaps expected that it would do so. Earlier in the year, President Carter had expended considerable political capital by supporting a Saudi request to purchase F-15 jet fighters against opposition in the Congress.

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**Why did America's "gas station" in the Middle East turn the table on its senior partner? Simply put, the Saudis wanted to send a message and make a point.**

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Oil Minister Shaykh Ahmad Zaki Yamani made all the right noises before the OPEC conference opened in Abu Dhabi, variously claiming that he wanted no increase at all, then hinting that a 5% rise would suffice. When the final hike of 14.5% was announced, Yamani halfheartedly claimed that was "not happy" with it.<sup>11</sup> But other ministers reported that during the proceedings he "never mentioned a figure ... he said he would be willing to accept whatever was the consensus."<sup>12</sup> It was the combination of Saudi acquiescence to higher oil prices *and* the reduced flow of oil from Iran in a tightening market that caused companies and consumers to stockpile their inventories and gas tanks: "Down the consumption chain, industrial users and utilities also furiously built inventories as insurance against rising prices and possible shortages ... And suddenly, almost overnight, upwards of a billion gallons of motor fuel were sucked out of gasoline station tanks by America's frightened motorists."<sup>13</sup>

Why did America's "gas station" in the Middle East turn the table on its senior partner? Simply put, the Saudis wanted to

9. Myron Kandel and Philip Greer, "Oil-Rich Iran Needed US Kerosene Shipments," *The Chicago Tribune*, January 11, 1979.

10. Walter S. Mossberg, "New Study Finds Cutoff of Oil From Iran Has Caused Only a Minuscule Shortage," *The Wall Street Journal*, March 2, 1979.

11. Thomas W. Lippman, "OPEC to Raise Prices 14.49 in 1979," *The Washington Post*, December 18, 1978.

12. James Tanner and Ray Vicker, "OPEC to Raise Oil Prices 14.5% By Oct. 1 In 4-Stage Rise That Exceeds Predictions," *The Wall Street Journal*, December 18, 1978.

13. Yergin, *The Prize*, p. 687.

send a message and make a point. Two years earlier, the Saudis had acceded to a US request that oil prices not increase in 1977. Privately, the Saudis had warned former President Gerald Ford that such cooperation came at a price: “Our ability in this regard depends strongly on the overall state of US-Saudi relations, not only in military supplies but in other things. We need a measure of reciprocity to justify and strengthen our ability and to keep our public opinion and the Arab public opinion mollified.”<sup>14</sup> Crown Prince Fahd was on the record as explicitly linking peace talks to the Kingdom’s use of its oil power.<sup>15</sup> “We expect the West, especially the United States, to appreciate what we did,” Yamani said after the Saudis succeeded in holding down prices and driving their hawkish rivals in OPEC out of the market in 1977.<sup>16</sup>

Washington’s oil romance with Riyadh didn’t last long. When the next year President Carter threw his support behind Egyptian President Anwar Sadat’s bilateral peace deal with Israel, Saudi relations with Washington cooled considerably. Infuriated by what they perceived to be the betrayal of the Palestinian cause, alarmed at the rising tide of Islamic radicalism around them, and shaken by Carter’s belated response to the fall of the Shah, the Saudis stayed on the sidelines when OPEC next met in December 1978. They may not have desired the 14.5% price increase, but neither did they stop it from happening. And to coincide with the signing of the Camp David peace accords in March 1979, the Saudis actually reduced their oil exports to tighten an already teetering oil market; theirs was the production “cutback that helped to send spot prices soaring.”<sup>17</sup> Message sent, point taken. It was as if, eager to assert itself on the world stage as the greatest of the petro-powers — and determined not to be taken for granted by its ally the United States — the oil cartel’s swing producer came out swinging. The world has not been the same since.

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**Washington’s oil romance with Riyadh didn’t last long. When the next year President Carter threw his support behind Egyptian President Anwar Sadat’s bilateral peace deal with Israel, Saudi relations with Washington cooled considerably.**

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14. Memoranda of Conversation, 9/17/1976, folder “Ford, Saudi Arabian Foreign Minister Prince Saud bin Al-Saud, Box 21, Brent Scowcroft Papers, Gerald R. Ford Library.

15. A.P., “Saudi Arabia’s Crown Prince Fahd Links Oil-Price Policy to US Support for Israel,” *The Wall Street Journal*, March 31, 1975.

16. Joe Alex Morris, Jr., “Oil Price Rise Will Hold at 5%, Saudi Official Says,” *The Los Angeles Times*, December 18, 1976.

17. Yergin, *The Prize*, p. 690.

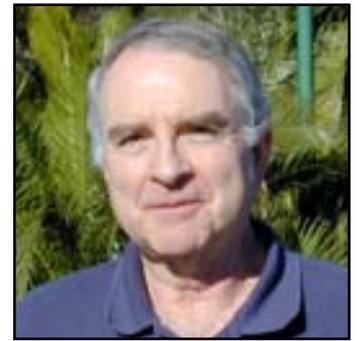
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# Oil Booms in the GCC Countries and Iran — A Study in Contrasts

*Robert Looney*

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Oil booms provide the opportunity for exporting countries to strengthen the factors conducive to sustained growth — improved governance, economic reforms, infrastructure investment, and adequate reserves to stabilize the economy during periods of oil busts. One of the striking patterns in the recent oil boom period of 2003-2008 is the contrasting manner in which the Gulf Cooperation Council (GCC) states and Iran have adjusted to the opportunities afforded by abundant oil revenues.



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## *CONTRASTING PATTERNS OF ADJUSTMENT*

### *Progress at Improved Governance*

The link between good governance and successful development has been well-established empirically: countries that score low in the various governance dimensions generally experience poor rates of economic growth compared with countries scoring consistently higher.<sup>1</sup> Significantly, throughout the period from 2003 to 2008, sharp differences persisted between the GCC countries and Iran in terms of voice and accountability, political stability/absence of violence, regulatory quality, rule of law, government effectiveness, and corruption.<sup>2</sup>

In the area of voice and accountability, the GCC countries as a whole, while not scoring particularly high by international standards, have significantly increased their lead over Iran. In 1998, the GCC countries averaged in the 26<sup>th</sup> percentile while Iran ranked 23<sup>rd</sup>. After 1998, the gap widened, with the average for the GCC states slipping to the 23<sup>rd</sup> percentile but Iran plummeting to the 8<sup>th</sup>.

In terms of voice and accountability, both the GCC states and Iran have experienced some deterioration since 2000. Iran has experienced a precipitous decline, from the 32<sup>nd</sup> percentile in 2000 to the 11<sup>th</sup> in 2007, while the GCC countries fell from the 65<sup>th</sup> to 57<sup>th</sup> percentile.

The GCC countries made steady gains in regulatory quality throughout the period 1996-2007, increasing their lead over Iran from 51:7 to 67:4. Unlike Iran, the GCC average of around 67<sup>th</sup> for the period after 2007 places them in a range often associated with

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1. See for example, Dani Rodrik, Arvind Subramanian, and Francesco Trebbi, "Institutions Rule: the Primacy of Institutions over Geography and Integration in Economic Development," *Journal of Economic Growth*, Vol. 9, No. 2 (2004), pp. 131-65.

2. Data is from the World Bank Governance Data Set, <http://info.worldbank.org/governance/wgi/index.asp>.

rapid economic growth.

Similarly, the gap between the GCC countries and Iran in the area of rule of law widened significantly during the post-2002 oil boom years. Iran had shown good progress in rule of law in the late 1990s, increasing their percentile ranking from 16<sup>th</sup> in 1996 (at that time, the GCC countries had averaged in the 68<sup>th</sup>) to the 42<sup>nd</sup> in 2000. However, Iran's ranking fell from the 39<sup>th</sup> percentile in 2004 to the 21<sup>st</sup> in 2007. In contrast, the GCC countries averaged around the 70<sup>th</sup> percentile, again a range often associated with sustained economic growth.

The government effectiveness dimension encompasses the government's ability to carry out development programs and effectively implement economic policy. Here, too, Iran's deterioration is striking (Figure 1). After improving from the 22<sup>nd</sup> percentile in 1996 to the 44<sup>th</sup> in 2000, the country has been on a downward spiral, dropping to the 24<sup>th</sup> percentile in 2007. While there has been a slight fall in the GCC states' ranking (from the 69<sup>th</sup> percentile in 2000 to the 64<sup>th</sup> in 2007), the gap between them and Iran nonetheless has widened considerably in recent years.

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**The governance gap between the GCC countries and Iran widened significantly in most areas during the oil boom years.**

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Historically, corruption has been a major problem affecting economic performance in post-Revolutionary Iran. After 1996, the country had appeared to be making major strides in combating corruption, raising the country's ranking from the 30<sup>th</sup> percentile in 1996 to the 48<sup>th</sup> by 2002. However, these gains subsequently were lost, with the country averaging in the 37<sup>th</sup>-38<sup>th</sup> percentile over 2004-2007. In contrast, the GCC countries had improved their ranking from the 58<sup>th</sup> percentile in 1996 to the 81<sup>st</sup> by 2002. Although the GCC states did not continue to improve in this critical area during the recent oil boom years (averaging in the 73<sup>rd</sup> percentile), the gap between them and Iran is rather striking, especially in light of the general tendency for oil-exporting countries to experience relatively high levels of corruption.

In sum, the governance gap between the GCC countries and Iran widened significantly in most areas during the oil boom years. Although the GCC countries missed some opportunities for further improvements in governance, they did not regress substantially in any of the critical areas of governance. In contrast, Iran did not use this period constructively to lay a solid foundation for sustained growth in the post-boom era.

### *Economic Reforms*

The picture for Iran is a bit more favorable in the economic reform area. Using the Heritage Foundation index of economic freedom (a broad measure of price liberalization, free trade, etc.),<sup>3</sup> Iran increased its aggregate score — with the scores ranging from 0 to 100, lowest to highest — from 36 in 2002 to 50 by 2005, leveling off at about 45 in recent years. As with governance, however, the GCC countries maintained a large gap, averaging in the mid-60s through most of this period.

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3. The Heritage Foundation, 2009 *Index of Economic Freedom*, <http://www.heritage.org/Index/>.

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*Economic Expansion*

Iran's limited progress in governance, together with its incomplete economic reforms, has in part limited the country's growth potential. While the country has enjoyed gradual improvements in per capita income, the country is falling increasingly far behind the GCC countries. The International Monetary Fund (IMF)<sup>4</sup> expects these patterns to continue for the foreseeable future, projecting the country's growth path at a slope considerably behind that of the key GCC countries (Figure 2).

As expected, the most dramatic changes since 2002 have been the movement in revenues and accumulated reserves. During the oil boom years (2004-2008), Iran's dollar export earnings, while expanding, actually fell considerably relative to the gains made by the GCC countries. Iran's earnings increased from \$49.8 billion in 2004 to \$110.9 billion in 2008. Over the same period, however, the earnings of the United Arab Emirates (UAE) alone ballooned from \$93.2 billion to \$264.9 billion. For the GCC as a whole, dollar earnings soared from \$304.4 billion (2004) to \$822 billion.

In contrast to earlier oil boom periods, the GCC countries restrained expenditures in the early years of the boom. Government expenditures as a share of GDP fell from an average of 34.2% over 2000-04 to 28.5% in 2008. Iran's pattern of expenditures was the opposite: government expenditures expanded from an average of 21% of GDP in 2000-04 to 28% in 2008 (having peaked at 31.7% in 2006). Government expenditures as a share of GDP have increased recently, as GCC governments respond to the oil price declines by providing fiscal stimulus and other expenditure programs to stabilize their economies. Iran, having fewer financial resources at its disposal, has not been able to implement an effective counter-cyclical fiscal policy.

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**The GCC countries learned a number of hard lessons from earlier booms. As a result, the most recent boom period was characterized by fiscal restraint, debt reduction, and reserve accumulation.**

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Changes in the pattern of gross official reserves constitute the most dramatic shift to have taken place during the oil boom years. Both the GCC and Iran had healthy levels of reserves at the start of the boom, with the GCC averaging \$48.3 billion (2000-04) and Iran \$27.1 billion (Figure 3). By 2008, however, the relative acceleration in current account surpluses in the GCC states had raised their gross official reserve levels to \$511.4 billion (a 10.5-fold increase). Iran had a much more modest three-fold increase to \$84.9 billion.

*Prospects*

The GCC countries learned a number of hard lessons from earlier booms. As a result, the most recent boom period was characterized by fiscal restraint, debt reduction, and reserve accumulation. In contrast, Iran finds itself in a precarious financial position, especially in the post-August 2008 period of lower oil prices. The country has little left in its sovereign

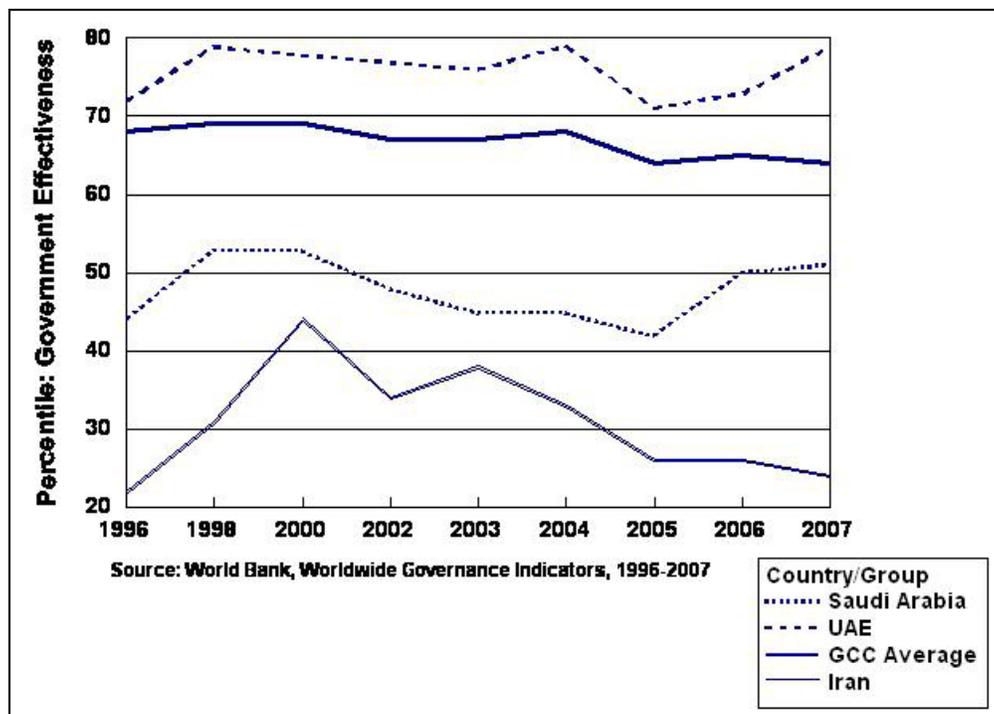
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4. Unless otherwise specified, all data is from the International Monetary Fund, *Regional Economic Outlook: Middle East and Central Asia*, May 2009, <http://www.imf.org/external/pubs/ft/reo/2009/MCD/eng/mreo0509.htm>.

wealth fund. Because of United Nations sanctions, Iran also has very limited borrowing options.<sup>5</sup>

Iran suffers from poor governance and has not been able to create an environment conducive to sound economic policy. It is one of few oil-exporting countries where economic conditions worsened during the oil boom — with slowing growth, rising inflation, and low real interest rates triggering an asset boom in the property sector. Unemployment is high and rising. Wages remain stagnant. Meanwhile, the government has resorted to an extensive system of subsidies to counter inflation. Iran missed a golden opportunity to set its economy on a high-growth path. As a consequence, the country will most likely suffer a long-term decline in influence and power *vis á vis* the GCC states. This stark reality may be one of the factors underlying the widespread, mounting discontent throughout the country.<sup>6</sup>

Figure 1: GCC — Iran Governance Comparisons: Government Effectiveness



5. "Iran: Economic Isolation and Crisis," *Stratfor*, December 16, 2008.

6. A similar conclusion was reached in Ross Douthat, "Recession and Revolution," *The New York Times*, June 16, 2009.

Figure 2 GCC — Iran Economic Performance: GDP Per Capita (PPP)

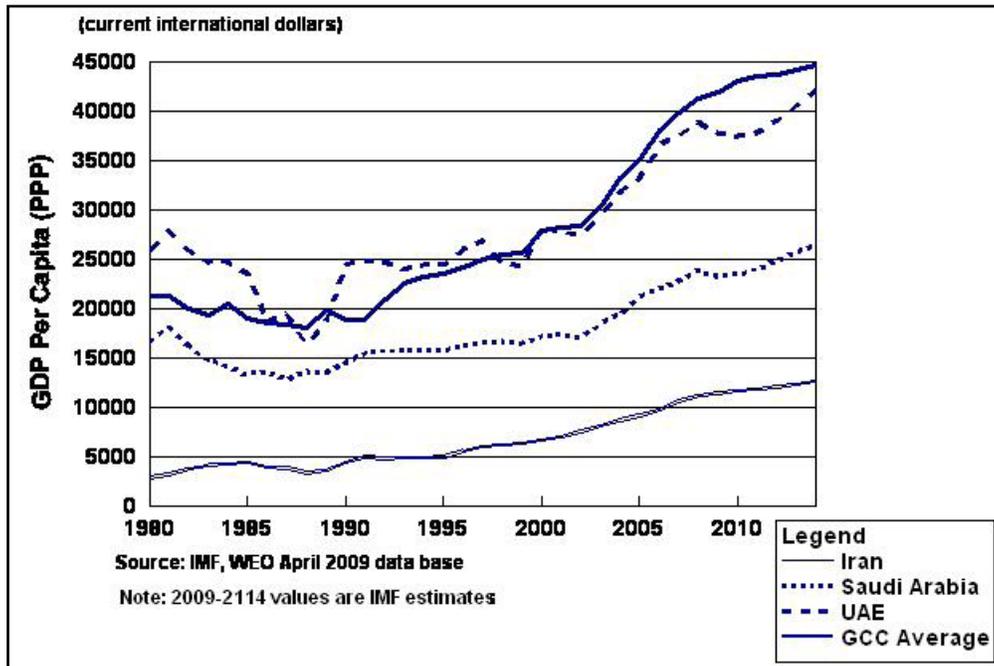
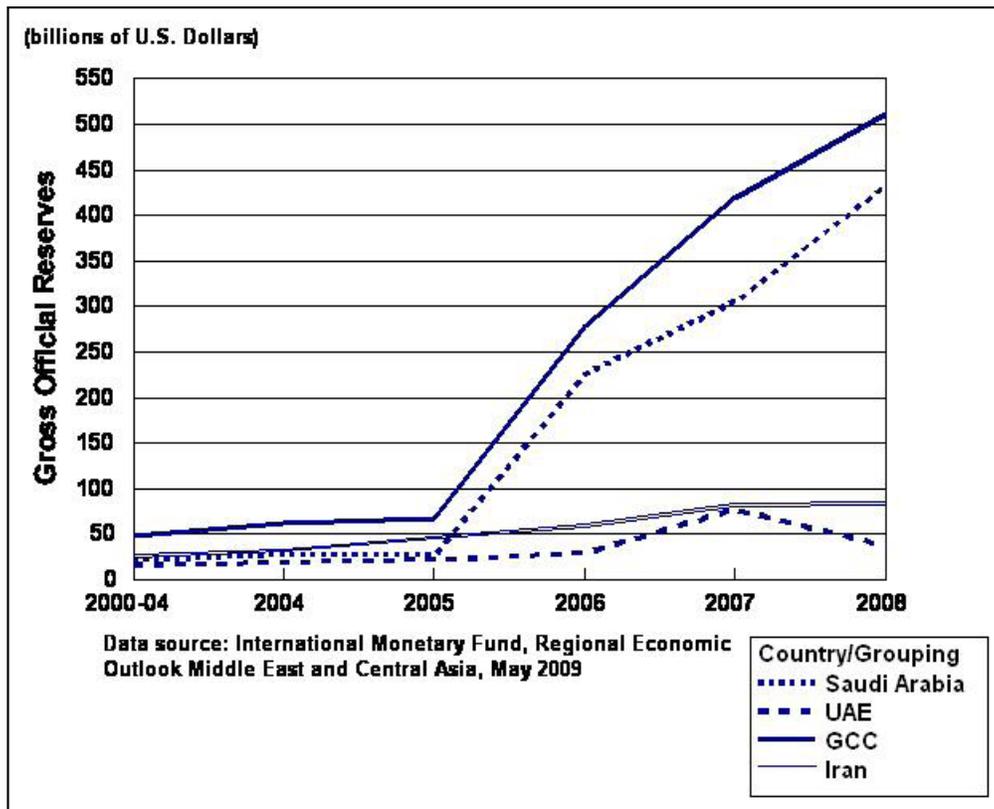


Figure 3 GCC — Iran Economic Performance Comparisons, Boom Period: Official Reserves, 2000-2008



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# The Gulf in Transition During the 1980s

J.E. Peterson

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The shocks introduced by the oil price revolution of 1973-1974 and the price jump in 1979 were, in some ways, just as disturbing to the Gulf states<sup>1</sup> as they were to oil-importing countries. While the transformation the shocks set off has been portrayed as a positive development — and in most ways it certainly was — it also had less desirable effects.

The impact on the Gulf states of the 1970s oil boom and its extension into the 1980s was primarily economic but not entirely so. To be sure, standards of living were considerably improved, universal health care introduced, and education began to reach all for the first time. But it gradually became clear that some social and cultural moorings had been lost in the rush to modernize.

Many Gulf nationals got caught up in a new atmosphere of financial opportunity, international exposure, and unbridled consumerism. But eventually it was perceived that something was lacking, that money was not enough. After roughly a decade of *tafrāh* (leap or swing), the consequences of the “black gold” boom produced, *inter alia*, an increased religiosity and a pronounced turning back to social conservatism.

The precipitous drop in oil prices in the mid-1980s wreaked havoc with development plans and sent government budgets spiraling downward. It soon became painfully obvious that the boom was a transitory, one-off phenomenon. The steady growth in absorptive capacity produced governments that were able to deliver more services and promises. But it also created a population that had developed a sense of entitlement to social services and regarded the regime as the unconditional provider or guarantor of prosperity. Governments, perilously dependent on a single source of revenue, felt themselves unable to match the loss of income by cutting spending for fear of arousing popular anger. The consequence was 19 annual budget deficits in 20 years for Saudi Arabia.

The economic impact of the sea change was felt acutely on the personal level as well. Improved health standards had led to a population explosion, and this eventually produced surging demand for employment. In its early days, the oil industry in most Gulf countries had been starved for local labor and supplemented it by immigration from neighboring countries. But the oil sector is capital intensive rather than labor intensive, and jobs soon became scarce. With few other industries, the Gulf states' governments

1. In this essay, the term “Gulf states” refers to the current members of the Gulf Cooperation Council (GCC): Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE).



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served as the principal employers. However, by the time oil prices started falling, government departments were filling up, displacing previous expatriate employees with nationals.

As one aspect of this, the expansion of social services and the attendant growth in government functions and capabilities provided careers for a newly minted professional class. As they came to occupy the upper echelons of government and business, the next “generation” of slightly younger graduates moved into the second tier, and so on. By the mid-1980s, little more than entry-level positions were available, and there was little hope for promotion since the next rungs up were occupied by people only a few years older.

Meanwhile, in the private sector, the inception of an agent system in the economy enabled the early merchants and established merchant families to hold monopolies on major brands of imported goods and to secure the lion’s share of lucrative government contracts. This made it difficult for new entrepreneurs to penetrate markets and establish themselves unless they could enlist powerful connections.

There were also significant and often troubling cultural changes. Escalating labor requirements had led to massive growth in the numbers and nationalities of expatriate workers. Suddenly Gulf nationals were inundated, in some cases finding themselves minorities in their own countries. The Arab character of the states, already affected by an earlier inpouring of northern Arabs, was diluted by a Babel of races, languages, and religions from all over Asia and farther afield. Furthermore, Asians were not only ubiquitous in the workplace but also became common figures in households as cooks, houseboys, drivers, nannies, and gardeners. It was not unusual to find flocks of sheep and goats in the remote desert being herded by Pakistanis, Bengalis, and Afghans — a startling development for societies that prided themselves on their desert and bedouin origins.

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**Escalating labor requirements had led to massive growth in the numbers and nationalities of expatriate workers. Suddenly Gulf nationals were inundated, in some cases finding themselves minorities in their own countries.**

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By necessity, at least some knowledge of English was useful to communicate with expatriates, whether to give orders to staff or even to do one’s shopping. The introduction of nannies meant that small children often learned Sri Lankan or Filipino bedtime stories and lullabies. The northern Arab population also grew substantially, and this meant that children were taught with an Egyptian or Jordanian accent and were inculcated with their political attitudes. In particular, Palestinians emphasized in their charges the ties between Gulf and Levant and a sense of responsibility for the Gulf Arab Palestinians’ plight. Many Gulf nationals began to withdraw socially and tended to no longer socialize outside their families and national cohort to the same extent they had in the 1970s.

The appeal of secular ideologies waned, and Islamism began to take hold, even before the Iranian Revolution. In Kuwait, this had been abetted by the government, which sought a counterweight to its liberals but instead sowed the seeds for a future obstructive Islamist opposition. In Saudi Arabia, the impact of an influx of Muslim Brothers, in exile from Egypt, began to be felt in stricter social mores and public control in an already religiously conservative society. Numerous

women in Kuwait and Bahrain adopted Western dress in the 1970s. A decade or two later, out of conviction or under pressure, most Bahraini women returned to more conservative dress while women in Kuwait divided into two camps (one “modern” and the other “conservative”).

Politically, it was a time of retrenchment. The only elected legislature in the Gulf, the Kuwait National Assembly, was suspended in 1976 and 1986 and not restored until after liberation, while Bahrain’s equivalent assembly had already been suspended in 1973. This was seen as no time to experiment with political liberalization when the citizenry were complaining about the shrinking economic pie and the Iranian Revolution threatened to unleash a whole new ideological threat to monarchical regimes. Even worse, the Iran-Iraq War brought tension and direct confrontation to the Gulf. Kuwait was forced to protect its oil tankers by putting them under an American flag. Saudi Arabia faced one attack by an Iranian warplane and violent Iranian demonstrations at successive *hajjs*. Oman had stand-offs with Iranian warships in its territorial waters.

Above all, the war marked the entrance of the United States to the Gulf in a big way. To be sure, the United States had long had interests and a presence there, such as ARAMCO, military activities during World War II, a small naval force at Bahrain, air force facilities at Dhahran, and a prominent role in Saudi development efforts. But with the American military build-up in the 1980s and the increased force projection occasioned by the Kuwait War (1990) and then the first Iraq War (1991), the United States was transformed from being just another external power into a true and permanent regional player.

This presence also had a local impact. In particular, the change in Kuwaiti attitudes and policy from non-alignment to avid pro-Americanism has been enormous, beginning during the Iran-Iraq War and peaking with liberation from Iraq in 1991. But elsewhere (and in Kuwait as well), the official ties to the United States and its regional policies, particularly with regard to Arab-Israeli matters, provoked conflicted reflections and responses by Gulf citizens.

The current economic situation threatens to be a repeat of the mid-1980s but only for some of the states — Kuwait, Abu Dhabi, and Qatar are in good shape financially. Just as importantly, social and cultural adjustments are far less likely to be seriously impacted. Societies have had two decades in which to deal with change and the multinational, cosmopolitan nature of most Gulf cities readily demonstrates their adaptability. The Gulf is a far different place from what it was. Certainly, preparing for life after oil and dealing with burgeoning populations and consequent employment issues remains as acute as ever. The sociocultural issues the Gulf countries face are increasingly complex but perhaps more manageable.

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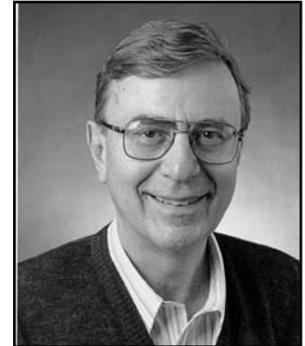
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## Between the Shocks: “White Elephant” Industrialization in Algeria

*Clement M. Henry*

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Algeria took major strides in the late 1960s and 1970s towards building an industrial base. The first oil shock of 1973-74 permitted Belaid Abdesselam, who founded Algeria’s Société Nationale des Hydrocarbures (SONATRACH) in 1964 and then served from 1965 to 1977 as Minister of Industry and Energy, to double the planned investments and ride roughshod over any reservations or criticisms by economic planners, finance ministers, or rival politicians. He enjoyed the full support of President Houari Boumediene, who had seized power in 1965, consolidated it by 1968, and aspired to legitimacy based on economic achievement. Not only were some \$45 billion invested from 1967 to 1978, but price controls apparently inoculated Algeria against “Dutch disease” — the presumed illness of other oil or gas rentier economies — during these boom years, but at the cost of rising discontent due to housing and other shortages.<sup>1</sup>



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Industrialization from above already seemed dysfunctional in 1977, when Boumediene broke up Abdesselam’s industrial empire and demoted him to Minister of Light Industry, putting him in charge of developing those enterprises that from the perspective of “industrializing industry” were supposed to mushroom from a heavy industrial base. However, within a year of Boumediene’s death in December 1978, Algeria’s industrialization policies were reversed: His successors funded yet another import-substituting tire factory project as well as an expansion of a gas liquefaction plant, both of which were designed to maximize oil and gas exports to accumulate capital for further industrial investment. Even as the second oil shock was doubling Algeria’s export revenues, the drive to diversify Algeria’s economy ended.

While Algeria eventually became a caricature of an oil rentier economy, the country’s “white elephant” industrialization showed that oil rents could be used constructively rather than being frittered away in cheap imports pending the next bust. It also has lessons for others, such as Saudi Arabia, that are attempting to move away from dependence on these rents through diversification. The even larger capital accumulations of the third oil shock (2003-08) offer extraordinary examples that make Algeria’s effort to industrialize all the more relevant.

Industrial white elephants can learn to reproduce. Algeria’s diversification efforts did not need to fail. Export revenues were still increasing when President Chadly Benje-

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1. Alan H. Gelb *et al.*, *Oil windfalls: blessing or curse?* (New York: Oxford University Press, 1988), pp. 147, 159-162.

did's new government reversed course. Arguably, also, the 62.5% reduction in export revenues from their peak in 1981 to their lowest point in 1987 could have been attenuated by liquefied natural gas exports to the United States. This project was delayed until 1990 because of a failure on the part of the Algerian and American parties in 1979-80 to renegotiate the price originally contracted in 1969. By trying to drive harder bargains indexing the price of gas to oil, the new government ended up selling less gas to European markets as well, foregoing an estimated \$2 to 3 billion of annual revenues in the 1980s.<sup>2</sup> In response to this criticism leveled by his predecessor, Belkacem Nabi, Minister of Energy and Petrochemicals from 1979 to 1988, tried to defend his policy of renegotiating the contracts — the so-called “gas battle” with the Europeans — by favorably comparing the stream of revenues from the new contracts to earlier projections denominated in dollars of earlier times.<sup>3</sup>

The new government's Minister of Planning and eventual Prime Minister (1984-1988), Abdelhamid Brahim, was on firmer ground in arguing that Algerian industrialization had produced a series of disconnected projects with few intra-industry exchanges of goods or services. Organization always had been the country's weak point for historical reasons beyond the scope of this essay, and the ambitious turnkey projects inevitably increased Algeria's technological dependence on foreign suppliers and contractors.<sup>4</sup> However, Brahim's policies of decentralization and restructuring public enterprises, far from improving the situation, simply ruptured the fragile coordination developed among the earlier team of industrialists. Mohammed Liassine, the former Minister of Heavy Industry, accused Chadly's new team of technocrats of “assassinating industry.” For instance, the flagship iron and steel complex, which was perceived as a “foreign exchange sinkhole,” was inadequately maintained.<sup>5</sup> Eventually in 2002 the government sold a majority of its shares to an Indian multinational. Other white elephants were not so fortunate. In the course of civil war in the mid 1990s, factories were destroyed and some 400,000 public sector employees and workers lost their jobs. Cement plants languished at production levels well below full capacity — even after Abdesselam, who returned as Prime Minister in 1992, ordered the necessary maintenance — while Algeria imported cement until 2007, when a new Egyptian owned plant began production. Cement scarcities had kept black markets thriving, with benefits to traders and their political protectors; in 2009 Algeria was again importing cement despite ample local supply.<sup>6</sup>

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**Cement scarcities had kept black markets thriving, with benefits to traders and their political protectors; in 2009 Algeria was again importing cement despite ample local supply.**

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2. Belaid Abdesselam, *Le gaz algérien: stratégies et enjeux* (Algiers: Editions Bouchene, 1990), p. 293.

3. Belkacem Nabi, *Où va l'Algérie: Indépendance, Hydrocarbures, Dépendance* (Algiers: Editions Dahlab, 1991), p. 259.

4. Abdelhamid Brahim, *L'économie algérienne: défis et enjeux* (Algiers: Editions Dahlab, 1991), pp. 133-142.

5. Ali El-Kenz, *Le complexe sidérurgique d'El Hadjar: une expérience industrielle en Algérie* (Paris: Conseil National de la Recherche Scientifique, 1987), p. 365. The project had been conceived as part of the Constantine Plan developed by France to consolidate its colony in 1958. Construction began in 1962, before any significant oil revenues. On the inadequate funds for maintenance see the interview with M. Messaoud Chettih, the last CEO of the iron and steel complex before it was privatized, in *El-Watan*, November 13, 2008: <http://www.elwatan.com/L-Algerie-doit-profiter-de-la>. With manpower more than halved since 1979 to 7200 in 2009 and prospective further cuts of 1600 workers, the plant was still producing over 1 million tons of steel annually, but could not begin to meet the domestic demand of 5 million tons of steel bars annually required for reinforced concrete.

6. “A-t-on vraiment besoin du ciment que l'on importe?” *El Watan*, June 25, 2009.

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Belaid Abdesselam still insists that “our industrialization aimed at building up integrated industries in our country, that is, industries that would in the end be totally, or as much as possible, sourced by basic and intermediate products through interindustrial exchanges effected on our national territory.”<sup>7</sup> In 1979 Brahimi, the new Planning Minister, had attacked Boumediene’s technocrats for failing to accomplish this objective, but such coordination was bound to require many more years of investment and experimentation. Time was also needed to develop an educational system that would meet the new demands of industry; indeed, a plethora of technical institutes grew in parallel to the traditional educational system. Even as advocates of cultural authenticity were insisting on more rapid Arabization of educational curricula, French remained the language of the shop floor, management, and the technical institutes, where English also appeared.<sup>8</sup> As for breaking the bonds of technological dependence, the technocrats were helpless. They could not forge effective partnerships between universities, technical institutes, and industrial enterprises in the climate of clientelistic politics that pervades Algeria’s authoritarian system.

Abdesselam could not survive the death of Boumediene because his industrial empire lacked a political base. When asked about his reluctance to build networks of support like other politicians who enjoyed presidential favor, he commented that Algeria’s omnipresent security services would have observed and sabotaged any such development.<sup>9</sup> Rather than play the Algerian political game of exchanging favors and building networks, Abdesselam alienated and antagonized much of the *nomenklatura*. Consequently he and his team of industrializing technocrats were easy targets once they lost their presidential protection. The failure of Algerian white elephant industrialization came from Algeria’s authoritarian system, not its status as a rentier petrostate. Had they enjoyed continued protection, the industrial team might have weathered the ensuing decades with diminished resources, but well positioned and with adequate absorptive capacity, to utilize the windfall revenues of the 2000s. As it is, Algeria de-industrialized to the point of manufacturing less than Morocco and even being overtaken by Tunisia in 2007, which had produced only one-third as much as Algeria in the early 1970s. Algeria’s politics of adjustment deregulated state monopolies on imports so that a small number of well positioned importers could now command new oligopolies and discourage most local industry. Any Algerian “Dutch disease” is more a symptom of corrupted political will than of oil rents.

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**The failure of Algerian white elephant industrialization came from Algeria’s authoritarian system, not its status as a rentier petrostate.**

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The white elephants were victim not so much of the volatility of their hydrocarbon financing as of the short-term per-

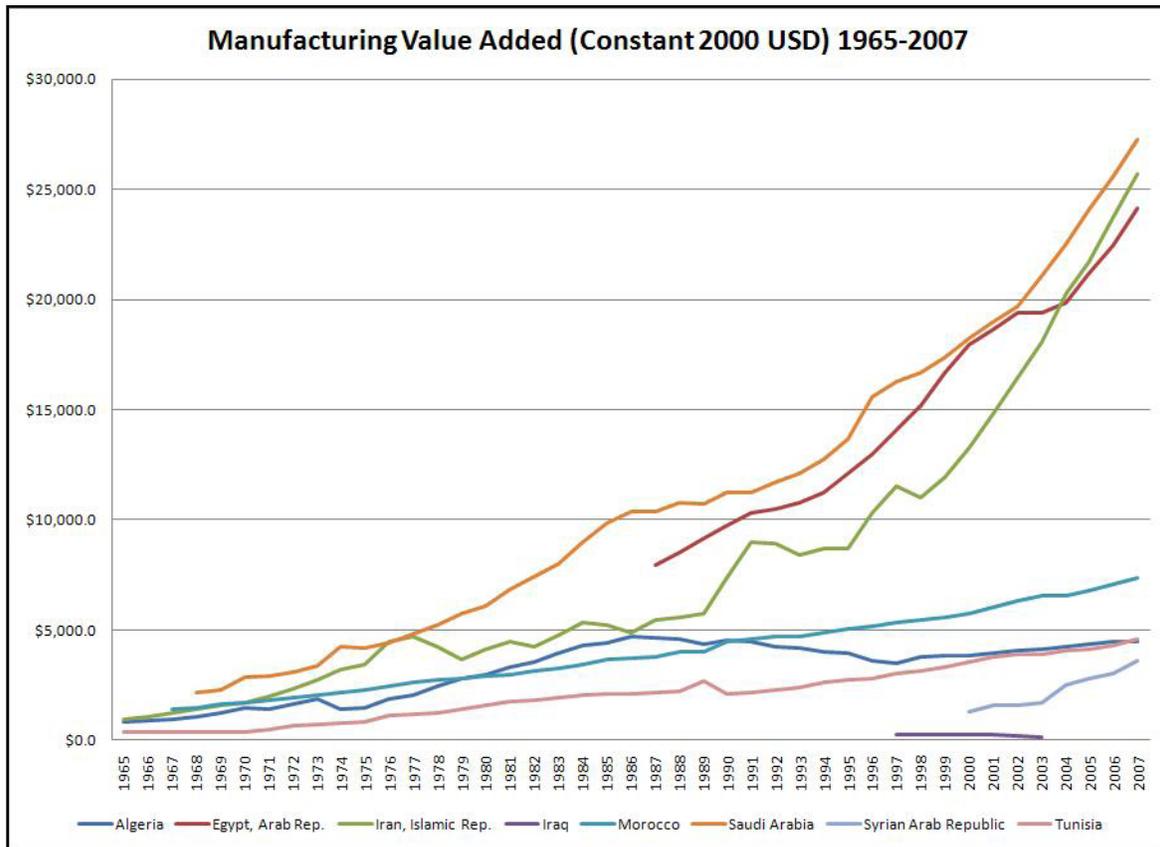
7. Belaid Abdesselam, blog: [http://www.belaidabdesselam.com/?page\\_id=81](http://www.belaidabdesselam.com/?page_id=81): “...[N]otre industrialisation avait visé à faire ériger dans notre pays des industries intégrées, c’est-à-dire des industries devant aboutir à obtenir, totalement ou bien dans la plus large proportion possible, leurs approvisionnements en produits de base et en semi-produits à travers des échanges interindustriels se déroulant sur le sol national.”

8. Ali El-Kenz, *Les deux paradigmes (Algérie)* “*Revue des mondes musulmans et de la Méditerranée*.” Nos. 68-69 (1993), pp. 230-238.

9. Mahfoud Bennoune and Ali El-Kenz, *Le hasard et l’histoire: entretien avec Belaid Abdesselam* (Algiers : ENAG Editions, 1990, Vol. 2, p. 342. Abdesselam continued, “*Dans un système autoritaire, dès que tu constitues une force, on te casse, parce que tu t’engages dans une logique où tu te heurtes au système.*” Cf. Aristotle, *Politics* V: 10: 20, where a tyrant is advised to cut down the tallest ears of corn.

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spectives of Algeria's political leadership after Boumediene's premature departure. The experience of Algeria and the specter of diminished oil revenues should not deter efforts of other wealthier oil rentiers to diversify their economies beyond hydrocarbons and related petrochemical industries and to develop centers of applied research that can mitigate the dependence on foreign partners' technologies.



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# Algeria, 1979-82: Leadership Decisions and Political Instability

Miriam R. Lowi

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In January 1979, following the death of Houari Boumediene, Chadli Benjedid was named President of Algeria. The latter's accession to power coincided with the final stages of the Iranian Revolution and the oil shock that it provoked. As the price of oil had jumped from \$14 per barrel in 1978 to \$32 per barrel in 1979 and \$37 per barrel in 1980, the new regime was awash with capital. This was a major boon to the new President as he strove to achieve his goals.

With no social base of his own, and succeeding a leader with a great deal of political capital, Benjedid sought to de-Boumedienise the domestic political economy, win over those who had chafed under his predecessor's leadership, and thus legitimize his own rule. Benjedid shunned state capitalism and instead advocated economic liberalization and other forms of "openness." He implemented new policies in the economic and social spheres, and subjected the power structure and techno-bureaucracy to a major shake-up. Rather than consolidate his power, Benjedid's politically driven changes transformed institutional relationships and destroyed most productive economic activity, while his loose, "liberal" talk encouraged the new forces of opposition and the mobilization of discontent. Indeed, the first years of his incumbency laid the groundwork for growing instability that would culminate in a 10-year civil war (1992-2002).

Under the slogan "*pour une vie meilleure*" [*min ajli hayaatin ahsan*/ "for a better life"], Benjedid's first five-year plan (1980-85) focused on decentralizing and deconcentrating economic decision-making, scaling back the power and autonomy of the state-owned enterprises (SOE) that had dominated the economy in the 1970s, encouraging some private sector activity, and attending to consumption demand. The results, however, were disturbing. First, the reforms were carried out in a rapid, haphazard fashion. Second, loyal clients of the regime, rather than individuals with expertise, headed the structures that replaced the SOEs. Clientelism flourished as did mismanagement and waste, despite Benjedid's "clean-up campaign." Third, the plan put an end not only to the primacy of developmentalism and the coherence and coordination of industrial strategy, but to investment in industry overall. As for private sector activity, it increased only slightly. Fourth, to move away from dependence on hydrocarbons, investment in agriculture increased. Nonetheless, its doubling (from 6% of total investments in 1977 to 12% in the mid-1980) was still far too little relative to demographic growth. The need for food imports would continue to grow, reaching an alarming 70% of consumption demand by the end of the oil boom.



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What, then, became of the fabulous rents that had accrued to the state? During the early boom years, oil rents were used to “liberate” pent-up consumption demand and in that way, curry the favors of the middle classes. Benjedid initiated the *programme anti-pénurie* (PAP: Anti-Poverty Program) to attenuate the shortages of the Boumediene era. A centerpiece in the regime’s “*pour une vie meilleure*” agenda, the PAP was a variation of Anwar Sadat’s *infitah* (“open door” policy) in Egypt. Oil rents plus borrowed funds were expended to import non-essential consumer goods, which then flooded the market.

Ostensibly, the program worked well for a few years. Having fabricated an atmosphere of well-being, it bought social peace. Within no time, though, the PAP proved to be a scandalous means of enrichment for those linked to the bureaucracy. While import restrictions had indeed been lifted, distribution remained confined to the *nomenklatura* and their clients, who enjoyed handsome commissions and the exchange amongst themselves of valuable state sector goods. At the same time, underground supply networks surfaced, and a black market flourished. Both would thrive when the economy took a nosedive in 1986 with the plummeting of oil prices.

The way in which oil rents were utilized favored the proliferation of rent-seeking opportunities, the institutionalization of patronage, and the consolidation of bureaucratic-authoritarianism. Rents were no longer a source for productive investment; they had become a means to satisfy appetites of the privileged. Furthermore, soon after adopting the *PAP*, the government had to start paying back its loans, which coincided with the sharp decline in oil revenues after 1982. The *PAP* came to a bitter end. It had fostered corruption and intensified inequalities; it contributed to the renewed scarcities and the social discontent which it had been meant to offset.

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Furthermore, Benjedid’s encouragement of a more politically permissive atmosphere, in the first years of his rule, backfired as well. Rather than elicit widespread support for his regime, the new atmosphere inspired the emergence of “autonomous movements of social protest” which would overwhelm the public space when the economy experienced a downturn. The *Mouvement culturel berbère* (Berber culturalist movement, or MCB) emerged as a powerful force, as did several Islamist formations and figures — among them were the future founders of the *Front Islamique du Salut* (the Islamic Salvation Front, or FIS), as well as precursors of the Islamist insurgency of the 1990s. In the ensuing years, both Berberists and Islamists would rally increasing numbers of adherents from among the disillusioned and excluded.

President Benjedid had stepped up the arabization of the educational and justice systems as soon as he took office. He did so in part to fight the technocratic elite that had guided Boumediene’s development strategy and opposed his own economic reforms. Benjedid accused them of Francophilia. He also believed that arabization would appease the increasingly visible Islamists. He expected that they, in return, would support him as he de-Boumedienized the system and neutralized the “Francophile” elite. Instead, his reforms — arabization and funding Islamic institutions — further

alienated Berbers and played directly into the hands of the Islamist opposition.

Indeed, the choice of “Arabo-Islamism” greatly emboldened Algerian Islamists. Within no time, large-scale demonstrations spearheaded by Islamists demanded compulsory nation-wide religious instruction, respect of Islamic dress codes, prohibition of alcohol, and limitations on the education of women and girls. It was at this time, the fall of 1982, that Abassi Madani — who would later co-found the FIS — surfaced as a leader of Algeria’s Islamist movement. Additionally, the first guerilla movement in the history of independent Algeria emerged. The *Mouvement algérien islamique armée* (the Armed Algerian Islamic Movement, or MAIA), led by Mustafa Bouyali, reflected the growing sense of disillusionment with the regime and the *status quo*; it would inspire the Islamist guerrillas of the civil war years.

In 1986, the price of oil plummeted to \$10 per barrel. The decline in the financial means of the state, the growing debt burden, and the return of shortages coincided with the eruption on the labor market of thousands of educated young people. Having been nurtured on Benjedid’s rhetoric of “a better life” and seduced, for some years, by the abundance of consumer goods, Algeria’s young were thrown into disarray. Concurrently, a small but growing, and increasingly visible minority who were closely allied with the regime had successfully manipulated the opening-up of supply and distribution networks during the President’s first term and amassed spectacular fortunes. The coalescence of these factors created an explosive social situation. Following the riots of October 1988, the Islamists embraced the unrest and filled the political void. They recruited from among the discontented, to whom they offered a compelling political alternative. Within less than four years, Islamists and their adherents would be at war with the regime.

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## III. Global Aspects

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# The 1979 Oil Shock and the “Flying Geese Model” in East Asia

*Joseph Y.S. Cheng*

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The 1979 oil shock pushed oil prices to over US\$30 a barrel from less than US\$20 a barrel. This marked an acceleration of the escalation of oil prices, which were only slightly over US\$2 per barrel before the Yom Kippur war in late 1973.

Japan, which was perceived as the “emerging superstate” at the beginning of the decade, successfully overcame the two oil price crises and was able to challenge the US in the 1980s based on its impressive economic and technological reforms. At the end of the oil shock, Japan largely gave up its resource-intensive heavy industries and chose to concentrate on technology-intensive industries. It moved its steel, shipbuilding, automobile-assembly, and other heavy industries to South Korea and Taiwan, and thus became the first country in the world to adopt a knowledge economy model. Pohang Steel, Hyundai Heavy Industries, Daewoo Shipbuilding, and other companies rose in South Korea, while China Steel, China Shipbuilding and others, emerged in Taiwan. Their industrial upgrading helped to cultivate a new generation of engineers and technicians who then facilitated the development of technology-intensive industries in those countries over the course of the next two decades.

The processes of industrial upgrading attracted a return flow of talents to these countries. In the 1950s and 1960s, almost all of the best science and engineering graduates in East Asia went to the top universities in the United States. After graduation, naturally they stayed there to develop their careers as opportunities were not available back home. Following the industrial upgrade, a considerable proportion of them believed that they could have even more fruitful second careers by returning to their respective homelands. Meanwhile, the trade surpluses earned in the earlier phase of exports of labor-intensive goods such as apparel, shoes, and toys provided the capital for industrial upgrading.

The economic prosperity of the “four little dragons of Asia” (Hong Kong, South Korea, Singapore, and Taiwan) drove up wages and land prices. Their labor-intensive industries thus had to seek overseas manufacturing bases offering cheaper labor and land. These industries then moved to the four “little tigers of Southeast Asia” — Thailand, Malaysia, the Philippines, and Indonesia. Thus the foundation of the “flying geese model” was laid.

These industrial transfers led to industrialization and urbanization in Asian developing



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countries. They enabled the latter to generate sustainable economic growth which in turn supported improvements in incomes, infrastructure, and the establishment of education systems, including the creation of universities.

Improvements in incomes and the development of education systems offered opportunities for upward social mobility and helped to maintain socio-political stability. These in turn satisfied the demands brought by the “revolution of expectations” in the modernization process. The expansion of the middle class paved the way for the “third wave of democratization,” as described by Samuel P. Huntington. In this way, the “end of history” in fact occurred in East Asia earlier than in Eastern Europe as capitalism, the market economy, and liberal democracy triumphed over socialism, the planned economy, and one-party dictatorship.

The 1979 oil shock coincided with the beginning of the era of economic reforms and opening to the outside world in China. Deng Xiaoping and his supporters had managed to secure endorsement for their reform programs at the end of 1978. Their reforms were based on the realization that the legitimacy of the Chinese Communist regime henceforth had to rely on its ability to deliver economic growth and improvement in the people’s living standards.

The reforms began in the rural sector with the introduction of the “family responsibility system” and the study of the Yugoslavian and Hungarian models. In the early 1980s, the Chinese reformers decided to emulate the development strategy of the four little dragons of Asia, based on the theory of comparative advantage rather than import substitution and self-reliance. This export-oriented strategy aimed to exploit China’s cheap labor and land to attract foreign investment to export labor-intensive products.

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At this stage, Hong Kong manufacturers had to find new manufacturing bases because of rising wages and land prices. They then moved across the border to the Pearl River Delta in southern China and transformed Guangdong into the leading province in terms of export earnings and foreign investment. The Guangdong model was picked up by the Yangtze River Delta and the coastal provinces, and, in the early 1990s, Japanese and Taiwanese manufacturers followed the lead of their Hong Kong counterparts. Since then China has become the shining example for transitional economies; and it has single-handedly lifted hundreds of millions of people from poverty. Its model, which has since been labeled “the Beijing consensus,” has been closely followed, by Vietnam for example.

The flying geese model, however, proved a sharp contrast to the Latin American experience and bankrupted the “dependency theory” developed by left-wing economists like Andre Gunder Frank. The latter debunked the development process in Latin America, and in fact considered it the development of under-development. Latin American economies became tied to the American economy, and capital regularly moved from the former to the latter despite the initial investment from the latter.

The “flying geese model” now offers legitimacy to the international production chain. The economies at the lowest end of the value-added ladder can certainly climb upwards and occupy higher positions by upgrading their industries and earning larger shares of the value-added. Information technology firms in South Korea and Taiwan now prove to be keen competitors to their Japanese counterparts, and Chinese corporations today join the Fortune 500 list by extending their operations at both ends, i.e., engaging in research and development upstream and establishing their own international distribution networks and brand names downstream.

Developing countries certainly find this model exciting, as it illustrates that there are opportunities for them to catch up with the most advanced countries in the world. In the past decade, instead of the strict vertical division of labor, various modes of horizontal division of labor have become common in East Asia.

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**While the oil shock in 1979 has taught the world many lessons, we still have a long way to go to make good use of the lessons learnt.**

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The 1979 oil shock strongly reinforced the warning issued by the Club of Rome earlier in the decade concerning the increasingly pressing global scarcity of resources. Japan’s responses to the two oil crises in the 1970s included “resource diplomacy,” which was in many ways what China has been doing in recent years. The entire nation has been doing a marvelous job in terms of energy conservation and later the promotion of a green economy and green society. But a certain degree of selfishness is also evident. Japan has not been working hard to transfer its technology to promote a global green economy and society. While the oil shock in 1979 has taught the world many lessons, we still have a long way to go to make good use of the lessons learnt.

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# The East Asia-Middle East-North Atlantic Oil Triangle: Seeing Patterns of Trade and Growth of the World Economy

*Kaoru Sugihara*

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Over the past 30 years, major resource imbalances between East Asia and the Middle East have been the underlying force in setting the patterns of world trade and other economic contacts. The formation and evolution of an “oil triangle” linking East Asia, the Middle East, and the North Atlantic has become an important condition for the growth of the world economy.

## *THE FIRST PHASE*

By the late 1970s, Japan had a trade surplus with almost all of its main trade partners except for the oil-producing countries. Each of these bilateral trade imbalances was large enough to cause concern. Both had to be settled in some way for the smooth running of world trade. The simplest way was to create a mechanism for the transfer of the Middle Eastern surplus to the advanced Western economies.

Although world trade was dominated by the European Community (EC) and the United States in volume terms, the oil triangle emerged as the largest inter-continental multilateral settlement mechanism. This was achieved in several ways. First, Arab money flowed into the EC and the United States in large quantities. A source for a large proportion of this flow was the money the Japanese paid for the purchase of oil. Between the first and the second oil crises, a large amount of this Arab money flowed out to the Third World. Some of the credit to the Middle East and other developing countries was incurred in the purchase of Japanese manufactured goods, thus completing a multilateral settlement pattern. Iran purchased manufactured goods from the United States and West Germany in the 1970s. The rest of the Arab money stayed in Western capital markets. As long as the Arab money kept flowing into the Western capital markets, the settlement pattern was reasonably secure.

In the 1980s, Saudi Arabia began to industrialize and purchased manufactured goods as well as weapons and military-related goods, mainly from the West. The Iran-Iraq War (1980-88) required the two combatants to increase their purchase of weapon and military-related goods from the West, as well. A small proportion of the Arab money was invested in manufacturing and service industries within the EC. In this way the triangle became slightly more explicit in the 1980s. Japan preferred to settle its imbalances multilaterally, partly because it was not a major player in the arms-related field,



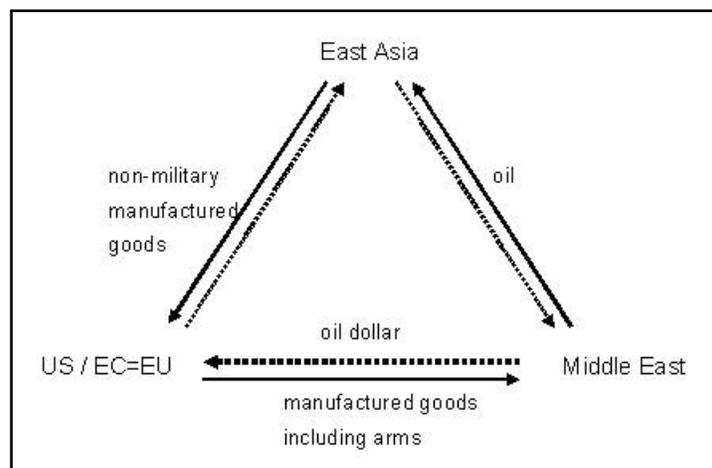
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and partly because some of the goods needed for the industrialization of the Middle East were better supplied by several European countries, and South Korea. Japan was likely to have a trade surplus with these countries, and therefore multilateral settlement patterns could be established through them.

Beginning in 1986, Japanese imports of Middle Eastern oil significantly declined as did the flow of Japanese money from the Middle East to advanced Western economies. The Japanese trade surplus with advanced Western economies also declined slightly, although not as much as had been desired.

The main explanation for this is the development of energy-saving technology. Japan's industrial energy consumption relative to industrial production kept improving. Rather than finding new energy sources or financing new technology which would require inputs of additional natural resources, Japanese efforts were concentrated on developing new industrial linkages within the machinery sector, which is under severe resource constraints.

**Fig. 1: The Oil Triangle**



On the international side, the Japanese attempted to avoid the damage arising from this loosening of the oil triangle in several ways. Japanese economic aid to the Middle East increased. Some of the yen loans — those tied to the purchase of Japanese products — encouraged the increase of exports of non-military manufactured goods to the Middle East. Proactive economic involvement in the Middle East also included investments by Japanese firms in petrochemical projects, such as Mitsui's effort in Iran (ultimately abandoned during the Iranian Revolution) and Mitsubishi's successful venture in Saudi Arabia. Finally, in the 1980s Japanese trading companies became more active in the international oil market and were better able to control prices and the volume of trade.

Meanwhile, the Japanese trade surplus with the United States and EC continued at a very high level. The direct response to this was a rapid increase of the export of Japanese capital, mostly to the United States and to EC countries in the form of financial assets. In other words, instead of going through the Middle East, a bilateral settlement was attempted. This eased the flow of Arab money into advanced Western economies and was one factor that enabled the West to be firmer with Middle Eastern purchases of arms.

*THE SECOND PHASE*

The comparative advantage of South Korea, Taiwan, and Singapore was similar to that of Japan; they had a competitive labor force (which was relatively low-wage and good quality) with very few natural resources. Some of them were already Japan's main competitors in the man-made fiber market in the 1960s. They also competed well in the international market for other labor-intensive goods in the following decade.

During the 1970s and 1980s East Asian countries gradually abandoned the strategy of heavy and chemical industrialization, and tried to focus on a more thorough exploitation of human resources. With the coming of the "microelectronics revolution," internationally competitive machinery industries were built on the successful combination of mechanical engineering skills accumulated in the region and new electronics technologies.

By the 1980s South Korea, Taiwan, and Singapore began importing a large amount of oil from the Middle East. Thus, from the end of the 1980s to the financial crisis of 1997, the trend of East Asia's oil imports was reversed. If we add these four countries together, we see a complete recovery of oil imports from the Middle East. While the Japanese trade surplus stayed at a very high level, the level of the three countries' trade surplus with the United States and EC/EU were somewhat unstable. Part of their deficit was financed by the import of capital, and part of South Korea's deficit with the Middle East was settled by the earnings of Korean workers engaged in construction in the region. The latter was part of a wider spill-over mechanism of the oil money into the labor-sending economies of Pakistan and Kerala, South India. Overall, however, the four East Asian countries combined had a steady triangular settlement pattern. They collectively offset a huge trade deficit with the Middle East by accumulating the trade surplus with the advanced countries. We may call this the extension of the oil triangle.

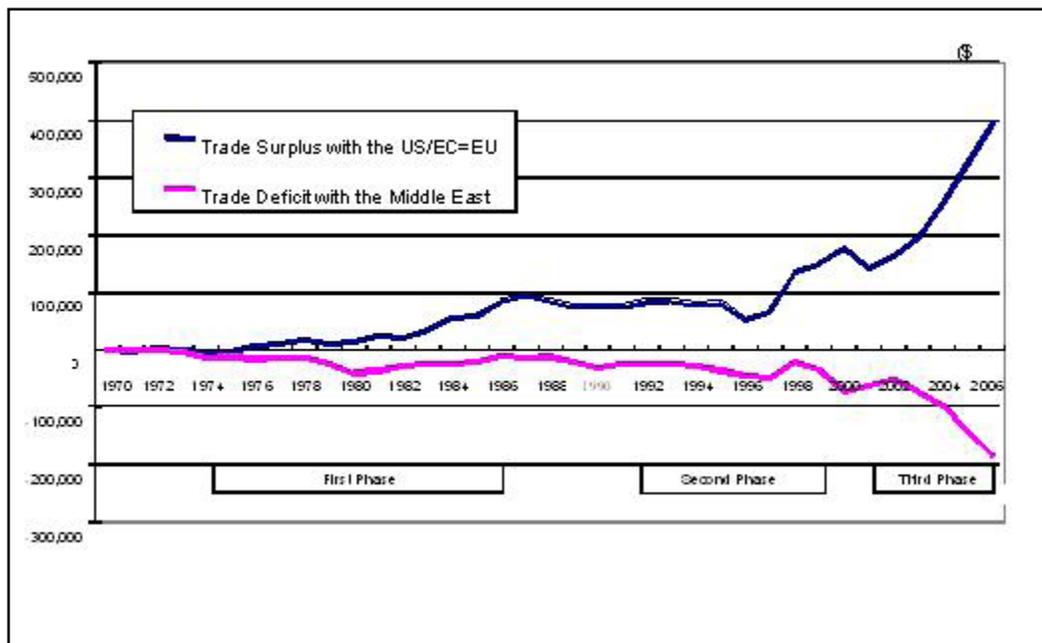
*THE THIRD PHASE*

In 1993 China became a net importer of oil, and imports grew rapidly. Between 2002 and 2006 imports rose four and a half times, and the strong upward trend continued in volume terms to 2008. Since the majority of imported oil came from the Middle East, Chinese trade with the Middle East also grew at a very rapid pace. Unlike the other East Asian countries, however, China increasingly exported diverse goods, including military-related items, to the Middle East (especially to UAE). China also has been keen to diversify its supply sources beyond the Middle East, and the Middle Eastern share of Chinese imports is already smaller than those of other East Asian countries. It has yet to be seen if China's trade deficit with the Middle East will grow.

Meanwhile, Chinese exports of manufactured goods to the United States and EU grew very rapidly, prompting international pressure to revalue the yuan. A further appreciation of yuan would lower the yuan price of foreign oil, relative to domestic energy, and this could lead to a further increase of China's dependence on foreign oil, as was the case with Japan in the 1970s and the 1980s. It also could increase the accumulation of China's trade deficit with the Middle East.

The first half of the 2000s can be characterized as the “China phase,” insofar as China has been the driving force of both oil imports and the exports of manufactured goods to the United States and EU. Furthermore, there has been a very rapid increase in oil imports from the Middle East by Japan and South Korea. Even though there is currently no “Chinese oil triangle” as such, East Asian demand for Middle Eastern oil as a whole could be compared with the region’s huge trade surplus with the United States and EU. If we add the five East Asian countries together, we see that the oil triangle has been sustained, in that East Asia’s trade deficit with the Middle East, generally the smaller leg in amount than the region’s trade surplus with the United States and EU, has grown as fast as the amount of world trade over the past 30 years.

**Fig. 2: East Asia’s Trade Balances with the US/EC=EU and the Middle East, 1970-2006**



*Sources and Notes: IMF, Direction of Trade Statistics Yearbook. Data for Taiwan are from Monthly Statistics of Exports and Imports. East Asia refers to Japan, South Korea, Taiwan, Singapore, and China.*

### THREE PROPOSITIONS

Three propositions are offered to relate the above observations to the thrust of this essay. First, East Asia became a major beneficiary of high oil prices since the 1970s, by developing both resource-saving technology path and the oil triangle. The second proposition is that, in addition to their role as the main consumers of Middle Eastern oil, the United States and Western Europe acted as the trade, monetary, and financial intermediaries of the oil triangle, with the cooperation of international financiers, and enjoyed the benefits of that role. The third proposition is that some countries, especially those which pursued an ambitious industrialization strategy, either with its own resources or implicitly assuming low oil prices (in most cases both were assumed), suffered from a combination of sustained high oil prices, competition from East Asia, and the Western dominance of international finance and other services, all of which were connected with, and partly generated by, the oil triangle.

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# Indian Perspectives on Energy Security

*Gulshan Sachdeva*

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The era of high economic growth in the Western world between 1945 and the first oil crisis of 1973 coincided with a period of cheap oil prices. The second oil crisis, which was triggered by the Iranian Revolution of 1979, further complicated the situation. Recent years of high economic growth in countries such as India and China have coincided with periods of uncertain oil prices. India's oil requirements for its 8-9% growth every year since 2003 have been financed at increasing global oil prices. The oil shock of July 2008, when oil prices reached a record high of \$147 per barrel, sent alarm signals among Indian policy makers and reminded them of the earlier crises. Being a country dependent on oil imports for more than 70% of its requirements, India scrambled for a response, as high oil prices resulted in inflation and threatened to undo the gains of high economic growth achieved in the last 15 years. These responses also exposed the weaknesses of a national energy strategy that is still developing.

Despite fairly low per capita energy consumption, India is the world's fifth largest energy consumer and is likely to become the third largest by 2030. The country also is the world's seventh largest producer of energy. Between 1981 and 2001, primary commercial energy demand grew almost three-fold at an annual rate of 6%. To catch up with the rest of dynamic Asia and to remove poverty, it is essential for India to continue growing at about 8-10% or more in the next 25 years. Its energy requirements for a sustained 8-10% annual growth pose a major challenge. According to the government integrated energy policy, India needs to increase its primary energy supply by three to four times, its electricity generation capacity/supply by five to six times 2004 levels. By 2030, power generation capacity must increase to nearly 8 megawatts from the current capacity of around 1.6 million megawatts.

The importance of oil in India's energy mix can be seen from the fact that in 2006 it accounted for 36% of the country's primary energy. Other sources were coal (51%), gas (9%), nuclear (2%), and hydro (2%). Since India is relatively poor in oil and gas resources, it has to depend on imports to meet its energy needs. With already more than 70% of its crude oil requirements met by imports, its oil import bill is close to \$90 billion in 2008-09. Some projections indicate that by 2030, India may be importing 90% of its oil, half of it gas, and one-third of its coal requirements.

India has been a net oil importer since the 1970s. Liquefied natural gas (LNG) imports started only in 2004. Currently, India imports oil from about 25 countries, though near-



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ly two-thirds of imports come from Saudi Arabia, Nigeria, Kuwait and Iran. Due to this dependence, policy makers are worried about oil price volatility and its impact on inflation, economic growth, and foreign exchange reserves.

It is believed that India's energy security can be increased by a) diversifying both energy mix and sources of energy imports; b) pursuing overseas acquisitions of energy assets; and c) initiating policy reforms to attract foreign investment as well as improving domestic production, distribution, and consumption.

In order to safeguard against short-term supply disruptions, the Indian government also is in the process of setting up strategic crude oil storage sites at various locations around the country (with a total capacity of 5 million metric tons). This strategic reserve will be in addition to the existing storages facilities of various public sector oil companies.

In the last few years, energy diplomacy has become one of the main agendas of Indian foreign and security policy. India is seriously pursuing the nuclear energy option as well as import sources beyond the Middle East. The Indo-US civilian nuclear agreement, and more extensive engagement with the countries of Eurasia, Africa, and Latin America are intended partly to deal with India's energy challenges. Yet, despite all of these efforts, it is clear that in the foreseeable future the impact of these efforts is going to be marginal. Coal will continue to be India's main energy source, and the Gulf region will continue to be its main supplier of oil and gas.

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**To catch up with the rest of dynamic Asia and to remove poverty, it is essential for India to continue growing at about 8-10% or more in the next 25 years.**

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The Indian government is also exploring the possibility of importing gas through pipelines from Turkmenistan, Iran, Myanmar, and Bangladesh. In the past ten years, there has been a great deal of discussion about a possible Turkmenistan-Afghanistan-Pakistan-India gas pipeline. Although there are uncertainties about gas reserves in Turkmenistan, the security situation in Afghanistan, and the difficulties in India-Pakistan relations, this project nonetheless is receiving serious attention by all parties. Despite many obstacles, the \$75 billion, 2,300 kilometers Iran-Pakistan-India gas pipeline is still on the agenda. With about 40 oil and gas projects, the Indian public sector company Oil and Natural Gas Corporation Videsh Limited (OVL) has a presence in 17 countries and is extracting oil and gas in Sudan, Vietnam, Syria, Russia, and Colombia. Various other projects are under development in Iran, Brazil, Myanmar, Egypt, and Kazakhstan.

Indian companies are trying hard to get a strong foothold in Russia and Central Asia. The Sakhalin 1 investment in Russia and the recent purchase of Imperial Energy and investment commitments in Kazakhstan by ONGC are efforts in this direction. Since China is also pursuing the same strategy, competition in the region is very fierce. However, with a rapidly growing India-China trade, China may also try to build partnerships in other areas. Both have declared their intentions to cooperate in oil and gas bidding. Earlier, India also mooted the idea of an Asian regional cooperation in energy and initiated a dialogue between principal Asian suppliers (Saudi Arabia, UAE, Kuwait, Iran, Qatar, and Oman) with principal Asian buyers (India, China, Japan, and Korea). These efforts showed some results when China National

Petroleum Corporation (CNPC) and India's ONGC mounted a successful bid in Syria. Earlier, they worked as joint operators in Sudan.

Overall, at this stage of economic modernization, India is vulnerable due to insufficient energy resources. As a result, attaining energy security has become one of the Indian government's main foreign and security policy objectives. In the coming years, actions and commitments on the energy front will shape India's relations with countries such as the United States, Russia, China, and Iran. Meanwhile, on the domestic front, we can witness major policy changes in the area of coal production with private sector participation, power sector reforms, rationalization of fuel prices, efforts in the direction of energy efficiency, and demand management. It is also expected that nuclear and hydro power as well as renewables will be playing a relatively bigger role. Therefore, a key challenge on the horizon is the creation of the legal and institutional framework to implement all these policies.

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# The Climate Change Case for US-Iranian Engagement

*Barry Naughten*

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The US under the Obama Administration is still funding covert “regime change” projects in Iran 55 years after Mossadeq and 30 year after the Shah’s overthrow. This is highly relevant to current attitudes on both sides, but the global context of crisis has moved on, to issues with truly global implications.

In the run-up to the all-important UNFCCC Conference of the Parties scheduled for December 2009 in Copenhagen, China’s contribution to mitigating greenhouse gas emissions is at the forefront of issues facing the international community. If the “supply security” of gas imported from Iran, and West Asia generally, was assured, it could play a major role in cost-effectively reducing future emissions of CO<sub>2</sub> from the otherwise coal-dominated electricity systems of China and other South and East Asian economies. This would be a major contribution to averting “dangerous” climate change.

Yet the United States has been doing whatever it can to block Iran’s efforts to expand its pipeline exports of natural gas to these countries. This must change, but a necessary precursor is serious US engagement with Iran. However, this will not occur in the absence of significant and broad shift in US grand strategic thinking.

## *US GRAND STRATEGY AND GLOBAL SYSTEMIC CRISES: THE CASE OF CLIMATE CHANGE*

In guiding its policies, especially foreign policies, in a changing and uncertain world, the United States faces what can be framed as a bipolar choice of grand strategies.<sup>1</sup>

The first (*status quo*) option is to maintain the Global Hegemonist or unipolist paradigm. Suppressing the hubristic and unilateralist extremes of the Bush Doctrine, the prime focus of this approach remains that of seeking to prolong US global dominance through the 21<sup>st</sup> century. This project is still based ultimately on US military supremacy, but replacing Bush Doctrine’s unilateralism with US leadership asserted within a bloc of allies such as an expanded NATO.<sup>2</sup> As pointed out by Kupchan, this is a version of “West versus the Rest.”

1. C.A. Kupchan, “Minor League, Major Problems,” *Foreign Affairs*, Vol. 87, No. 6, (2008), pp. 96-110.

2. See R. Kagan, “Obama’s Iran Realism,” *The Guardian*, June, 17, 2009, <http://www.guardian.co.uk/commentisfree/cifamerica/2009/jun/17/obama-iran-realism-diplomacy>; and P. Bobbitt, “A Premier League for Democracy?: Exchange of Open Letters between Philip Bobbitt and David Hannay,” *Prospect Magazine*, December 2008. [http://www.prospect-magazine.co.uk/article\\_details.php?id=10456](http://www.prospect-magazine.co.uk/article_details.php?id=10456).



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The alternative, referred to here as Cooperative Realism,<sup>3</sup> has a characteristic dual focus:

- rational US adaptation in an era of increasing global multipolarity evidenced by rising powers such as China, India, the EU; and
- ensuring that the United States is effectively engaged cooperatively in resolving (or at least managing) a series of interlocking global systems-in-crisis — especially the security system (of which increasing multipolarity is one aspect) as well as the economic, ecological, and energy global systems.

Cooperative Realists emphasize the need to engage not only allies but peer competitors, adversaries, etc. whose cooperation, as opposed to merely compliance, is needed in addressing these systemic crises.

#### *US ENGAGEMENT WITH IRAN WITH ALL ISSUES ON THE TABLE*

A prime ongoing test of the Obama Administration's grand strategic tendencies will be its willingness and ability to reach a satisfactory engagement with Iran, one with both states addressing relevant systemic crises. These include nuclear proliferation,<sup>4</sup> open-ended wars — especially so-called “preventive war” against Iran itself — as well as state terrorism and state-sponsored terrorism in the Middle East. (In historical perspective, Iran hardly has sole responsibility for these problems.) US initiative and a high order of cooperation will be required,<sup>5</sup> as will overcoming Iranian distrust<sup>6</sup> of US foreign policy intentions, accumulated over more than half a century.

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#### *THE NEED TO ABATE THE GREENHOUSE GAS EMISSIONS OF “CHINDIA” — AND HOW*

It is well documented that “dangerous” climate change is potentially a major threat to humanity and human civilization.<sup>7</sup> A very significant reduction in energy sector CO<sub>2</sub> emissions is required, and the Obama Administration, with Democratic Congressional support, is at last providing global leadership instead of sabotaging the multilateral effort.<sup>8</sup> The

3. See A. Bacevich, “Present at the Re-Creation: A Neoconservative Moves On,” review of Robert Kagan, *The Return of History and the End of Dreams* (New York: Knopf, 2008), *Foreign Affairs*, July/August 2008; C. Bell, “The End of the Vasco da Gama Era: the Next Landscape of World Politics,” 1st ed. *Lowy Institute Paper*; No. 21 (2008); Layne, *The Peace of Illusions: American Grand Strategy from 1940 to the Present* (Ithaca, NY: Cornell University Press, 2006); A. Lieven, “League of Demagoguery,” *The National Interest*, No. 97 (2008), pp. 79-87.

4. The double standard applied to Iran's nuclear aspirations is obvious, bearing in mind the long-standing nuclear status of US-allied states such as Israel, Pakistan, and India, as well as the clandestine and illegal actions taken by all three states in attaining that status.

5. On cooperation in international relations see E. Jones, “Elusive Power, Essential Leadership,” *Survival*, Vol. 51, No. 3 (2009), pp. 243-51.

6. For a more nuanced perception of diverse Iranian attitudes see ICRG, *U.S.-Iranian Engagement: The View from Tehran*, International Crisis Response Group, Middle East Briefing No. 28, Tehran/Brussels, June 2, 2009, p. 22. For example, conservative and Islamist actors (Khamenei, Ahmadinejad) may be more attracted to US *rapprochement* than reformist/secular/socialist-aligned actors (Khatami, Moussavi).

7. N. Stern, *The Economics of Climate Change: The Stern Review* (Cambridge, UK and New York: Cambridge University Press, 2008).

8. American Clean Energy and Security Act of 2009 (ACES). See discussion draft full text, <http://energycommerce.house.gov/>

agreed requirements are that the Organization for Economic Cooperation and Development (OECD) countries must reduce their emissions by 80% or more (compared with 2000 levels) by 2050. However, this would be insufficient without major, but relatively lesser contributions, from rapidly developing, populous economies, such as those of China and India, despite their much lower emissions in *per capita* terms. Further, domestic political opposition to costs associated with deep cuts in OECD emissions will be reduced if “Chindia” is viewed as sharing the global burden. In particular, China’s especially polluting coal-based electricity capacity is projected to be 70% greater than that of the US by 2030 in an unsustainable business-as-usual scenario. Yet in gas-fired combined cycle gas turbines (CCGTs) a cost-effective “bridging” solution<sup>9</sup> is potentially available.

#### CHINA’S POTENTIAL MARKET FOR WEST ASIAN NATURAL GAS: SCOPE FOR CO<sub>2</sub> ABATEMENT

Secure availability of imported natural gas would enable China to radically reduce growth in its CO<sub>2</sub> emissions (Naughten 2007, 2008). First, compared with coal-fired electricity, baseload CCGTs emit less than half the CO<sub>2</sub> on a per kilowatt hour basis, an advantage to China manifests when CO<sub>2</sub> is priced. Second, gas-fired CCGTs have many other advantages, including compatibility with intermittent renewable electricity. *Vis-à-vis* both coal and especially nuclear technologies they have short construction lead-times, modularity, and low capital intensity —advantages that will be more obvious with liberalized markets instead of concealed state subsidies. Another major benefit is that gas will reduce China’s urban air pollution.<sup>10</sup>

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**The major hurdle is the supply security of any such imported gas via pipeline or as liquefied natural gas (LNG) by tanker, but in the case of Iran, it is US foreign policy that prejudices this security.**

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As to gas supply, 70% of global reserves are contiguously located in West Asia (the former Soviet Union and the Gulf). The major hurdle is the supply security of any such imported gas via pipeline or as liquefied natural gas (LNG) by tanker, but in the case of Iran, it is US foreign policy that prejudices this security.

#### IRAN’S NATURAL GAS EXPORT UNDER-PERFORMANCE: WEST ASIAN AND EUROPEAN MARKETS

Iran is an accessible potential source for such imported natural gas, given that it holds 16% of global proven reserves. It accounts for 4% of global production, but Iran’s net exports currently are essentially zero. This is serious under-performance for a commodity with major export potential.<sup>11</sup> Domestic factors exist, given market distortions in Iran’s energy

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[Press 111/20090331/acesa\\_discussiondraft.pdf](#).

9. Cost-minimizing abatement over the period to 2050 requires that significant abatement begin now with radically lower CO<sub>2</sub> technologies being taken up later as old capital is replaced, the price of CO<sub>2</sub> rises and advantage is taken of technological progress in processing and saving energy. CCGTs have their most effective role in the medium term pending such developments, hence the term “bridging” technology.

10. D.G. Victor, “Toward Effective International Cooperation on Climate Change: Numbers, Interests and Institutions,” *Global Environmental Politics*, Vol. 6, No. 3 (2006), pp. 90-103.

11. Heavy levels of investment in civil nuclear power over nearly 40 years have still not resulted in a working power reactor, real intentions

sector, and the effects of economic sanctions — for instance, flaring of significant gas, significant consumer subsidies causing domestic over-consumption gas (as well as of oil-based transport fuels. But US opposition is the prime factor, manifested in its opposition to the long-envisioned Iran-Pakistan-India gas pipeline (IPI).

#### US-INDUCED SUPPLY INSECURITY FOR PIPELINED IRANIAN GAS

Leading Global Hegemonist opponents of the IPI project include “oil hawks”<sup>12</sup> such as Luft, Kaplan, and Cohen, Curtis & Graham.<sup>13</sup> For the hawks anything else is preferable, even a war to make safe a gas pipeline from Turkmenistan via Afghanistan to Pakistan and India (TAPI), and US inducements to encourage India to expand its nuclear generating capacity<sup>14</sup> as an alternative to gas. Luft acknowledges the consequent sacrifice of other prime global objectives but these are given short shrift. Such global “sacrifices” include welcoming action by separatist groups that will “delay” or “terminate” the project, increased nuclear proliferation risk where the proliferator to be mollified is some state other than Iran — Pakistan<sup>15</sup> or India. As for “dangerous” climate change, Luft argues:

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**For the hawks anything else is preferable, even a war to make safe a gas pipeline from Turkmenistan via Afghanistan to Pakistan and India.**

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Pressuring India to curtail its use of coal for power generation may help reduce carbon emissions but it could force India to shift to cleaner burning natural gas and hence drive it right into the welcoming arms of Iran. This is one of those situations in which environmental and security considerations do not coincide.

Despite Luft’s claim, the problem is *not* properly specified as one of trading-off “environmental” *versus* security considerations. Indeed, dangerous climate change is hardly just another “environmental” consideration! Rather, security

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having more to do with keeping the weapons option open based on the (dubious) belief that this potential adds to Iran’s security. See L. Weiss, “Reliable Energy Supply and Non-Proliferation,” *The Non-proliferation Review*, Vol. 16, No. 2 (2009), pp. 269-84; and T.W. Wood *et al.*, “The Economics of Energy Independence for Iran,” *The Nonproliferation Review*, Vol. 14, No. 1 (2007), pp. 89-112.

12. The term is due to R. Bryce, *Gusher of Lies: the Dangerous Delusions of Energy Independence* (New York: Public Affairs, 2008).

13. G. Luft, “Iran-Pakistan Pipeline: Iran’s New Economic Lifeline,” *Journal of Energy Security (IAGS)*, June 18, 2009. [http://www.ensec.org/index.php?option=com\\_content&view=article&id=199:iran-pakistan-pipeline-irans-new-economic-lifeline&catid=96:content&Itemid=345](http://www.ensec.org/index.php?option=com_content&view=article&id=199:iran-pakistan-pipeline-irans-new-economic-lifeline&catid=96:content&Itemid=345); R.D. Kaplan, “Center Stage for the Twenty-first Century,” *Foreign Affairs*, Vol. 88, No. 2 (2009), pp. 16-31; and A. Cohen, L. Curtis, and O. Graham, “The Proposed Iran-Pakistan-India Gas Pipeline: An Unacceptable Risk to Regional Security,” *Heritage Foundation, Background*, No. 2139, May 30, 2008. <http://www.heritage.org/research/asiaandthepacific/bg2139.cfm>.

14. In the case of the US-India nuclear deal initiated by President Bush, O. Meier notes that: “The US government’s plan to lift the nuclear embargo on India runs counter to global efforts against the proliferation of nuclear weapons.” See O. Meier, “The US-India Nuclear Deal: The End of Universal Non-Proliferation Efforts?” *IPG* (2006), pp. 28-43. [http://www.fes.de/ipg/inhalt\\_d/pdf/Meier\\_GB.pdf](http://www.fes.de/ipg/inhalt_d/pdf/Meier_GB.pdf).

15. Pakistan is still be assisted by the US with respect to nuclear matters, despite the A.Q. Khan scandal. See B. Chellaney, “Military Insiders Threaten Pakistan’s Nuclear Assets,” *Japan Times*, Thursday, May 14, 2009. <http://search.japantimes.co.jp/cgi-bin/ea20090514bc.html>; and Andrew Cockburn, “The Obama Administration is Helping to Upgrade Pakistan’s Nuclear Weapons,” *A CounterPunch Exclusive Report*, June 24, 2009. <http://www.counterpunch.org/andrew06242009.html>.

considerations are mis-specified if these are understood to mean eternally isolating and demonizing Iran,<sup>16</sup> a position impossible to reconcile with a concept of US national interests that has regard to overriding global interests.

These “oil hawks” view TAPI’s strategic significance as a desirable “crowding out of the IPI.” However, if a secure and cost-effective supply of natural gas to China and India is deemed a high priority as a global interest, then the most desirable result may be that *both* projects materialize with security.<sup>17</sup> This could contribute to the development of reliable markets and reliable supplies, a positive result that would also contribute decisively to averting “dangerous” climate change. However, the operative word here is “cost-effective.” Waging “resource wars” at enormous cost in blood and lost opportunities has to be questioned. This applies as much to Kaplan’s “petro-political” argument for the Afghanistan war as to the lives destroyed and \$3 trillion cost now associated with the Iraq war itself,<sup>18</sup> a war also supported on what turned out to be highly dubious “petro-political” grounds by these same “oil hawks.”<sup>19</sup>

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**If a secure and cost-effective supply of natural gas to China and India is deemed a high priority as a global interest, then the most desirable result may be that *both* projects materialize with security.**

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#### WHAT SHOULD HAPPEN

Genuine US-Iran engagement could resolve outstanding difficulties and allow this all-important natural gas trade to proceed. Such US foreign policy reversal would complement its domestic energy policy reforms designed to abate the United States’ domestic greenhouse gas emissions. Thus, the US would play a necessary dual leadership role in addressing “dangerous” climate change multilaterally.

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16. “China is not an enemy of the United States, *like Iran*, but a legitimate peer competitor, and India is a budding ally.” (emphasis added). R. Kaplan, “Center Stage for the Twenty-first Century.”

17. Supply security and market development can also be enhanced by supplementing pipeline natural gas supplies with LNG tankers.

18. As estimated by J. Stiglitz and L. Bilmes, *The Three Trillion Dollar War: the True Cost of the Iraq Conflict* (London, UK: Allen Lane, 2008).

19. For instance, A. Cohen and O’Driscoll saw in “American Iraq” an opportunity to sell off Iraq’s oil reserves and abolish its national oil company. The desired outcome was rapid expansion in supply, tending to undermine OPEC and its price discipline, and generating enough revenue to pay for the war. See A. Cohen and G. O’Driscoll, “The Road to Economic Prosperity for a Post-Saddam Iraq,” *Heritage Foundation Background*, No. 1633, March 5, 2003, <http://www.heritage.org/Research/Iraq/bg1633.cfm>. Just the reverse of all this actually resulted. As documented by Stiglitz and Bilmes, see G. Palast, *Armed Mad-house* (Sydney: Penguin, 2006).

# IV. Future Outlook

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# The Oil Link: The 21<sup>st</sup> Century's First Oil War (Iraq), Iran's Nuclear Program, and the Impending Oil Crisis

*Mamdouh G. Salameh*

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The Iranian Revolution was a momentous event whose reverberations are still felt around the world. The revolution inflamed regional tension and locked Tehran and Washington into a confrontational mode from which they have yet to emerge. One can go as far as to say that the underpinning factors of the US invasion of Iraq, Iran's nuclear program, and the impending oil crisis are not only traceable to the revolution but are the consequences of it. And the thread linking these events to each other is crude oil.

## *THE 21<sup>ST</sup> CENTURY'S FIRST OIL WAR*

The Iraq War, beginning in 2003, was the 21<sup>st</sup> century's first oil war. The prize was Iraq's spectacular oil wealth, estimated at 330 billion barrels of proven, semi-proven and probable oil reserves. Even Alan Greenspan, the former chairman of the US Federal Reserve Bank for 17 years, has stated that the war was largely about oil.

Many people, not just in the Middle East, believe that the Bush Administration went to war in Iraq in order to get an assured supply of inexpensive oil for the US and for American oil companies. Since the start of the war, the US has been pushing for the enactment of a new Iraqi oil law under which the Iraqi oil industry would be privatized, thus paving the way for awarding the lion's share in any future production-sharing contracts to US oil companies.

By now it is very clear that the war on Iraq was not only a blunder of incalculable proportions but also a real disaster for the US and the global economy. The cost to the US economy has been calculated at \$6.65 trillion, while the cost to the global economy as a whole has been estimated at \$14.34 trillion.

Oil prices started to soar just as the war began, and the longer it dragged on, the higher prices went, rising from \$25/barrel in 2003 to \$147/barrel in July 2008. This steep rise in the oil price adversely impacted the global economy and caused global economic distress as the world rushed towards recession.

## *IRAN'S NUCLEAR PROGRAM*

The Iranian nuclear program is under attack by the US and the European Union, as



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Tehran stands accused of using the civilian aspects as a smokescreen to conceal the development of weapons. US officials have argued strongly that a country so apparently well-endowed with oil and natural gas as Iran cannot have any legitimate need to develop nuclear energy.

Iran would doubtless not be averse to possessing nuclear weapons, but the United States is wrong to suggest that Iran does not need an alternative source of energy to oil. Iran's population is growing rapidly, as are its energy needs. In these circumstances, nuclear power may have an important role in restricting the consumption of hydrocarbons and allowing more oil and gas to be exported.

In 2008, Iran used 500,000 barrels a day (b/d) of oil to generate electricity. Generating nuclear electricity would enable Iran to replace oil and gas used in electricity generation by 2010, thus adding some 510,000 b/d to its oil exports and earning an estimated \$14 billion. Based on these figures, Iran's quest for nuclear energy seems justifiable.

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However, it is most unlikely that the threat of sanctions will prompt a determined Iranian regime to renounce what it describes as its "inalienable right" to enrich uranium.

Some hawks in the former Bush Administration still call for regime change as a means to ending Iran's nuclear program. However, any US attempt to change the regime in Iran would certainly involve military force. This is doomed to fail. First, Iranians might prove not only resilient, but also might draw strength from this adversity, provided that the leadership in Tehran portrays its nuclear cause as both just and patriotic.

Second, the United States does not have the military power to invade a country the size of Iran, short of deploying nuclear weapons. If the United States could not subdue Iraq with 150,000 troops, how would it cope with a country the size of Iran?

Moreover, Iran has a very powerful trump card: It can block or mine the Strait of Hormuz. Playing this card would precipitate a major oil crisis, from which the United States — being the world's biggest consumer and importer of crude oil — would suffer the most damage.

#### *THE IMPENDING OIL CRISIS*

Concern about the depletion of conventional global oil reserves seems to have intensified for several reasons, including technological improvements in geological data gathering and analysis, the increasingly sparse reserves discovered by new drilling, question marks over the real size of global proven reserves, and concerns that much of the world's con-

ventional oil especially in the Middle East, originates from old and over-exploited mega-fields that are becoming less productive.

A great battle is raging about when global conventional oil production will peak and what will happen when it does. In one camp are the optimists who tell us that 2 trillion barrels of oil or more remain to be exploited in oil reserves and future discoveries. In the other camp are the so-called realists who reckon that no more than 1 trillion barrels of oil are left.

The difference between 1 and 2 trillion barrels is seismic. If 2 trillion barrels of oil or more remain, then the peak lies far away in the 2030s and we have enough time to develop alternatives to oil. If only 1 trillion barrels remain, however, the peak is already upon us or will arrive imminently and there probably isn't even enough time to make a sustainable transition to alternatives.

Many experts think the peak in global oil production could be reached some time between now and 2010, and others believe that it will come between 2010 and 2020. My own research, however, indicates that the peak may have already been reached in 2004 if we factor in what I describe as "OPEC's inflated proven oil reserves". My own research indicates that OPEC's proven oil reserves are overstated by some 300 billion barrels (bb).

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**Oil wars are certainly not out of the question — the war on Iraq was a foretaste of what's to come.**

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In a recent Pentagon report entitled "Energy Trends & Their Implications for US Army Installations," the US Army predicts that world oil production is at or near peak and that current world demand exceeds the supply. The report states that the quadrupling of oil prices since 2002 is not an anomaly but a picture of the future. Once worldwide oil production peaks, geopolitics and market economics will result in even more significant price increases and security risks. Oil wars are certainly not out of the question — the war on Iraq was a foretaste of what's to come.

It is against this background that the concept of peak oil becomes more worrisome. In this case, a more comprehensive and impending crisis awaits us. A spark could precipitate it. Any escalation of tension between the United States and Iran over the latter's nuclear program could provide that spark. This is a scenario that Washington and Tehran — not to mention the rest of the world — would be best served by seeking to avoid.

## CONCLUSIONS

Thirty years after the Iranian Revolution, the world still feels its aftershocks. The US invasion of Iraq, the struggle over Iran's nuclear program, and the impending oil crisis are its by-products.

Given that a US attempt to change the regime in Iran would be doomed to fail and that a conflict over the nuclear pro-

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gram while conceivable, might be avoidable, what alternative future can be conjured? One reasonably can expect that the United States will end up accepting a *de facto* nuclear Iran and reaching some sort of an accommodation. The US also may acquiesce to a role for Iran as the policeman of the Gulf, exactly as in the days of the Shah, provided that Iran does not threaten Israel.

Nevertheless, with the peaking of global conventional oil production, geopolitics and market economics will result in even more significant price increases and security risks. Future oil wars are certainly not out of the question.

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**One reasonably can expect that the United States will end up accepting a *de facto* nuclear Iran and reaching some sort of an accommodation.**

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# “Peak Oil:” Truth or Myth

*Hussain H. Ahmed*

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*Peak oil* is the term used to refer to the problem of crude oil depletion, or more specifically, the peak in world oil production. During the past half-century, the rate of oil “production” (i.e., extraction and refining), which is currently about 83 million barrels per day, has risen almost every year. When the world has consumed about 50% of oil reserves, production will stop growing and then begin to decline, hence “peak.” The peak in oil production does not mean “running out of oil,” but it does mean the end of cheap and easily gotten oil. For international economies which depend on increasing quantities of cheap oil, the consequences may be severe.

## WHAT ARE THE MAIN CAUSES OF THE OIL PEAK?

The majority of oil companies have extracted the easier-to-reach, cheap oil. The oil that they pumped first was on-shore, in shallow reservoirs, under low pressure, and with bias towards the light and “sweet” varieties (i.e., almost free from sulphur compounds such as H<sub>2</sub>S and Mercaptane) that are easy to refine. The remaining crude oil is more likely to be off-shore, in deep water, under cities or other difficult geological structures, or in smaller reserve and of lesser quality. Extracting such oil therefore requires ever more investment both technically and financially. These conditions will cause the production rate to drop. Most oilfields (about 90% of them) will reach a point where they become no longer economically viable. For example, to produce one barrel of crude oil may require an amount of energy equivalent to the energy content of that barrel, rendering oil production pointless, no matter what the price.

In 1956, the well-known geologist M. King Hubbert predicted that production from the US lower 48 states would peak between 1965 and 1970. Hubbert’s prediction proved correct; production peaked in 1970-71.



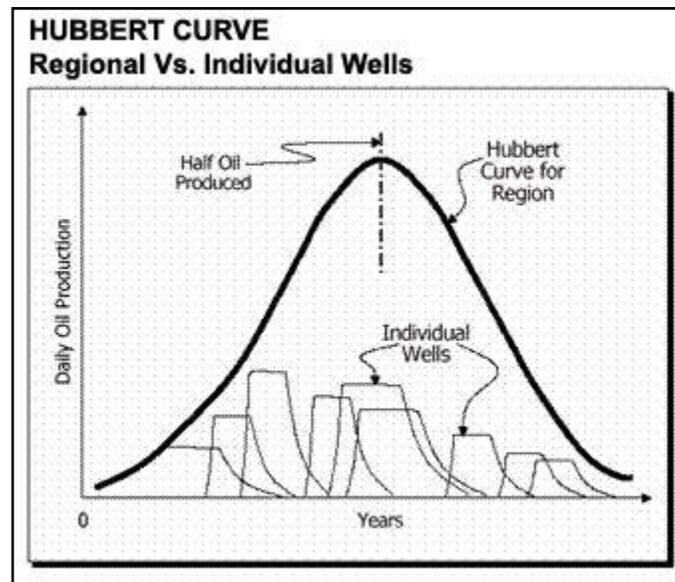
*Dr. Hussain H. Ahmed, MBE, College Manager, International Training, Cheshire, UK, has three decades of experience in the oil and gas industry in Europe and the Middle East. He has developed over 20 training manuals, and has conducted numerous training courses. Dr. Ahmed also has contributed over two dozen technical papers and public lectures on environmental and petroleum issues. In 2006, he was awarded the MBE by Her Majesty Queen Elizabeth II for “Services in Education and Training in the UK and Overseas.”*

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Figure 1 illustrates the Hubbert Curve, which is used to predict the rate of production from an oil producing region containing many individual wells.



Source: [aspoitalia.ne](http://aspoitalia.ne)

However, it is important to note that not all oil fields or producing countries will be reaching their peak at the same time due to many factors, including geological and rock properties, reservoir depths, pressure, and locations, as well as economic and political factors. Nevertheless, the “oil peak” curve is a powerful predictive tool.

#### *THE IMPACT OF THE OIL PEAK ON SOCIETIES*

Most industrial societies have been established on the assumption of on-going growth which is based on cheap and easily available sources of energy, particularly crude oil. Nowadays, crude oil products account for nearly 44% of the world’s total fuel consumption, 92% of which is used for transportation. At the same time, crude oil and natural gas are the raw materials for the petrochemicals industry, which produces plastics, rubbers, nylons, paints, and much more.

Given the importance of crude oil and its products, the oil peak will have a profound impact on most societies’ transportation systems, trade patterns, economic development profiles, and food production — on their cultures, that is, on virtually all of the ways that ordinary people lead their daily lives.

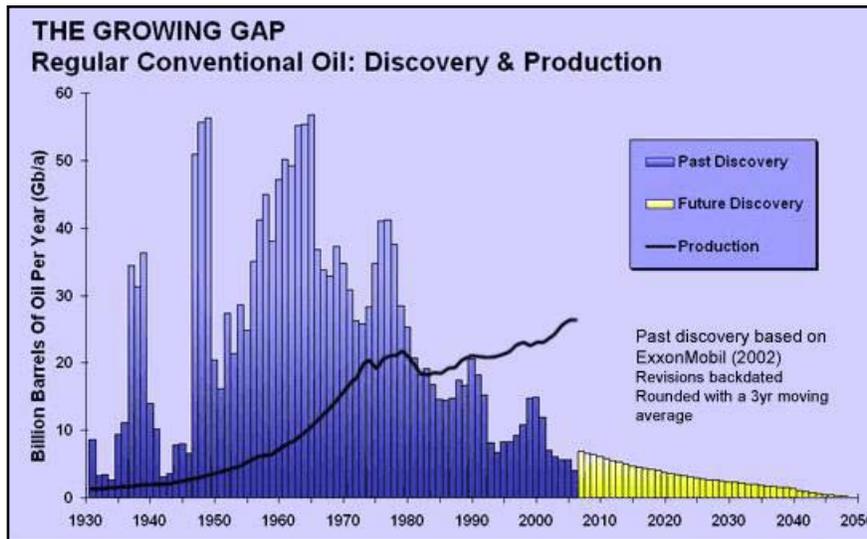
#### *IS THE WORLD IN AN “OIL-PEAK” PERIOD?*

Hubbert’s prediction curve forecast that a worldwide oil peak might take place between 1995 and 2000.

Figure 2 shows that world oil discovery peaked in the late 1960s. Beginning in the mid-1980s, major oil companies were

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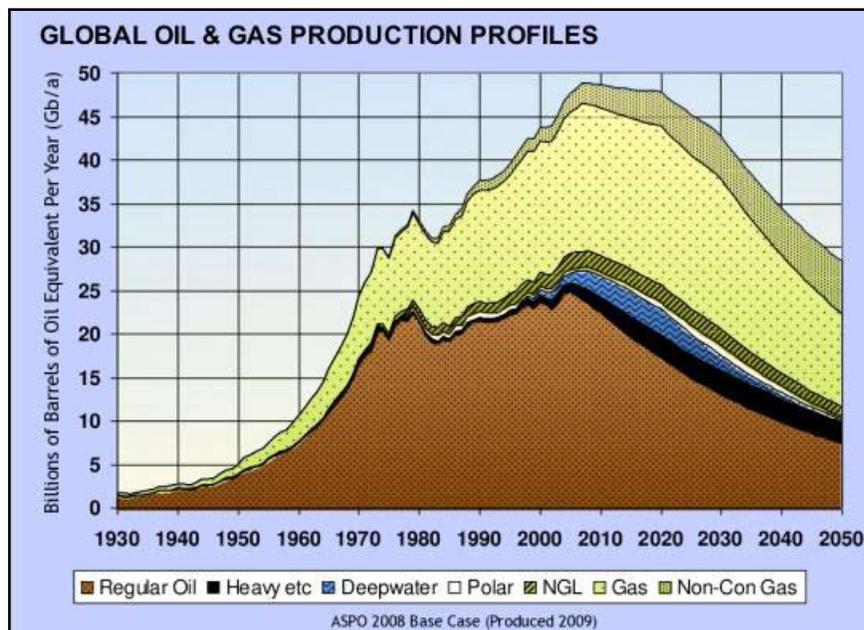
finding less oil than world consumption.



Source: [www.aspo-ireland.org](http://www.aspo-ireland.org)

Fifty-four of the 65-largest oil-producing countries have already passed the production oil-peak, including the United States (1970), Indonesia (1997), Australia (2000), the UK (1999), Norway (2001), and Mexico (2004). The worldwide peak in oil production could be reached by 2035.

Figure 3 shows that the majority of production sources already have peaked. The normal conventional oil from easy sources on-shore, for example, peaked in 2005.



Source: [www.aspo-ireland.org](http://www.aspo-ireland.org)

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### *HOW MUCH OIL IS LEFT*

The question that many people are asking, regardless of the oil-peak issue, is for how long will there be enough crude oil to support our living standards? Some analyses have shown that the decline in production will be in the range of 2-4%.

Countries which are dependent on imports of crude oil will find that their access to oil will fall at a higher rate than the rate of worldwide decline. In addition, during the shortage period, exporting countries will enjoy higher oil prices and will increase their internal consumption. So, we need to face the fact that there are few remaining years for access to cheap, easy oil.

### *THE SOLUTION*

The world must realize that the era of cheap, easy crude oil will come to an end within 40-50 years, and that the answer to this challenge lies in the development of renewable sources of energy. Wind energy could be a good source for power generation; biomass must be considered in certain parts of the world for electricity generation and other domestic energy applications; solar energy is appropriate for some countries and regions; and other sources such as hydrogen H<sub>2</sub> could be useful as an energy carrier.

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**Peak oil could provide an opportunity for people to return to simpler, healthier, and more community-oriented lifestyles.**

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At the same time, people — especially the global affluent — must be educated in order to change some of their habits and lifestyles. Indeed, peak oil could provide an opportunity for people to return to simpler, healthier, and more community-oriented lifestyles.

### *CONCLUSION*

The oil-peak and crude oil depletion is truth not myth. In fact, the peak already has been reached or even exceeded. The impact on our standards of living is clear. Developed nations must take action to develop renewable sources of energy such as wind, biomass, and solar energy. At the same time, we must accept that it will be difficult to find a substitute for crude oil products in sectors such as airline transportation. And we must be mindful of the fact that alternative energy infrastructures require long periods of investment, on the scale of decades, to be widely implemented.

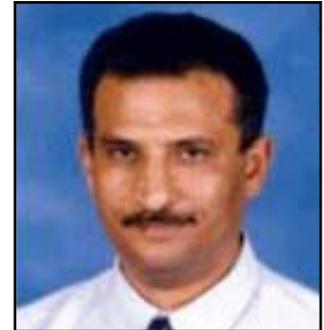
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# Future Dependence on Gulf Oil?

*Mohamed Nagy Eltony*

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A number of oil market analysts hold the view that there will be a growing dependence on oil from the Gulf countries. This view is based on the fact that these countries account for a large share of global proven oil reserves. This view is also prevalent among government and national oil company officials of the GCC (Gulf Cooperation Council) countries, who believe that oil prices and export volumes will rise in the near future, resulting in increased oil revenues that will alleviate budget deficits. While this argument is plausible, there are factors which could undermine its validity. This essay is intended to shed light on the merit of this expected growing dependence upon Gulf oil and to discuss the resulting implications for the economies of the GCC countries.



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## *THE ROLE OF GULF OIL IN THE WORLD OIL MARKET*

Many factors account for the dominance of Gulf producers in world oil markets. First, according to the latest issue of the *BP Statistical Review of World Energy*, the Gulf countries accounted for about 65% of global proven oil reserves at the end of 2007. The oil-producing countries of the Gulf have been in the business for the past five decades, yet the amount of their proven reserves has not declined; on the contrary, they have increased by at least 30% over the past two decades.

Second, Gulf oil is cheap to produce, due to the size and geological formation of the oil fields as well as their proximity to deep water. Given the advantage of low production costs and the fact that Gulf capacity could be brought on stream quickly as demand grew, the Gulf has become the foremost supplier of oil.

Third, the geographical location of the Gulf — between the growing markets of both the East and the West — has provided excellent market opportunities for its oil producers.

As a result of these factors, Gulf oil dominated the world's export markets, and Gulf producers became the main inventory for the international oil industry. However, the higher crude oil prices triggered by the Arab oil embargo of 1973 led to widespread inter-fuel substitution and oil conservation. This trend continued for years because of continued expectations of higher oil prices coupled with persistent security of supply concerns in many industrial nations. The huge increase in oil supplies from non-OPEC sources such as Alberta's oil sand was a reflection of frantic searches for "secure" oil. In the early 1990s, much of the resulting reduction in the call for OPEC sources fell upon

the Gulf producers, with Saudi Arabia in particular bearing most of the drop. In recent years, however, the demand for oil has substantially increased, driven largely by the growing needs of the newly developed economies of China, India, South Korea, and Singapore, among others.

Many energy analysts argue that the expansion of world demand for oil over the next two decades, mainly due to consumption growth in the developing countries coupled with constrained non-OPEC supplies, will substantially boost the call for Gulf oil. However, there are some major conceptual problems with this argument, both on the supply and the demand side.

#### *SUPPLY SIDE QUESTIONS*

First, the definition of *oil reserves* needs to be considered carefully. Oil reserves are generally taken to be those quantities which geological and engineering information indicate with reasonable certainty can be recovered in the future from known reservoirs under existing economic and operating conditions. This definition does not call for a fixed number of billions of barrels as a measure of the finite nature of the reserve base. Rather, the above definition considers oil reserves figures as the outcome of a dynamic process, whereby technology keeps pushing up recoverable reserves, as do changes in economic conditions.

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**Estimated worldwide proven oil reserves estimates rose by 30% in 1988 not because of major new oil discoveries, but as a result of technological innovations in oil recovery, such as enhanced and secondary oil recovery techniques and horizontal drilling.**

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For example, estimated worldwide proven oil reserves estimates rose by 30% in 1988 not because of major new oil discoveries, but as a result of technological innovations in oil recovery, such as enhanced and secondary oil recovery techniques and horizontal drilling. Similarly, in 1995, the estimated Gulf countries' proven oil reserves grew by about 10% due to technical innovations. Thus, proven oil reserves numbers are flexible figures that reflect changes in technology and/or the economic environment.

Second, it is unlikely that non-OPEC supplies will decline sharply in the near future. In recent years, the industry has witnessed major technological innovations in offshore production practices and in oil sand production technologies. Currently, there are new technologies — ranging from horizontal drilling to 3-D seismic imaging — that have substantially reduced the per-barrel costs of production. According to some estimates, the worldwide per-barrel costs of exploration and development also fell in real terms, from US\$16 in 1982 to about US\$4 in 2004. Furthermore, sub-sea completion and offshore loading technologies have significantly reduced lead times on offshore projects, which have dramatically transformed the economics of such projects. For example, the Foinaven offshore oil field, which is located west of Shetland (Scotland), has been developed for a fully built-up cost of about US\$5 per barrel (bbl), and with a lead time of less than three years.

Moreover, traditionally, national oil companies (NOCs) had been the predominant actors in exploration and production in many developing nations. In recent years, however, many NOCs have been privatized or restructured. This trend has, in fact, improved the ability of the NOCs to discover and develop reserves, thereby further influencing the rise in world oil supplies.

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Finally, GCC producers also will have to contend with growing supplies from non-Gulf OPEC countries such as Angola, Venezuela, Nigeria, Libya, and Algeria — all of which have invited international oil companies (IOCs) to assist in the development of their capacity and to explore for more oil and gas reserves.

In the longer term, the development and discovery of new reserves, coupled with greater technological gains and breakthroughs in the field of exploration and production of oil are likely, casting further doubt on the view of a growing dependence on Gulf oil.

#### *DEMAND SIDE QUESTIONS*

Oil demand is driven by consumer decisions regarding the possession and usage of equipment and appliances — decisions that are likely to be interdependent. In the short run, only utilization can be altered. Oil consumption is therefore driven by the stock of equipment and appliances.

Given the current stock of oil-using appliances and the fact that rising income is likely to lead to increases in this stock, the expectation that oil demand will rise over the next decade seems reasonable. However, over the longer term, the probability of significant efficiency improvement in the equipment and appliance stock increases; such improvement will undoubtedly change the pattern of oil demand.

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**Higher prices could induce consumers in developing nations to convert to cheaper alternative fuels, as so many consumers have done in the industrial nations. Such a trend would lead to reductions in oil demand.**

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These changes in consumption patterns may eventually occur partly because of recent trends in oil pricing and tax policies. During the 1990s, the majority of developing nations began to shift from subsidized to market-based oil prices. Although subsidies remain in place for specific products, it is likely that these will eventually be removed. More recently, the governments of many developing countries have begun to raise significant revenues by imposing various forms of taxes on oil consumption. Higher prices could induce consumers in developing nations to convert to cheaper alternative fuels, as so many consumers have done in the industrial nations. Such a trend would lead to reductions in oil demand.

The concerns over the environment and climate change are an obvious additional source of significant changes in oil consumption patterns. However, it is difficult to project how environmental concerns will affect future oil demand. This is because any environmental policy which might influence oil demand in the future will not succeed without significant costs to consumers and governments. Currently, the concern over urban pollution from automobiles and CO<sub>2</sub> emissions is at the center of the US environmental policy agenda. It is reasonable to argue that in the future, gasoline and diesel engines, which currently dominate the vehicle stock, could decline and be replaced by alternative forms of propulsion, such as hybrid or liquefied natural gas (LNG), or by greater use of public transit.

There also is a growing demand for alternative forms of energy. Here, technical innovation is the name of the game. The

costs of renewable forms of energy appear to be declining. For example, some estimates suggest that the cost of wind turbine electricity in California fell from 24¢/kWh in 1985, to 9¢ in 1995, and to only 6¢ by 2006. Additional technological breakthroughs in alternative energy forms (e.g., photovoltaic, hydrogen cells, nuclear fusion, and super conductors) would further reduce the importance of oil in the overall energy mix.

Finally, after the oil price shocks, the drive for conservation and inter-fuel substitution was triggered above all by “expectations” of higher oil prices yet to come. Presently, if oil shortages are expected to materialize in the future as non-OPEC oil runs out, would not these expectations provoke a reaction away from oil, at least in the industrialized nations? The history of the oil industry is filled with such dramatic behavioral changes, where the pattern of consumption has changed drastically and rapidly.

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**[A]fter the oil price shocks, the drive for conservation and inter-fuel substitution was triggered above all by “expectations” of higher oil prices yet to come.**

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## CONCLUSIONS

The validity of the view that dependence on Gulf oil will inevitably grow is questionable, at best. Furthermore, economic logic argues that *low*-cost reserves should be developed and produced first; however, since 1973, geopolitical factors in the Middle East have led to the development and production of *higher*-cost non-OPEC supplies, thereby limiting OPEC’s control of the market. As this essay has shown, there is ample reason to believe that this pattern will continue.

For the GCC countries to realize the full advantages of their huge oil reserves, they must act now rather than later to replace the production from non-OPEC sources while world oil demand recovers and continues to grow. The Saudi policy of stability of supply coupled with oil price moderation is a step in the right direction, the fruits of which are already apparent. Other steps, however, should follow. Since the GCC countries own the largest crude oil reserves, they must divert the investment into developing further capacity from non-GCC sources. GCC national oil companies could join forces with international oil companies to develop their known reserves, even within the limits of the existing infrastructure. For example, were GCC countries to operate at the reserve-to-production ratio currently observed in non-OPEC countries, their combined production rate would reach 55 million barrels per day (bld).

GCC countries should also play an active role in global decisions related to current environmental issues. Of particular importance are policies for emission controls and road and gasoline (green) taxes. Moreover, they need to monitor and evaluate the likely impacts of new developments in all areas of alternative energy sources.

Furthermore, the GCC countries should diversify their economies as quickly as possible while practicing fiscal restraint in the meantime. They also must increase investments in human development and give the private sector an increased role in the economy. It is prudent for the GCC countries to plan for a future where growing dependence on Gulf oil is *not* inevitable — to shape their economic and policies and oil market strategies accordingly, lest they risk being left with huge oil reserves that no one wants to buy.

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# The Oil Shocks and the Costly Delusion of Energy “Independence”

Robert Bryce

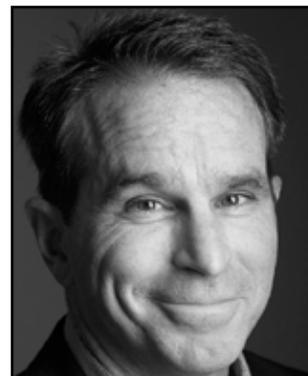
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When it comes to US energy policy and the energy rhetoric that drives it, it’s hard to overstate the importance of the 1973 and 1979 oil price shocks.

The two events fundamentally altered how American politicians talk about energy. But let’s be clear: The oil price shocks did not fundamentally change America’s actual use of energy. Oil continues to be the dominant fuel in the United States. In 2007, the United States was deriving about 40% of its primary energy from oil, which is only slightly less than the 45.5% share which had been oil’s in 1973.<sup>1</sup> The reason for oil’s continued dominance is obvious: When it comes to transportation, no other fuel has the flexibility and energy density of refined petroleum products.

But that has not stopped Congress from funding a panoply of expensive alternative energy schemes, all of which were justified by claims that they would help cut US dependence on foreign oil. All have failed. The most pernicious failure — and the one that persists to this day — is the corn ethanol scam, which has not dampened US oil imports or demand. Instead, it has resulted in higher food prices and a number of other unintended consequences, including increased water consumption and increased greenhouse gas emissions.<sup>2</sup>

The delusion of energy independence began with Richard Nixon. In 1974, he promised it could be achieved within six years.<sup>3</sup> In 1975, Gerald Ford promised it in ten.<sup>4</sup> In 1977, Jimmy Carter warned Americans that the world’s supply of oil would begin running out within a decade or so and that the energy crisis that was then facing America was “the moral equivalent of war.”<sup>5</sup> Since that time, and particularly since September 11, 2001, “energy independence” has become a favorite talking point for both the political Left and the Right. During the 2008 presidential campaign, every major candidate espoused the need for energy independence. And on June 26, 2009, the US House of Representatives passed the American Clean Energy and Security Act, (also known as the cap-and-trade bill.) The caption on the 1,200-page bill says that it aims to “create energy jobs” and



Robert Bryce’s latest book is *Gusher of Lies: The Dangerous Delusions of “Energy Independence.”* His website is: [robert-bryce.com](http://robert-bryce.com).

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1. BP Statistical Review of World Energy 2008, <http://www.bp.com>.

2. Robert Bryce, *Gusher of Lies: The Dangerous Delusions of Energy Independence*, pp. 145-197.

3. Richard Nixon, State of the Union Address, January 30, 1974, <http://www.thisnation.com/library/sotu/1974rn.html>

4. Gerald Ford, State of the Union Address, January 15, 1975, <http://www.ford.utexas.edu/LIBRARY/SPEECHES/750028.htm>

5. Jimmy Carter, televised speech on energy policy, April 18, 1977, [http://www.pbs.org/wgbh/amex/carter/filmmore/ps\\_energy.html](http://www.pbs.org/wgbh/amex/carter/filmmore/ps_energy.html)

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“achieve energy independence.”<sup>6</sup>

While the rhetoric of energy independence appeals to voters, the reality of the global market tells a different story. The idea that the United States — the world’s single biggest energy consumer — could, or should be independent from the world’s single biggest sector — the \$4 trillion per year energy business — is ludicrous on its face. Of all the commodities that are bought and sold in the world market, oil remains the most important and most globalized. The US cannot be independent of the global oil market because oil is a fungible commodity. Whatever oil the United States does not buy will be bought by someone else. Saudi crude being loaded at Yanbu that doesn’t get purchased by a refinery in Corpus Christi or Houston will instead go to refiners in Singapore or Shanghai.

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**The delusion of energy independence began with Richard Nixon. In 1974, he promised it could be achieved within six years. In 1975, Gerald Ford promised it in ten.**

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And yet, since 2001, the US electorate has been bombarded with rhetoric claiming that energy independence is essential. One of the justifications for the concept relies on the false claim that if only the US used less oil, then terrorism would decrease. The assumption is that various petro-states (Iran and Saudi Arabia among them) support terrorism. If oil prices go down, those countries won’t have money to support terrorism, and therefore the world will be safer.

There are many holes in this argument, but the most obvious one is this: Even if the United States quits buying oil on the world market, it won’t mean an end to the flow of money to the petro-states. According to the Energy Information Administration (EIA), out of the 204 countries and territories that they track, 173 are net oil importers.<sup>7</sup> Thus, the United States could quit importing oil tomorrow, and there would still be 172 other countries which would be buying oil from the lowest-cost producers. And who are the lowest-cost producers? Obviously, it is the petro-states of the Middle East.

Furthermore, terrorism does not rely on oil for funding. Terrorism is a cheap endeavor. According to the 9/11 Commission, the attacks cost the plotters about \$500,000. Even if terrorism did rely on oil money, the past era of low prices did not stamp out terror tactics. Indeed, this thesis has already been tested, and it’s been proven false. Between about 1986 and 2000, oil prices generally stayed below \$20 per barrel. By the end of 1998, prices had fallen as low as \$11 per barrel. On September 11, 2001, the day of the al-Qa’ida attacks on the United States, the price of oil was \$27.65 per barrel.<sup>8</sup> Where is the link between high oil prices and terrorism? We had terrorism when oil was selling for less than \$30 per barrel; we’ll have it if oil sells for \$300 per barrel.

The rhetoric about energy independence has become a handy phrase for the various interest groups who are looking to extract money from the pockets of taxpayers. The most aggressive interest group that uses this phrase is the corn ethanol producers. According to a 2008 report by the EIA, the United States gets about 98 times as much energy from

6. [http://energycommerce.house.gov/Press\\_111/20090515/hr2454.pdf](http://energycommerce.house.gov/Press_111/20090515/hr2454.pdf)

7. US Department of Energy, Energy Information Agency (EIA) data, <http://www.eia.doe.gov/emeu/cabs/nonopec.html>

8. EIA data, <http://tonto.eia.doe.gov/dnav/pet/hist/rwtcd.htm>

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Bryce...

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natural gas and oil as it does from ethanol and biofuels. And yet, when measured on a per-unit-of-energy basis, Congress lavishes ethanol and biofuels with subsidies that are 190 times as large as those given to oil and gas.<sup>9</sup>

Of course, there have been other programs. Federal efforts to extract commercial quantities of oil from shale were an abject failure. Solar and wind power, the favorite sources of various environmental groups, have grown enormously since the 1970s, but by 2009, they were providing for just 0.2% of total US primary energy demand.<sup>10</sup> More important, neither solar nor wind have displaced any need for oil, which is the biggest single element of US energy imports.

Numerous studies have been done on the United States and energy security. In particular, those studies have focused on the effect of the 1979 price shock. Implicit and explicit in the assumptions about oil and security has been the claim that the petro-states will attempt another embargo.

A May 2009 report by the Rand Corporation deserves particular attention because it thoroughly debunks much of the rhetoric about oil imports and security that has dominated public discourse since the Shah of Iran fled his home in Tehran on January 16, 1979.<sup>11</sup> “The fact that the United States imports nearly three-fifths of its oil does not pose a national security threat,” said Keith Crane, the study’s lead author and senior economist at Rand. “There is an integrated world oil market, and embargoes do not work.”<sup>12</sup>

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**Terrorism does not rely on oil for funding. Terrorism is a cheap endeavor. According to the 9/11 Commission, the attacks cost the plotters about \$500,000.**

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Few people would consider the Rand Corporation as being soft on defense. The think tank has been a powerful player in the US defense establishment for more than six decades. And yet Rand concludes that “reliance on imported oil is not by itself a major national security threat.”<sup>13</sup> The study also debunks the connection between oil prices and terrorism, saying: “Terrorist attacks cost so little to perpetrate that attempting to curtail terrorist financing through measures affecting the oil market will not be effective.”<sup>14</sup>

The same Rand report discusses the use of corn ethanol and biofuels as a way to decrease US reliance on imported oil. Rand concludes:

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9. Robert Bryce, “So Much for ‘Energy Independence,’” *Wall Street Journal*, July 13, 2009, <http://online.wsj.com/article/SB124693284425203789.html>

10. Robert Bryce, “Let’s Get Real About Renewable Energy,” *Wall Street Journal*, March 5, 2009, <http://online.wsj.com/article/SB123621221496034823.html>

11. BBC, “1979 Shah of Iran flees into exile,” [http://news.bbc.co.uk/onthisday/hi/dates/stories/january/16/newsid\\_2530000/2530475.stm](http://news.bbc.co.uk/onthisday/hi/dates/stories/january/16/newsid_2530000/2530475.stm)

12. Rand Corporation, “Economic Costs of Major Oil Supply Disruption Pose Risk to US National Security,” May 11, 2009, <http://www.rand.org/news/press/2009/05/11/>

13. Rand Corporation, “Economic Costs of Major Oil Supply Disruption Pose Risk to US National Security,” May 11, 2009, <http://www.rand.org/news/press/2009/05/11/>

14. Keith Crane, Andreas Goldthau, Michael Toman, Thomas Light, Stuart E. Johnson, Alireza Nader, Angel Rabasa, and Harun Dogo, “Imported Oil and US National Security,” Rand Corporation, May 11, 2009, xvi, [http://www.rand.org/pubs/monographs/2009/RAND\\_MG838.pdf](http://www.rand.org/pubs/monographs/2009/RAND_MG838.pdf)

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*Bryce...*

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Using corn for ethanol is economically inefficient and has harmed U.S. national security. Diverting corn from food to ethanol production has pushed up world market prices for grains and other foods, which, in 2008, resulted in riots in a number of developing countries. In addition, the net energy benefit of corn-based ethanol is low because so much energy is used to fertilize, harvest, and transport corn.<sup>15</sup>

In summary, during the three decades that have passed since the 1979 Iranian Revolution, the United States has done plenty of hand wringing over its use of imported oil. That hand wringing has led to some spectacularly wasteful programs that have done nothing to increase US energy supplies or cut oil imports. The reality of the modern world is interdependence, which includes everything from diesel fuel and gasoline to iPods and tennis rackets. Perhaps by 2039, a full 60 years after the Iranian Revolution, US politicians will be ready to acknowledge that reality.

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15. Keith Crane *et al.*, "Imported Oil and US National Security."

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# Oil Depletion, Economic Development, and Economic Justice: The Role of a New Generation of Sovereign Wealth Funds

*Hossein Askari and Nouredine Krichene*

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Since the oil shock of 1973/74, the oil- and gas-rich countries of the Persian Gulf have received vast revenues. Yet, as a group they have achieved sub-par economic results, have robbed future generations to satisfy their immediate needs, and have all but forgotten social and economic justice.

Economists have long addressed the issue of intergenerational equity in natural resource depletion. Robert Solow, in his famous article, concluded by saying:

The finite pool of resources (I have excluded full recycling) should be used up optimally according to the general rules that govern the optimal use of reproducible assets. In particular, earlier generations are entitled to draw down the pool (optimally, of course!) so long as they add (optimally, of course!) to the stock of reproducible capital.<sup>1</sup>

Transparent and well-managed sovereign wealth funds (SWFs) may provide a vehicle for addressing resource mismanagement, putting these countries on the path towards just and sustained economic and human development. Historically, SWFs have been designed to provide a buffer and a source of income when oil and gas booms taper off. What we are suggesting is that SWFs should be the vehicle to manage the depletion of oil reserves. How does this translate into policy? First, governments must take control of all minerals on behalf of the citizenry, and especially on behalf of future generations who naturally have little say today. Second, governments must make sure that they do not waste mineral resources, because they are the birthright of all citizens. Third, as minerals are depleted, governments must make sure that they use their revenues in such a way that all citizens today and for all time receive *similar real benefits*.

One way to achieve the goal of equal benefits for all individuals and generations could be for the governments to use the revenues to fuel rapid economic growth, accompanied by economic justice (avoiding significant income disparities) as oil and gas (the birthright of all citizens) fund economic prosperity. This is easier said than done. All of the major oil exporters of the Persian Gulf experienced *negative* per capita average annual growth from 1975 to 2002, despite their significant oil and gas revenues: Kuwait



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*Nouredine Krichene is an economist at the International Monetary Fund.*

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1. Robert M. Solow, "Intergenerational Equity and Exhaustible Resources," *The Review of Economic Studies*, Vol. 41, Symposium on the Economics of Exhaustible Resources (1974), p. 41.

(-1.2%), Saudi Arabia (-2.5%), the United Arab Emirates (-2.8%), and Iran (-0.4%). While the considerable rise in oil prices since 2002 has generated economic growth and increased gross domestic product (GDP) and GDP per capita (reversing the long-term negative trend from 1975), their sub-par economic performance shows that revenues have been wasted and the direct connection of recent economic growth to oil revenues clearly underscores the continuous dependence of these countries on oil. Even if they could achieve stellar growth rates, governments would still have to make sure that citizens received equitable benefits from oil and gas depletion — not an easy task and with too many personal temptations along the way. Although the quality of the data is poor, the strong indication is that income distribution in the Middle East lags behind those of most other country groups.

Given this reality, in our view the best way to achieve sustained and equitable development is to afford an equal real payout from current and future oil and gas revenues directly to each and every current and future citizen. This may sound like an impossible task, but it can be readily approximated and updated yearly to reflect changes in the oil and gas markets and country populations. It would avoid wasteful government expenditures, be they subsidies or military expenditures. Individuals would be in a position to spend their money as they wished, the most efficient way to transfer benefits to the citizenry. Governments would be forced to become more efficient if the SWFs were made even more significant by gradually taking away oil and gas revenues from governments and placing them directly into SWFs.

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**[A]s minerals are depleted, governments must make sure that they use their revenues in such a way that all citizens today and for all time receive *similar real benefits*.**

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The de-linking of oil revenues from government coffers may avoid other problems normally associated with the exploitation of depletable natural resources, such as high levels of military expenditures, which in turn could be associated with civil wars and conflicts. Conflicts in turn lead to higher military expenditures, capital flight, loss of social capital, slower economic growth, and more poverty and refugees, an almost impenetrable, vicious circle. We believe that a fund that in time takes all revenues away from the government should be an integral and primary component of any template to manage natural resource depletion. Iran has in fact passed a law to wean the government from oil and gas revenues over a period of ten years; however, the government has ignored this law.

In estimating what SWFs could achieve for Persian Gulf citizens, we have been conservative; we have taken the average of oil and gas revenues for the years 2001-2005, a projected growth in oil and gas revenues of 4.5% per year, rate of return on safe investments of 6% per year and historical population growth rates of 2% per year and have estimated in a model what the real annual payouts, defined as increment in real per capita income to each citizen over 18 years of age, would be if future oil and gas revenues were invested in country SWFs.

In the case of Iran, the annual payout to every citizen over 18-years-old would be nearly 40% of today's GDP per capita. Although Iran's population is large, its oil output is less than twice that of Kuwait or the UAE. Iran's payout potential could improve dramatically (more than double over a decade) if it begins to exploit more aggressively its natural gas

resources, as Qatar has. But still these estimated annual payouts to every citizen are dramatic in affecting their quality of life, while promoting economic equity.

Iraq is a unique case. It is a country that essentially has returned to the 1950s and is starting all over again. It appears poorer than Iran because it has little in the way of modern infrastructure, but it is likely to be richer than Iran in terms of per capita endowment of oil. Iraq could approach the level of Saudi Arabia in terms of oil revenues per capita, while learning from the past economic policy mistakes of Iran and Saudi Arabia.

For Saudi Arabia, the payout potential is significantly higher than that of Iran or even Iraq. Although for Saudi Arabia, our estimated payout as a percentage of GDP per capita is on the same order as that of Iraq's (170% of per capita GDP), it is much more in absolute terms because of Saudi Arabia's significantly higher GDP per capita. The annual payout in Saudi Arabia would dramatically improve the lives of citizens, since Saudi economic growth faltered during 1986-2000.

Kuwait, Qatar, and the UAE are in another league. Simply put, they are rich beyond belief. Their annual payouts, even under the most conservative assumptions, are staggering. Our calculations do not include their existing investments in their SWFs. In the case of the UAE, most of these funds do not belong to the entire country but only to the Emirate of Abu Dhabi. The entire citizenry (of all ages, not just over 18) of Abu Dhabi is about 250,000. They are *all* effectively multi-millionaires based on their existing foreign investments alone! Our estimated annual payout for citizens of the UAE is nearly 600% of current GDP per capita (a GDP per capita figure that is already about the highest in the world, along with Qatar's).

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**Iraq could approach the level of Saudi Arabia in terms of oil revenues per capita, while learning from the past economic policy mistakes of Iran and Saudi Arabia.**

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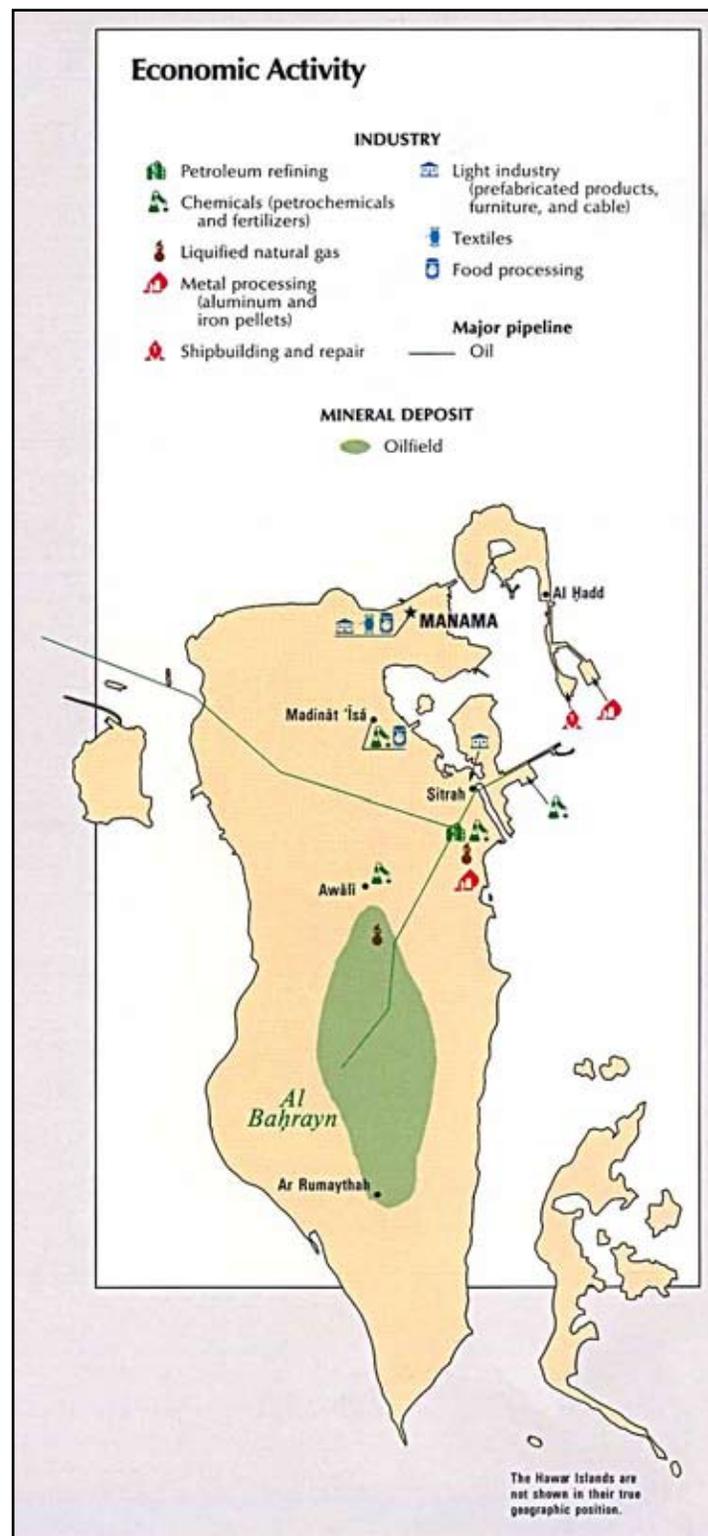
Qatar, with its rapidly growing gas revenues and citizenry of about 200,000, is likely to be in the same fortunate position as Abu Dhabi. Today, our projected annual payout figure for citizens of Qatar is over 1,000% of current GDP per capita. Kuwait still has significant foreign investments, even though it spent a large portion on its liberation and reconstruction after the 1990-91 Gulf War. Our estimated annual payout is 650% of GDP per capita.

In the case of Kuwait, Qatar, and the UAE the issue is not so much that citizens of these countries are likely to starve any time soon. Instead the issue is that the national wealth should be preserved for them and for future generations in an *optimal, equitable, and transparent* manner. This depleting wealth should not be seen as the birthright of rulers to use in order to buy domestic loyalty, support in foreign capitals, and waste on grandiose projects, military hardware, and shortsighted economic policies.

While the management of these funds must be transparent and outside of the personal control of rulers, careful considerations also need to be given in designing a system that affords appropriate incentives to individuals to live productive lives. Finally, we also believe that such a new approach to the management of oil and gas resources will — over time — reduce disillusionment and anti-Western feelings among the citizenry of the Persian Gulf.

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# Maps



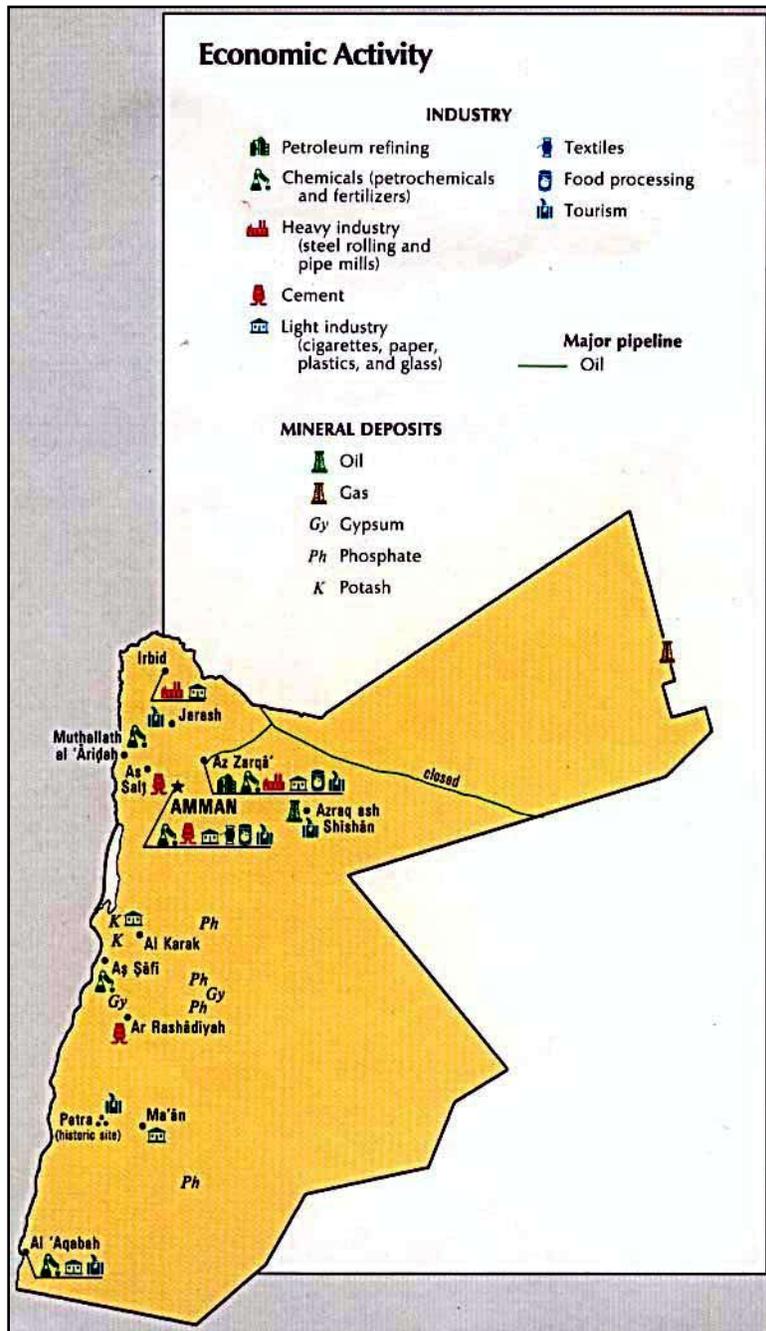
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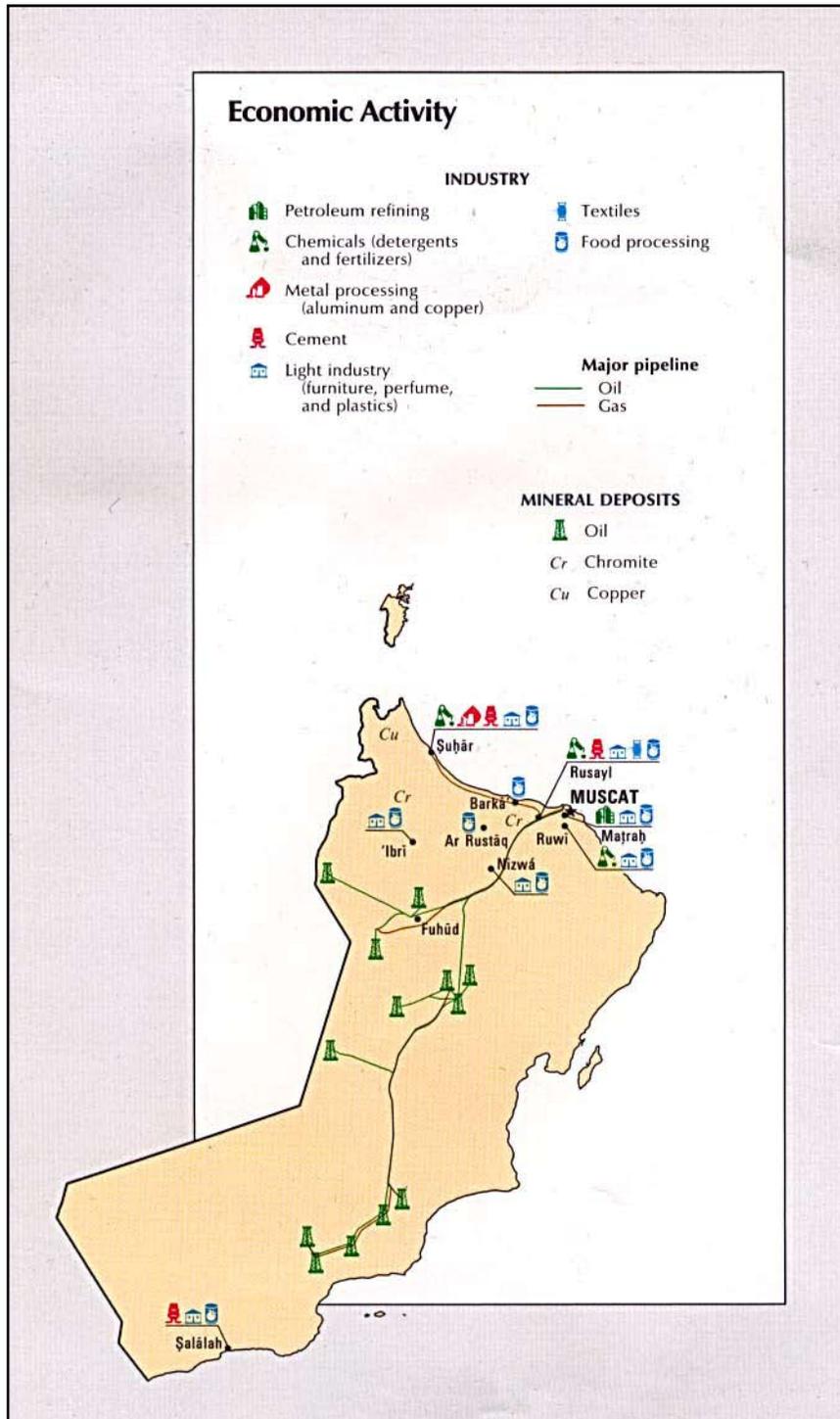


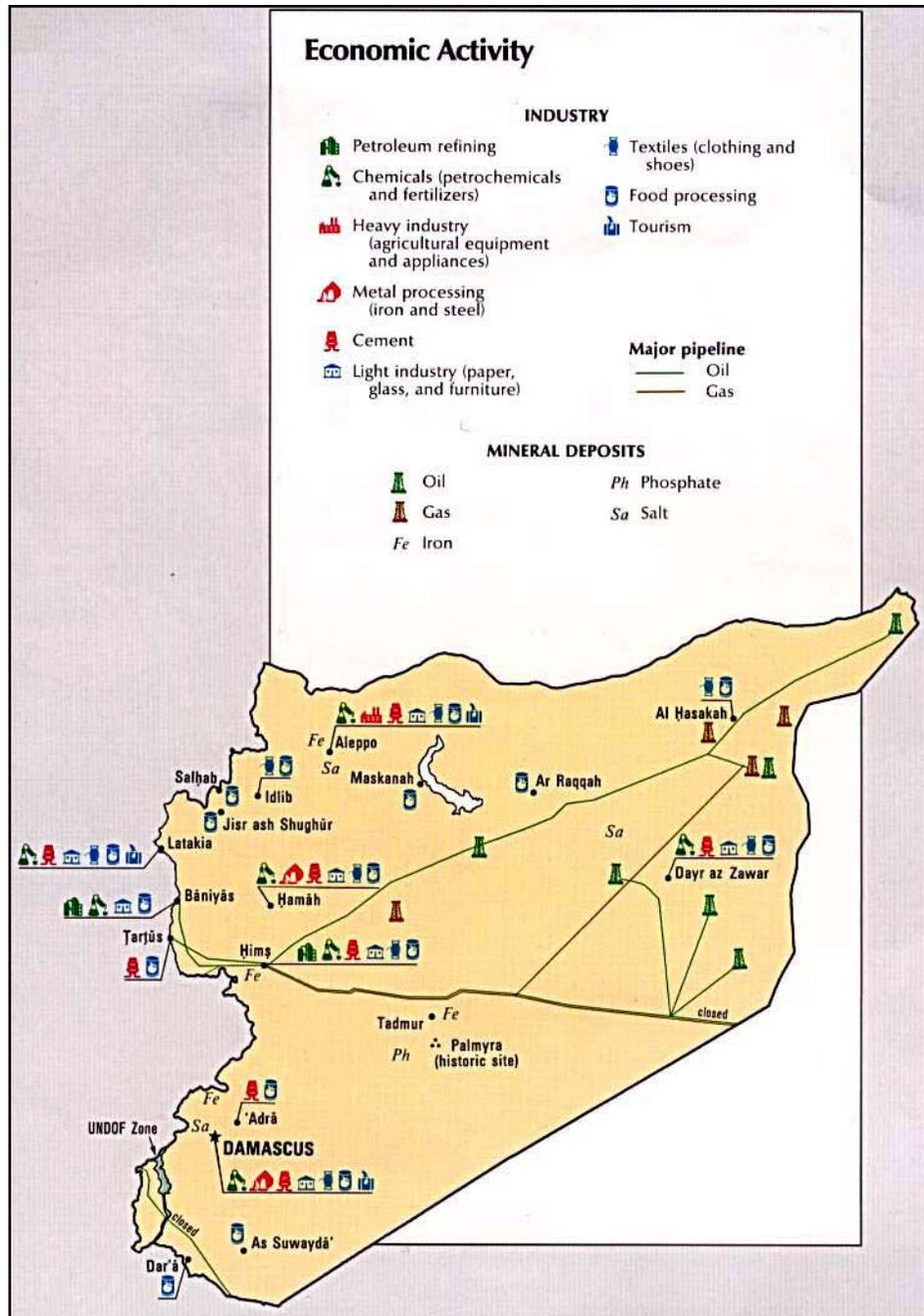
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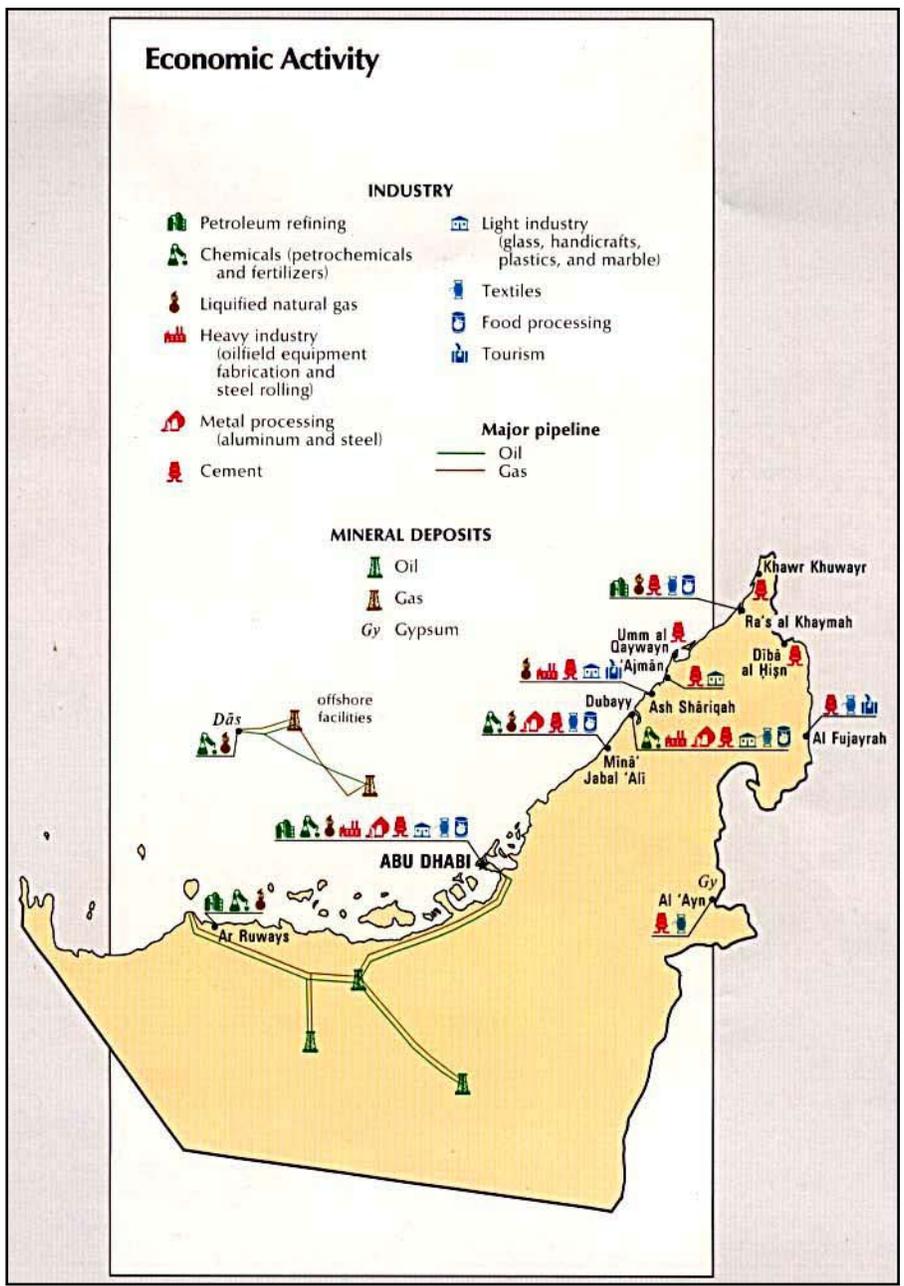


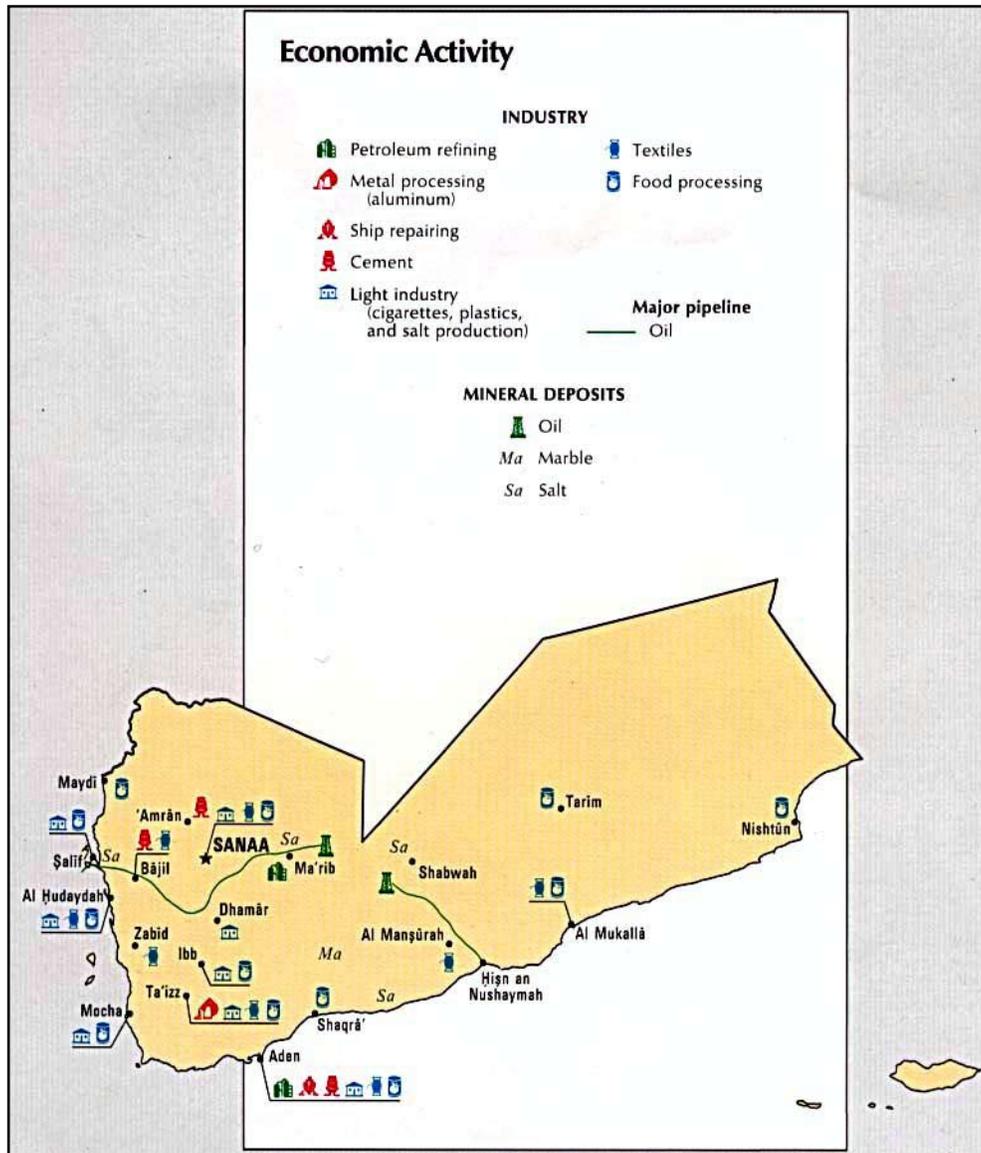




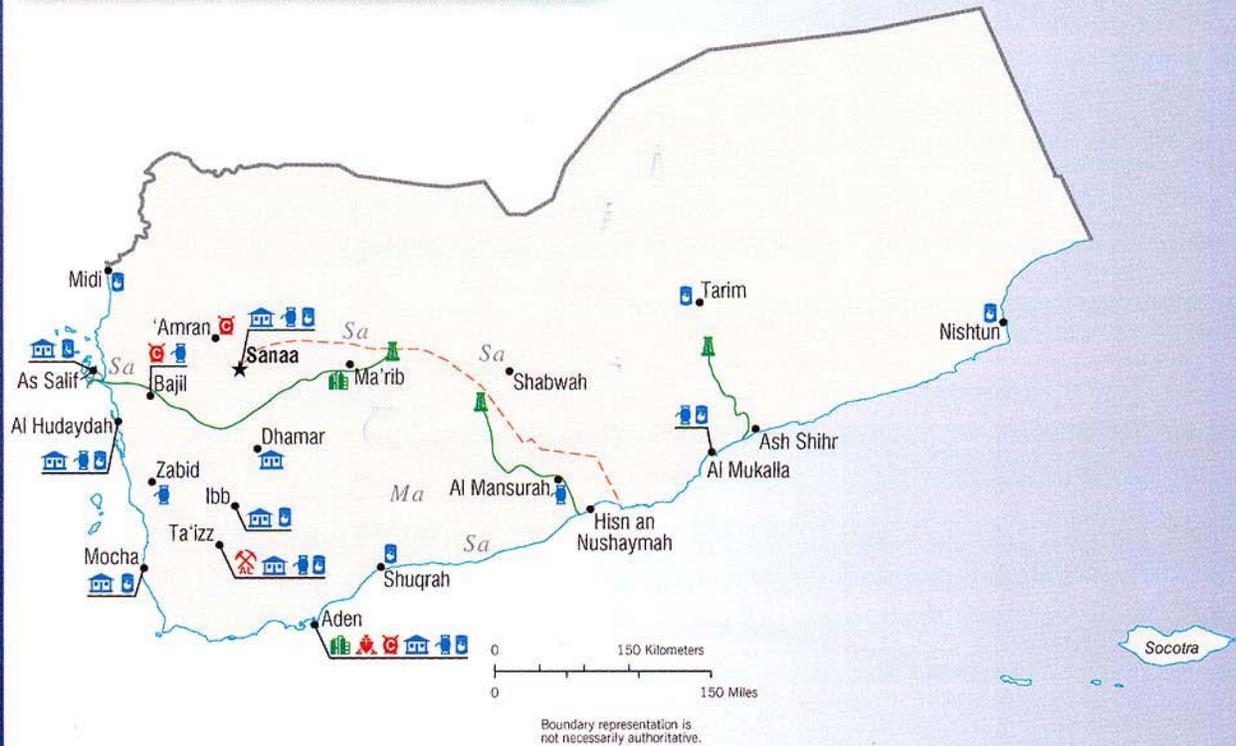








## Economic Activity



Industry		Mineral Deposits	
	Petroleum refining		Oil
	Metal processing (aluminum)	<i>Ma</i>	Marble
	Ship repairing	<i>Sa</i>	Salt
	Cement		
	Light industry (cigarettes, plastics, and salt production)		
	Textiles		
	Food processing		
	<b>Major pipeline</b>		
	Oil		
	Gas (planned or under construction)		

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**From the pages of *The Middle East Journal's* “Chronology:”  
Petroleum Affairs, 1979**

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Since it began publication in 1947, each issue of *The Middle East Journal* has contained a section chronologically detailing events of note in the region for the preceding three months. Today, this section is dubbed the “Chronology,” although in the earliest issues of the *Journal*, it was called “Developments of the Quarter.” The Chronology is organized by country and issue, with each section providing a day-by-day account of the relevant events and developments. Mirroring the *Journal*, the Chronology’s coverage of the region spans from North Africa in the west to formerly Soviet Central Asia, to Pakistan in the east.

Given the longevity of *The Middle East Journal*, the Chronology is an indispensable resource to those interested in the politics and history of the modern Middle East — in the pages of the *Journal*, readers can essentially read a daily accounting of the events in a particular country from 1947 through today. Entries for the Chronology are written as they occur and represent a real-time window not only into the events of the region, but into the overall context of the time and place in which they occurred.

The following pages contain reproductions of the Chronology entries written for Petroleum Affairs during 1979. They provide a unique and detailed look into a series of events that have left an indelible mark upon the region.

Arab mayors from the West Bank met to discuss solidarity measures to be taken if deportation proceedings against Mayor Shak'a were enacted. [FBIS]

The Israeli Cabinet ratified the Egyptian-Israeli oil supply agreements. [FBIS]

Brigadier Sa'd Sa'il, Chief of PLO military operations, left Kuwait enroute to Tehran, but denied that he was mediating between Iran and the US. [FBIS]

Khalil al-Wazir of the Fath Central Committee left Damascus for Tehran on an official mission to mediate with Iranian officials for the release of the US Embassy hostages. [FBIS]

The West German government released two Palestinians sentenced to two and one half years imprisonment for violation of explosive laws, following a scandal over the interrogation procedures. [AN]

Israeli Defense Minister Ezer Weizman informed the Supreme Court of West Bank military authorities' intention to proceed with the deportation of Shak'a [NYT]

*Nov. 11:* Shak'a was arrested and imprisoned by Israeli military authorities. The arrest touched off the City Council's resignation, a general strike, demonstrations in the West Bank and threats of resignation by other mayors and municipal officials. [NYT]

The Israeli Cabinet unanimously voted to add inhabitants to existing settlements in "Judea, Samaria, the Jordan Valley, the Gaza district and the Golan Heights." The establishment of new settlements was postponed until the status of government owned land could be checked by the Cabinet legal advisor. [FBIS]

Attorney Felicia Langer submitted an appeal to the High Court of Justice on behalf of Shak'a. [FBIS]

*Nov. 12:* PLO special emissary to Iran Sa'il returned to Beirut after several days in Iran. [FBIS]

Palestinian leader Salah Khalaf denied that the PLO was mediating for the release of the 60 US hostages. [FBIS]

Eleven Israelis were wounded in a time bomb explosion in southern Negev. [NYT]

*Nov. 13:* Israeli Ambassador to Portugal Ephraim Eldar was wounded and his bodyguard killed in an attack of unknown origin on the Israeli Embassy in Lisbon. [NYT]

Palestinian mayors in Israeli occupied territories began to resign in protest against the imprisonment of Shak'a.

A 14 member Egyptian delegation arrived in Israel for joint autonomy talks with US and Israeli delegations. [FBIS]

A delegation of West Bank mayors met with Defense Minister Weizman and requested the release of Shak'a. [FBIS]

Arafat arrived in Moscow accompanied by a high level Palestinian delegation for 2 days of talks with Soviet officials, including Soviet Foreign Minister Andrei Gromyko. [FBIS]

*Nov. 14:* The PLO denied responsibility for the attack on the Israeli ambassador in Portugal. [FBIS]

The first session of the West Bank and Gaza autonomy talks was concluded in Tel Aviv. [FBIS]

The mayors of all 25 cities in the occupied territories resigned in reaction to the resumption of deportation proceedings against Shak'a. [NYT]

*Nov. 15:* The Mount Sinai Region and St. Catherine's were returned to Egyptian sovereignty, two months ahead of the peace treaty schedule. [NYT]

The US sent an official letter to Israel protesting the deportation proceedings against Shak'a. [FBIS]

## General

1979

*Aug. 23:* A US Federal District Court Judge ruled in an antitrust suit brought against member states of the Organization of Petroleum Exporting Countries that the court did not have jurisdiction in the case. [NYT]

*Oct. 11:* Former Texas Governor John Connally spoke before the Washington Press Club and made the following points: Except for "minor border rectifications" Israel "must withdraw from the West Bank, Gaza and Golan"; all Israeli civilian settlements "must be withdrawn" from the occupied territories; the Palestinian people should "decide for themselves" whether they prefer the West Bank and Gaza to be governed "as an entirely independent entity or to be an autonomous area within the Kingdom of Jordan." [WP]

*Nov. 14:* The Foreign Ministers of Syria, Libya, Jordan and South Yemen arrived in Tunis for the Arab League Foreign Ministers meeting, a preliminary to the 10th Arab summit. [FBIS]

## Petroleum Affairs

(See also, United Arab Emirates)

1979

*Aug. 26:* An empty oil tanker exploded in the Persian Gulf and was reported to be sinking. [NYT]

A second oil tanker caught fire in the Persian Gulf. [NYT]

*Sept. 17:* Kuwaiti Oil Minister Shaykh 'Ali Khalifah Al Sabah said Kuwait had informed oil buyers that they would have to pay the spot market price for oil bought under contractual options for additional quantities. [NYT]

*Sept. 26:* Saudi Arabian Crown Prince Fahd said that Saudi Arabia would "extend the period of increased production" of its oil for 3 additional months. [NYT]

*Oct. 3:* Saudi Arabian Finance Minister Shaykh Muhammad Aba al-Khayl said that it was "increasingly difficult" for Saudi Arabia to maintain its policy

- of increased oil output with inflation in industrial countries and instabilities in exchange markets. [NYT]
- Oct. 9: *Algerie Presse Service* reported that Algeria would increase sales of refined petroleum products in 1980 to compensate for a cutback in exports of crude oil. [NYT]
- The New York Times* reported that Kuwait had raised the price of its oil by 10% to \$21.43 per barrel, retroactive to Oct. 1. [NYT]
- Oct. 16: *The New York Times* reported that Iran and Libya had increased the price of their oil by more than 10% the day before, breaching the price ceiling set by the Organization of Petroleum Exporting Countries. [NYT]
- Oct. 18: Iraq raised its oil prices by about 10%. [NYT]
- Oct. 25: Algeria announced a rise in its oil prices to \$26.27 per barrel, effective immediately. [NYT]
- Nov. 7: Oil industry sources reported that Iran stopped tanker loading at its major oil port, Kharg Island. Oil prices soared in the spot market. [NYT]
- Nov. 8: Libya announced that it would not replace US oil losses caused by Iran's halt in sales, nor would Libya halt its own sales to the US. [NYT]
- The New York Times* reported the following Cabinet appointments:  
 Faqir Faqir: *Interior*  
 Sahibjan Sahrayee: *Frontier Affairs* [NYT]
- Sept. 23: Amin said that former President Taraki was "alive but definitely sick." [NYT]
- Oct. 8: *The New York Times* reported that Amin had commuted death sentences on former Defense Minister Abdul Khadir and former Planning Minister Soltan Ali Keshmand to 15 years imprisonment. [NYT]
- Rebel tribesmen said they had cut the road leading from Kabul to Gardez during fighting with government troops. [NYT]
- Oct. 9: Pakistan radio cited a broadcast from Kabul confirming that Taraki had died. [NYT]
- Oct. 14: Heavy fighting took place at Rishkour barracks southwest of Kabul. [MEED]
- Oct. 16: It was reported that the government had crushed an army mutiny near Kabul. [NYT]
- Oct. 21: Two British journalists were arrested by Afghan police. [NYT]
- Oct. 24: Radio Kabul announced that an 80 member Politburo had been installed the day before by Amin. [FBIS]
- Oct. 30: *The New York Times* cited a "rebel spokesman" as saying insurgents in Afghanistan had taken "three strategic districts" northeast of Kabul. [NYT]
- Nov. 9: It was reported that several ambush attacks had been launched on government troops near Kabul, killing 200 persons. [FBIS]

## Afghanistan

1979

- Aug. 19: Premier Hafizullah Amin said there were "no more than 1,600 Soviet advisers" in Afghanistan. [NYT]
- Sept. 6: A spokesman for tribal insurgents said they had laid siege to the garrison town of Mukur, south of Kabul. [NYT]
- Sept. 7: Gunmen murdered 6 West Germans, including 2 children, east of Kabul. [NYT]
- Sept. 8: Afghan soldiers in Kabul detained a US diplomat and beat him. [NYT]
- Sept. 9: President Nur Mohammed Taraki arrived in Moscow on a visit. [FBIS]
- Gunmen opened fire on a tourist bus, killing a Canadian citizen. [NYT]
- Sept. 12: "Western diplomats" said that a Swiss tourist had been killed and an Australian wounded in the attack on the tourist bus 3 days earlier. [NYT]
- Sept. 15: Kabul radio reported that Interior Minister Aslam Watanjar and Frontier Affairs Minister Sherjan Mazdooriyar had been removed from their posts. [NYT]
- It was reported that gunfire and explosions had occurred in Kabul following the announcement of the Cabinet dismissals. [NYT]
- Sept. 16: The state radio reported that President Taraki had asked to be relieved of his government positions because of "bad health and nervous weakness." [NYT]
- Premier Amin assumed the additional post of President. [MEED]

## Algeria

(See also, Arab Israeli Conflict, Petroleum Affairs, Libya)

1979

- Aug. 22: Politbureau Member Mohamed Saleh Yahiaoui returned to Algiers from Tripoli at the end of a tour of Iraq, Syria, South Yemen and Libya. [FBIS]
- Aug. 30: President Chadli Benjedid left Algiers for Libya to attend the anniversary of the First of September Revolution. [FBIS]
- Sept. 2: President Benjedid left Algiers for Havana to attend the Nonaligned Summit Conference. [FBIS]
- Sept. 15: Palestine Liberation Organization leader Yāsir 'Arafāt arrived in Algiers and met with Benjedid. [FBIS]
- Oct. 14: Hydraulics Minister Sid Ahmed Ghozali was dismissed from his post. [MEED]
- Oct. 29: A medium term loan agreement for \$20 million was signed with Spanish banks. [MEED]
- Oct. 31: US National Security Adviser Zbigniew Brzezinski arrived in Algiers on a visit. [NYT]
- Nov. 1: A military parade took place in Algiers to celebrate the 25th anniversary of the start of the Algerian revolution. [NYT]

## Petroleum Affairs

(See also, Iran)

1979

Nov. 26: UAA Oil Minister Māni' Sa'īd al-'Utaybah said that the UAA would reduce oil production by 5% at the beginning of 1980. [NYT]

Dec. 4: Oil Ministers from the Organization of Arab Petroleum Exporting Countries met in Kuwait on technical cooperation in oil matters. [NYT]

Dec. 13: Saudi Arabia, the UAA, Qatar and Venezuela announced oil price increases. [NYT]

An explosion touched off a fire on an empty super-tanker off the coast of Oman. [NYT]

Dec. 14: Saudi Arabia announced that it would maintain oil production at 9.5m barrels a day through the following April at least. [NYT]

Dec. 16: Libyan Oil Minister 'Izz al-Dīn Mabruk said Libya had raised the price of its light crude oil by \$4 a barrel to \$30, retroactive to November 1. [NYT]

Dec. 17: A ministerial conference of the Organization of Petroleum Exporting Countries (OPEC) opened in Caracas, Venezuela. [NYT]

Iranian Oil Minister 'Alī Akbar Mu'infar confirmed reports that Iran had raised its crude oil prices to \$28.50 a barrel. [NYT]

Dec. 18: OPEC Oil Ministers continued meetings in Caracas but were unable to reach a consensus on prices. [NYT]

Dec. 20: The OPEC ministerial conference ended without agreement on a uniform pricing structure. Venezuelan Energy Minister Humberto Calderón Berti said that each nation would be "free to set its own price." [NYT]

Dec. 30: Kuwait announced it was raising its crude oil prices by 19% to \$25.50 per barrel. [NYT]

1980

Jan. 28: Saudi Arabia notified the members of the Arabian American Oil Company that it had raised the price of Arabian light crude oil to \$26. [NYT]

Jan. 29: Iraq, Kuwait and the UAA raised oil prices by \$2 per barrel. [NYT]

Feb. 3: Algeria raised the price of its oil to \$34 per barrel. [NYT]

## Afghanistan

(See also, General, Pakistan, Turkey)

1979

Dec. 21: US officials said that the Soviet Union had moved 3 army divisions to the border with Afghani-

stan and had sent about 1,500 combat soldiers to an air base near Kabul. [NYT]

Dec. 26: A US government spokesman said that in the past 24 hours there has been "a large-scale Soviet airlift" to Kabul, raising Soviet military involvement in Afghanistan to "a new threshold." [NYT]

Dec. 27: Fighting broke out in Kabul and President Hafizullah Amin was overthrown and executed. Former Deputy Premier Babrak Karmal assumed the post of President. [NYT]

It was reported that Soviet troops had taken part in the fighting in Kabul. [NYT]

Dec. 28: President Karmal said the Soviet Union had agreed to supply Afghanistan "urgent political, moral and economic aid, including military aid." [NYT]

US President Jimmy Carter called the Soviet military intervention "a grave threat to the peace" and a "blatant violation of accepted rules of international behavior." [NYT]

A Cabinet was formed as follows:

Babrak Karmal: *Premier, Chairman of the Revolutionary Council and Secretary General of the Central Committee*

Asadollah Sarwari: *Deputy Premier*

Soltan Ali Keshtmand: *Deputy Premier and Planning*

Mohammad Rafia: *National Defense*

Said Mohammad Gulabzoi: *Interior*

Shah Mohammad Dost: *Foreign*

Dr. Anahita: *Education*

Abdol Wakil: *Finance*

Sherjan Mazdur Yar: *Transport*

Faiz Mohammad: *Borders & Tribes*

Mohammad Khan Jalala: *Trade* [FBIS]

Dec. 29: The US said that the number of Soviet combat troops in Afghanistan had reached "roughly 25,000 to 30,000." [NYT]

Dec. 30: Qatar and the UAA issued statements condemning "Soviet military intervention" in Afghanistan. [NYT]

Dec. 31: Heavy fighting broke out in Kabul during the night but ended by morning. [NYT]

Egypt condemned "the Soviet attempt to impose a Marxist regime" on Afghanistan. [NYT]

1980

Jan. 1: Afghanistan said it had invited Soviet troops into the country "in view of the present aggressive actions of the enemies of Afghanistan." [NYT]

Jan. 2: Karmal addressed government leaders near Kabul and called on the Afghan people to "come together and support our glorious revolution." [NYT]

*The New York Times* cited "West European diplomatic sources" as saying that Soviet troops were encountering sharp resistance from Afghan insurgents in Bamian Province. [NYT]

Afghan students occupied the Afghan Embassy in

respondents that was to be held by the Mayor of Hebron. [NYT]

*Feb. 2:* Israeli soldiers prevented West Bank mayors from attending a prayer meeting at the Tomb of the Patriarchs near Hebron. [NYT]

*Feb. 3:* Israeli Justice Minister Shmuel Tamir said Israel must not give up Sinai without guarantees of access to its oil. [NYT]

*Feb. 4:* Arab students clashed with Israeli soldiers in Halhul and other West Bank towns. [NYT]

*Feb. 5:* Arab high school students stoned 2 Israeli trucks carrying students in the West Bank. Armed Israelis stormed the high school and detained the principal. [NYT]

*Feb. 7:* *The Washington Post* cited US State Department cables from Jerusalem the previous May as raising the possibility that the use of "brutality" in Israel in the interrogation of Arab political prisoners was "a systematic practice." [WP]

*The New York Times* published excerpts from a State Department report on human rights which said that the "accumulation of reports, some from credible sources, makes it appear that instances of mistreatment have occurred" in the interrogation of Arab security suspects by Israel. [NYT]

Israel denied that Arab political prisoners were being tortured in Jerusalem or the West Bank. [NYT]

*Feb. 8:* Israeli Justice Minister Tamir said the allegations of systematic torture were "libelous" and an attempt "to smear our country and way of life." [NYT]

Egypt accepted a US invitation to resume peace negotiations at the ministerial level. [NYT]

*Feb. 11:* Israel accepted the US invitation to resume peace negotiations. [NYT]

*Feb. 13:* Dayan said that while the PLO was not a state, "we cannot deny their position or their value" in the Middle East conflict. [NYT]

*Feb. 14:* US Defense Secretary Harold Brown visited the West Bank to tour Israeli garrisons and border posts. [NYT]

The UN Human Rights Commission voted to censure Israel for systematic torture of Arab prisoners in the occupied territories. [NYT]

## General

1978

*Dec. 5:* A spokesman for the Polisario Front said that Mauritania had broken off peace talks with Polisario on Western Sahara. [JP]

1979

*Jan. 1:* Mauritanian Chief of State Mustafa Ould Mohamad Salek said Mauritania would "take all the necessary measures to definitely get out of the war" in Western Sahara if efforts to reach a general agreement remained "impracticable". [FBIS]

## Petroleum Affairs

(See also, Iran, Iraq, Qatar, Saudi Arabia, United Arab Emirates)

1978

*Dec. 12:* The Ministerial Council of the Organization of Arab Petroleum Exporting Countries (OAPEC) met in Abū Dhābī. [FBIS]

*Dec. 14:* Delegates arriving in Abū Dhābī for the Organization of Petroleum Exporting Countries (OPEC) Ministerial Conference said that OPEC members were in "complete agreement" that a rise in oil prices would be effected at the conference. [NYT]

*Dec. 16:* An OPEC Ministerial Conference opened in Abū Dhābī. [FBIS]

*Dec. 17:* OPEC decided to raise the price of oil by 14.5% in quarterly increments during 1979. An initial 5% would be imposed on the first day of 1979. [NYT]

US President Jimmy Carter urged that the oil price rise be "reconsidered" before its implementation. [NYT]

Saudi Arabian Oil Minister Shaykh Aḥmad Zakī Yamānī said that the world could "bet that we will have a freeze for the price of oil in December next year." [NYT]

1979

*Jan. 29:* *Middle East Economic Survey* reported that Saudi Arabia had decided to raise its ceiling on crude oil production by 1m barrels per day in the first quarter of 1979 in order to help alleviate the crude oil shortage resulting from the Iranian crisis. [MEES]

*Feb. 15:* The UAA raised the price of its light crude oils by up to 7%. [JP]

## Afghanistan

(See also, Pakistan)

1978

*Nov. 22:* Cuban Foreign Minister Isidoro Malmierca Peoli met with Deputy Premier Hafizollah Amin in Kabul. [FBIS]

*Dec. 3:* President Nur Mohammad Taraki arrived in Moscow for talks with Soviet leaders. [NYT]

*Dec. 5:* Afghanistan and the Soviet Union signed a 20 year treaty of friendship and coöperation in Moscow. [NYT]

1979

*Jan. 14:* An energy and agricultural agreement with Yugoslavia was signed in Belgrade. [MEED]

tinian camps. Israeli artillery fired on villages in south Lebanon. [NYT]

Israeli Defense Minister Weizman said in Egypt that the PLO should "stop shooting and start talking." [NYT]

Qatar and the UAA broke diplomatic relations with Egypt. [FBIS]

*April 26:* A ceasefire between Israel and Palestinian guerrillas in Lebanon was implemented after Israeli gunboats had shelled positions near Sidon and Israeli artillery had fired on Hasbayah. [NYT]

Weizman met with Sādāt in Ismailia on plans for normalizing relations between Israel and Egypt and on Israeli withdrawal from the Sinai. [NYT]

Bahrayn, Lebanon and Morocco cut diplomatic relations with Egypt. [FBIS]

*April 27:* Tunisia broke off diplomatic relations with Egypt. [FBIS]

*April 28:* Yemen severed diplomatic relations with Egypt. [FBIS]

*April 29:* Egyptian and Israeli military officers met in Sinai to negotiate details of Israeli withdrawal from Sinai. [NYT]

The Israeli Cabinet voted to allow prosecutors in military courts to seek the death penalty for terrorist acts of "inhuman cruelty." [NYT]

*April 30:* An Israeli cargo ship sailed through the Suez Canal. [NYT]

Iranian Āyat Allāh Rūh Allāh Khumaynī ordered the provisional government to sever diplomatic relations with Egypt. [NYT]

*The New York Times* reported that the Israeli newspaper *Haaretz* was supporting the claims of a Palestinian journalist that he had been severely beaten by Israeli policeman while under detention. [NYT]

Djibouti severed diplomatic relations with Egypt. [NYT]

*May 1:* Sādāt accused Saudi Arabia of using pressure and monetary inducements to persuade other Arab states to break relations with Egypt. [NYT]

*May 2:* Begin said Israel would "never withdraw from the Golan Heights." [NYT]

*May 3:* Israeli occupation authorities ordered Bir Zeit University to be closed indefinitely as a result of demonstrations the day before. [NYT]

Soldiers entered Bethlehem University to break up stone throwing incidents. Israeli authorities ordered the school closed for 4 days. [NYT]

*May 4:* Israel said the Camp David accords did not obligate it to withdraw from the West Bank, Gaza Strip or the Golan Heights. It said it would remain in "defined security locations" in the occupied territories. [NYT]

*May 6:* Israeli jets struck a Palestinian refugee camp and a Lebanese village near the port of Tripoli. [NYT]

*May 7:* Begin proposed that Lebanese President Ilyās Sarkis meet with him to discuss the "signing of a peace treaty between Israel and Lebanon." [NYT]

Lebanon rejected the proposal to negotiate a peace treaty. [NYT]

Israeli jets raided a "guerrilla camp" at the south Lebanese village of Reihan. [NYT]

*May 8:* Israeli jets attacked "concentrations of terrorists" south of Sidon. Later their jets struck the Palestinian camp at Reihan. [NYT]

*May 9:* Israeli soldiers crossed into southern Lebanon to pursue 3 Palestinian guerrillas who had raided Israel. [NYT]

Representatives at the Islamic Foreign Ministers Conference in Fez, Morocco, suspended Egypt from participation. [NYT]

*May 10:* Israel ordered the deportation of 2 US students because they had participated in a demonstration on the West Bank. [NYT]

A UNIFIL soldier from Senegal was found guilty of smuggling explosives into Israel. He was sentenced to 10 years imprisonment. [JP]

*May 11:* Scuffles broke out near Bethlehem between Jewish members of the Peace Now Movement and the militant Jewish nationalist movement Gush Emunim. [NYT]

*May 14:* A bomb exploded in Tiberias, Israel, killing 2 people and wounding 32. [NYT]

The 2 US students left Israel. [NYT]

Saudi Arabia said that the Arab Organization for Industrialization, an arms consortium founded in Egypt, would be disbanded because of the conclusion of the peace treaty. [NYT]

## Petroleum Affairs

### 1979

*Feb. 21:* Libya raised its oil prices by 5%. [NYT]

*Feb. 26:* Kuwait raised its oil prices by 9.35%, retroactive to February 20. [NYT]

*Feb. 27:* Saudi Arabia and Iraq said they would not raise oil prices in the first quarter of 1979. [NYT]

*Feb. 28:* The Organization of Petroleum Exporting Countries (OPEC) formally approved the price increases by several of its members. [NYT]

*The New York Times* cited "oil company sources" as saying Oman had raised its oil prices more than 7% retroactive to February 15. [NYT]

*March 8:* Libya said it would cut production by 12 to 18%, beginning April 1. [NYT]

*March 26:* OPEC Oil Ministers met in Geneva to discuss oil price levels. [NYT]

*March 27:* OPEC raised the basic price of crude oil by 9%, effective April 1, and allowed each OPEC nation to add "market premia" to the basic price. [NYT]

Algeria and Libya announced price increases on crude oil of about \$4 per barrel. [NYT]

*April 15:* Iran announced it would raise oil prices by 13% over the basic rate set by OPEC in March. [NYT]

- A bomb exploded at a bus station near the Israeli town of Natanya, injuring 12 people. [NYT]
- July 26: Al-Šā'iqaq leader Muḥsin died, aged 43. [NYT]
- July 27: Israeli Ambassador to the US Ephraim Evron met with Vance on the problem of a UN force in Sinai. [NYT]
- The Commander of the Christian militia forces in south Lebanon, Sa'd Ḥaddād, said he would pursue PLO guerrillas "inside U.N. lines" in the future. [NYT]
- July 30: A UN Security Council debate on Palestinian rights was recessed until the end of August in order to permit the study of a proposed resolution by the US. [NYT]
- Aug. 2: An Israeli army force raided targets 9 miles into Lebanon during the night, killing at least 5 people. [NYT]
- Aug. 3: Sādāt said that Egypt was "not against amending Resolution 242." [NYT]
- The New York Times* reported that Muḥammad 'Azzām had been named head of al-Šā'iqaq. [NYT]
- Aug. 5: A spokesman for the Israeli Cabinet said the PLO, a "syndicate of murderers," would "never be any partner to negotiations with Israel." [NYT]
- Lebanon said it had protested to the UN Security Council over the Israeli army raid. [NYT]
- A bomb exploded in East Jerusalem, wounding at least 2 people. [NYT]
- Aug. 6: Representatives of Egypt, Israel and the US met in Haifa to discuss Palestinian autonomy. [NYT]
- Aug. 7: The meetings in Haifa ended. An agenda outlining election procedures for Palestinian autonomy was published. [NYT]
- Vance said that a violation by Israel of a 1952 military aid accord "may have occurred" during Israeli raids in Lebanon the previous month. [NYT]
- Israeli Foreign Minister Dayan said that US "concern about quantities of oil" had resulted in "a real change" in US policy towards the Palestinians "at Israel's expense." [NYT]
- A US State Department spokesman said that US diplomatic efforts in the negotiations on Palestinian autonomy were "in no way" linked to "oil policy." [NYT]
- Aug. 8: Israeli Ambassador to the US Evron met in Washington with US President Jimmy Carter. Differences between the 2 countries concerning the Middle East situation were discussed. [NYT]
- Aug. 11: Carter said the US would "not deal" with the PLO unless they accepted "the right of Israel to exist" and acknowledged that UN Resolution 242 was "binding on them." [NYT]
- Aug. 13: The State Department said that US Ambassador to the UN Andrew Young had met briefly with a PLO official the previous month after the official had "arrived unexpectedly" at a meeting Young was attending. [NYT]
- Aug. 14: US Ambassador to the UN Young said that he had acted on his own in meeting with a PLO representative and had not asked the State Department for "instructions" beforehand. [NYT]

Israel protested that Young had held a "business meeting" with the PLO official. [NYT]

The State Department disclosed that Young had been reprimanded for the meeting and that he had acted "without authorization." [NYT]

Aug. 15: Young resigned his post. [NYT]

Israel reported that Israeli naval commandos had landed on the coast of southern Lebanon and destroyed 2 vehicles during the night. [NYT]

## Petroleum Affairs

1979

- May 19: A spokesman for the Iranian National Oil Company said Iran had asked major oil buyers to accept voluntary cuts in oil supplies of up to 15%. [NYT]
- June 8: Iraq announced it was raising oil prices to about \$20 per barrel. It said it would sell on a "most favored seller" basis. [NYT]
- June 19: Saudi Arabian Oil Minister Shaykh Aḥmad Zakī Yamānī said he would "not rule out" the possibility that Saudi Arabia would increase oil production by 1m barrels per day. [NYT]
- June 20: Saudi Arabian Crown Prince Fahd said Saudi Arabia had no plans to raise oil production above current levels. [NYT]
- June 26: A conference of oil ministers of the Organization of Petroleum Exporting Countries (OPEC) met in Geneva, Switzerland. [NYT]
- June 28: The OPEC Conference ended in Geneva. It was decided to set the market crude oil base price at \$18 per barrel, and allow member countries to add a maximum market premium of \$2 per barrel and to set a maximum price of \$23.50 per barrel. [NYT]
- Saudi Arabia, Qatar and the UAA said they would charge the base price of \$18 per barrel for their oil. [NYT]
- June 29: At an economic summit conference meeting in Tokyo, the leaders of 7 industrial nations agreed to set ceilings on oil imports through 1985. [NYT]
- The Paris based magazine *al-Mustaqbal* published an interview with Libyan Head of State Mu'ammār al-Qadhafī in which he was quoted as saying that Libya would "stop producing oil—except what we need for our own domestic consumption." [AN]
- July 1: Libyan Head of State Qadhafī said that "further technical studies" were needed before Libyan oil exports would be cut off. [AN]
- July 2: Saudi Arabia said in an official radio broadcast that it would increase production of crude oil by an unspecified amount. [NYT]
- July 16: Qatar News Agency reported that Oman had raised the price of its crude oil to \$22, retroactive to July 1. [NYT]
- July 28: *The New York Times* cited oil industry sources as saying Algeria had cut oil exports by 20%. [NYT]

Aug. 5: Kuwaiti Oil Minister Shaykh 'Alī Khalīfah Al Šabāh said that Kuwait was considering a cut-back in oil production by 25%. [NYT]

## Afghanistan

(See also, Pakistan)

1979

- June 12: Iranian Āyat Allāh Rūh Allāh Khumaynī told the Soviet Ambassador that Iran wanted the Soviet Union "to stop interfering in Afghanistan's affairs." [NYT]
- June 13: Afghanistan accused Pakistan of involvement in a rebellion against the Afghan government. [NYT]
- June 23: Kabul Radio reported that anti-government demonstrators in Kabul had been "annihilated and arrested" during the day. [FBIS]
- July 28: The Cabinet was reshuffled:  
 Hafizullah Amin: *Premier and Vice President of the Revolutionary Council*  
 Shah Wali: *Deputy Premier and Foreign Affairs*  
 Mohammad Gulabzoi: *Posts & Telecommunications*  
 Mohammad Aslam Watanjar: *Interior*  
 Abdel Rashid Jalili: *Agriculture*  
 Muhammad Sediq Alemyar: *Planning*  
 Saleh Mohammad Zeiri: *Public Health*  
 Mohammad Salem Massoudi: *Education*  
 Kodouss Ghorbandi: *Trade*  
 Mohammad Hasan Bareq Shafiee: *Transport*  
 Dastagir Panjcheri: *Public Works*  
 Abdel Hakim Sharai Janzjani: *Justice*  
 Khayal Mohammad Katawazi: *Information & Culture*  
 Sherjan Mazdooryar: *Border Affairs*  
 Mahmoud Souma: *Higher Education*  
 Mohammad Ismail Danish: *Industry & Mines*  
 Abdel Karim Messaq: *Finance*  
 Mansour Hachemi: *Water & Electricity* [MEED]
- Aug. 5: Heavy fighting broke out in Kabul between loyal troops and a rebellious army unit at the Bala Hissar fort. The rebellion was crushed and a curfew was imposed on the city. [NYT]

## Algeria

(See also, Petroleum Affairs, Jordan, Morocco, Syria)

1979

- May 20: South Yemeni Chairman of the Presidium 'Abd al-Fattāh Ismā'il arrived in Algiers on a 6 day visit. [FBIS]
- May 24: Libyan Head of State Mu'ammar al-Qadhafi arrived in Algiers and met with President Chadli Benjedid. [FBIS]

- May 30: Yugoslav President Josip Broz Tito met with President Benjedid in Algiers. [FBIS]
- June 4: Jordanian King Husayn arrived in Algeria and was welcomed by Benjedid. [FBIS]
- June 11: Yemeni Premier 'Abd al-'Azīz 'Abd al-Ghanī arrived in Algiers for talks with Algerian leaders. [FBIS]
- June 23: French Foreign Affairs Minister Jean François-Poncet began a 2 day visit to Algeria. [FBIS]
- July 1: The National Popular Assembly approved a constitutional amendment concerning the presidency. [FBIS]
- July 3: Syrian President Hāfīz al-Asad arrived in Algiers for talks with Algerian leaders. [FBIS]
- July 4: The government said that "measures concerning" former President Ahmed Ben Bella had been lifted. He had been under house arrest for 14 years. [NYT]
- July 14: Tanzanian President Julius Nyerere met with Benjedid in Algiers. [FBIS]
- July 22: Somali President Mohamed Siad Barre arrived in Algiers for talks with Algerian leaders. [FBIS]
- July 25: Cuban Vice President of the Councils of State and Ministers Carlos Rafael Rodriguez left Algiers at the end of a 2 day visit. [FBIS]
- Aug. 14: It was announced that Algeria and Mauritania had decided to resume diplomatic relations. [NYT]

## Bahrain

1979

- June 1: Premier Shaykh Khalīfah bin Salmān Āl Khalīfah returned to Manama at the end of a 1 month visit to Europe. [FBIS]
- June 28: Deputy Amir Shaykh Ḥamad bin 'Īsā Āl Khalīfah returned to Manama from a 3 day visit to Saudi Arabia. [FBIS]
- July 1: Libyan Head of State Mu'ammar al-Qadhafi arrived in Manama for talks with Bahrayni leaders. [FBIS]
- July 2: British Premier Margaret Thatcher arrived in Manama and met with Premier Shaykh Khalīfah. [FBIS]
- July 4: Somali President Mohamed Siad Barre arrived in Manama for talks with Bahrayni leaders. [FBIS]
- July 8: Bahrain announced a moratorium on the opening of new banks. [NYT]

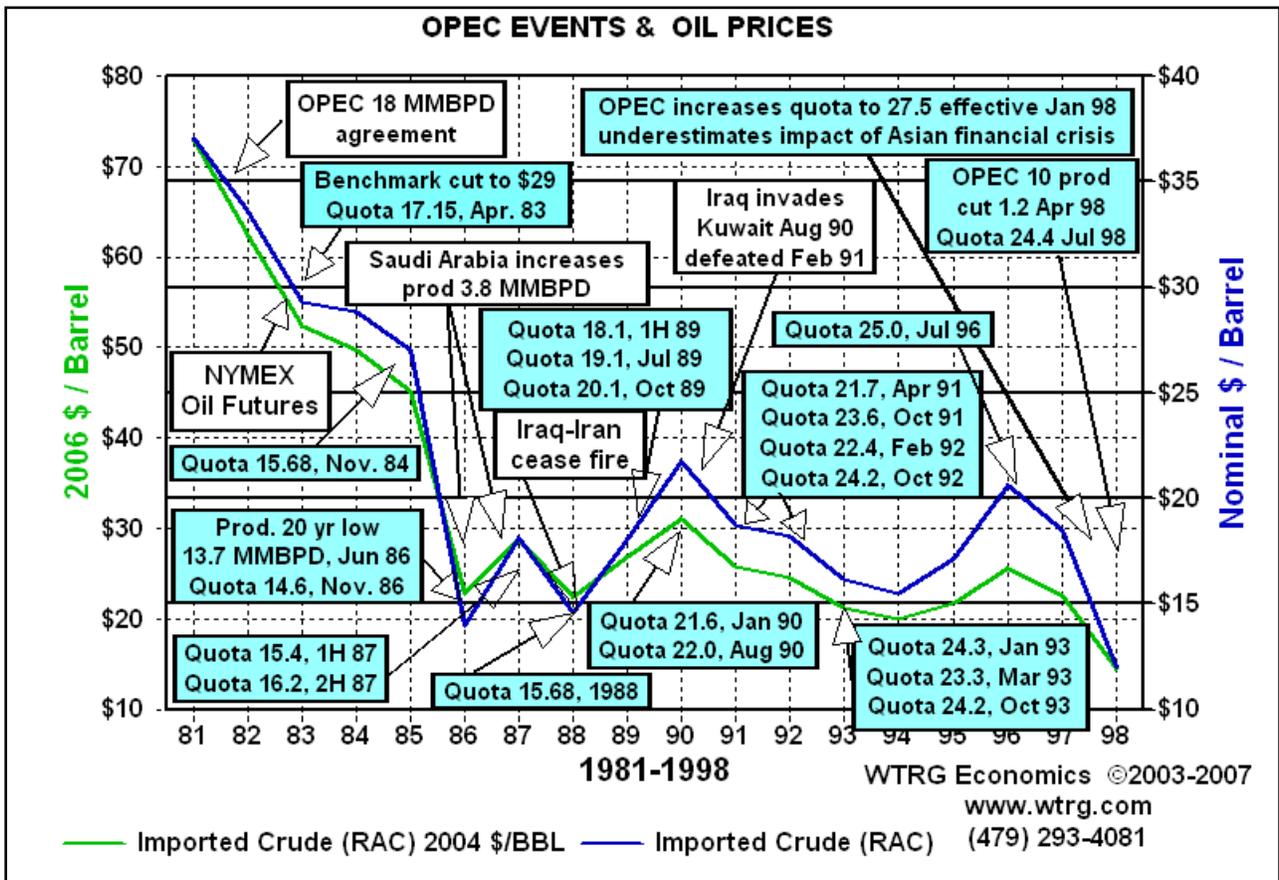
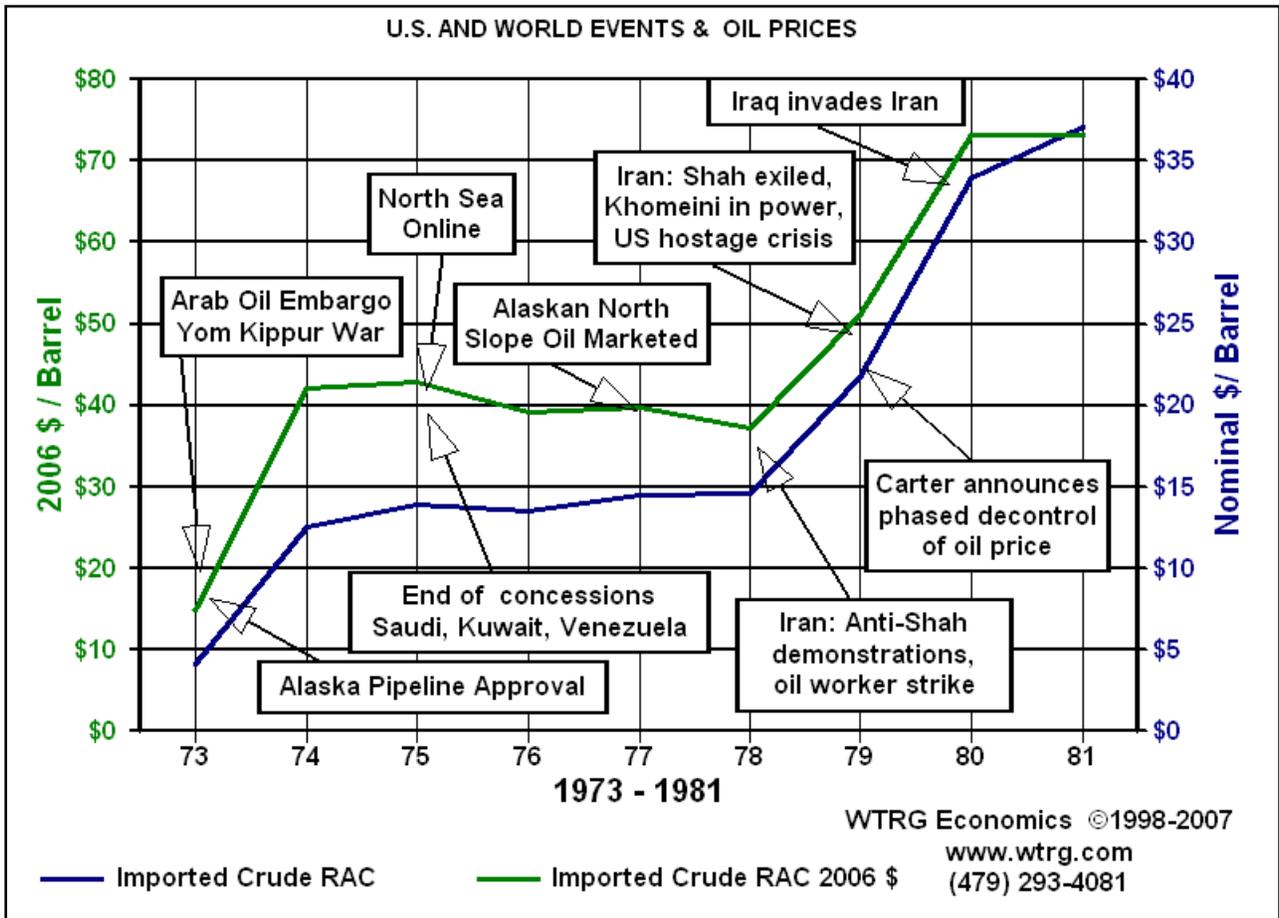
## Cyprus

1979

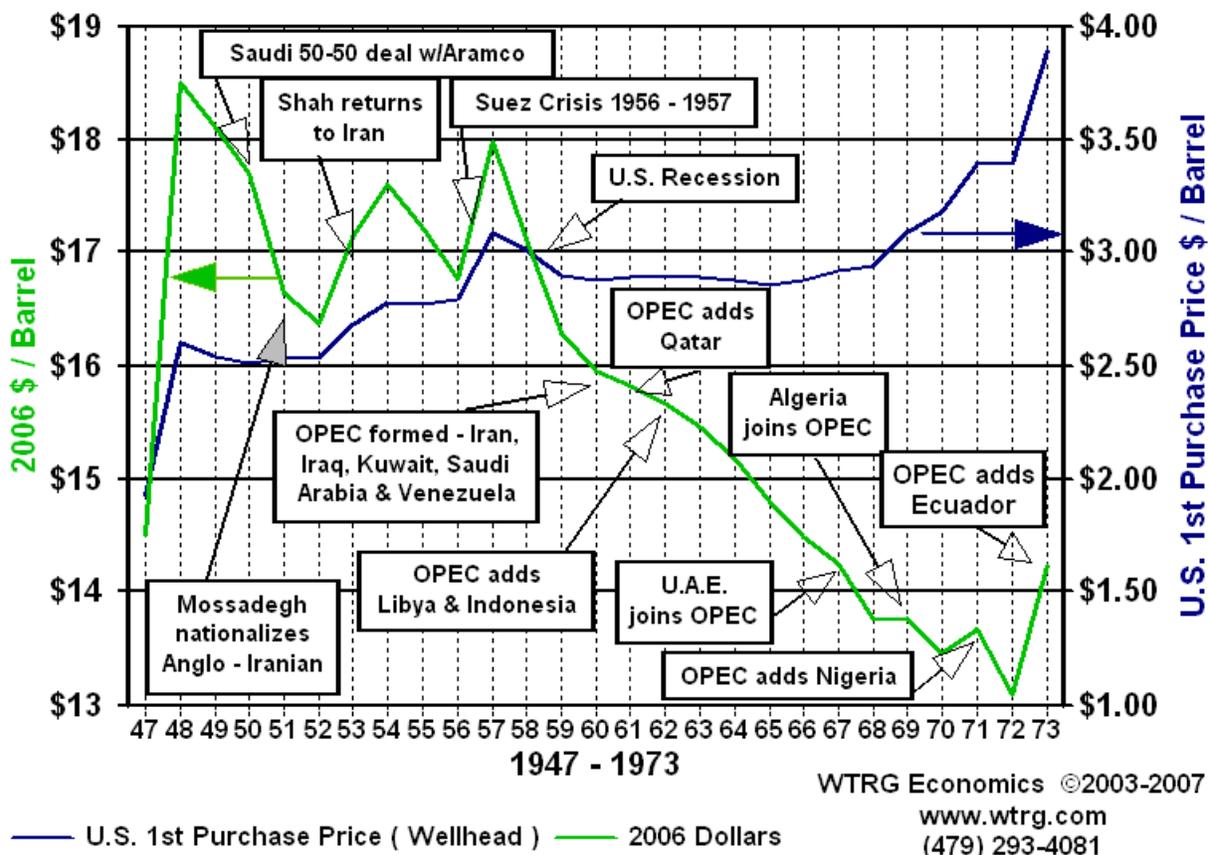
- May 17: UN Secretary General Kurt Waldheim arrived in Nicosia for discussions on the resumption of inter-communal talks. [NYT]

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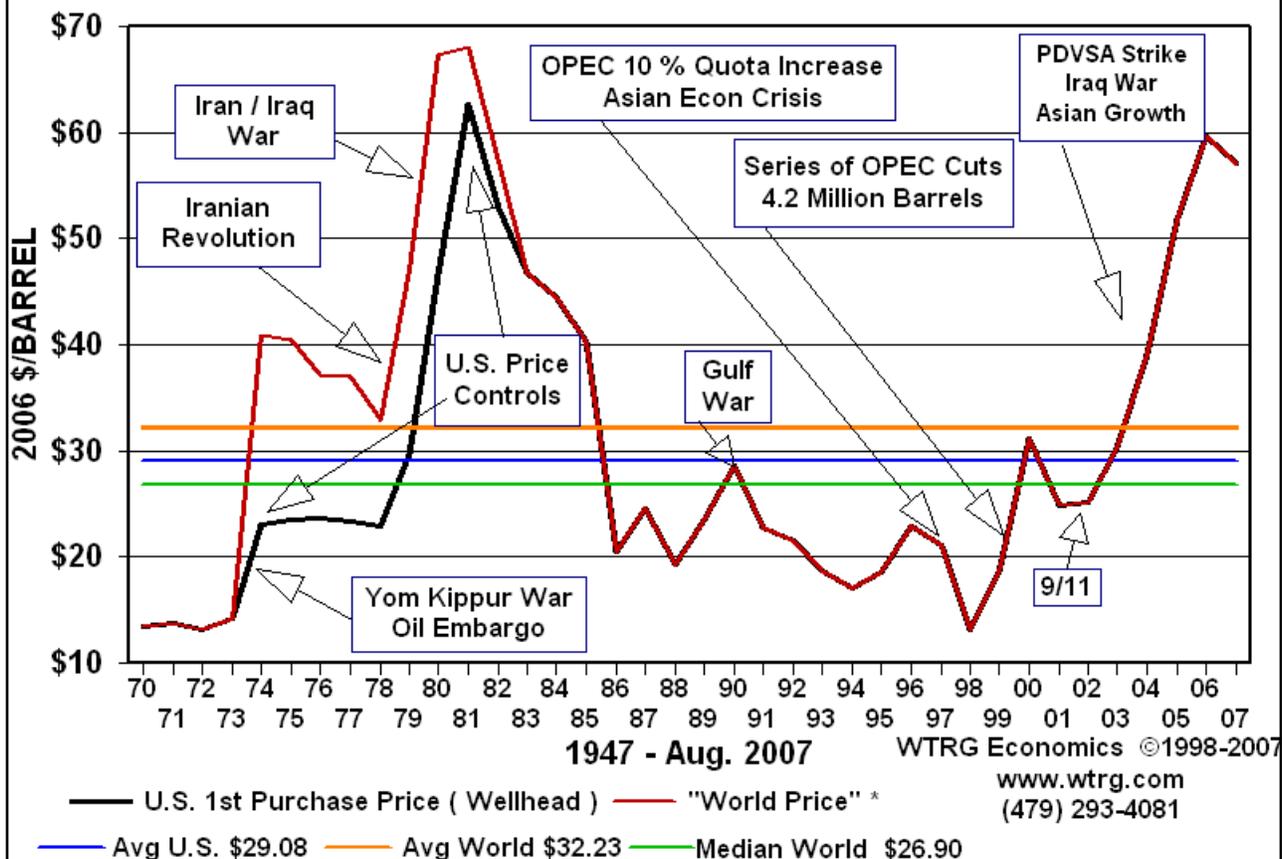
# Charting the Oil Shock

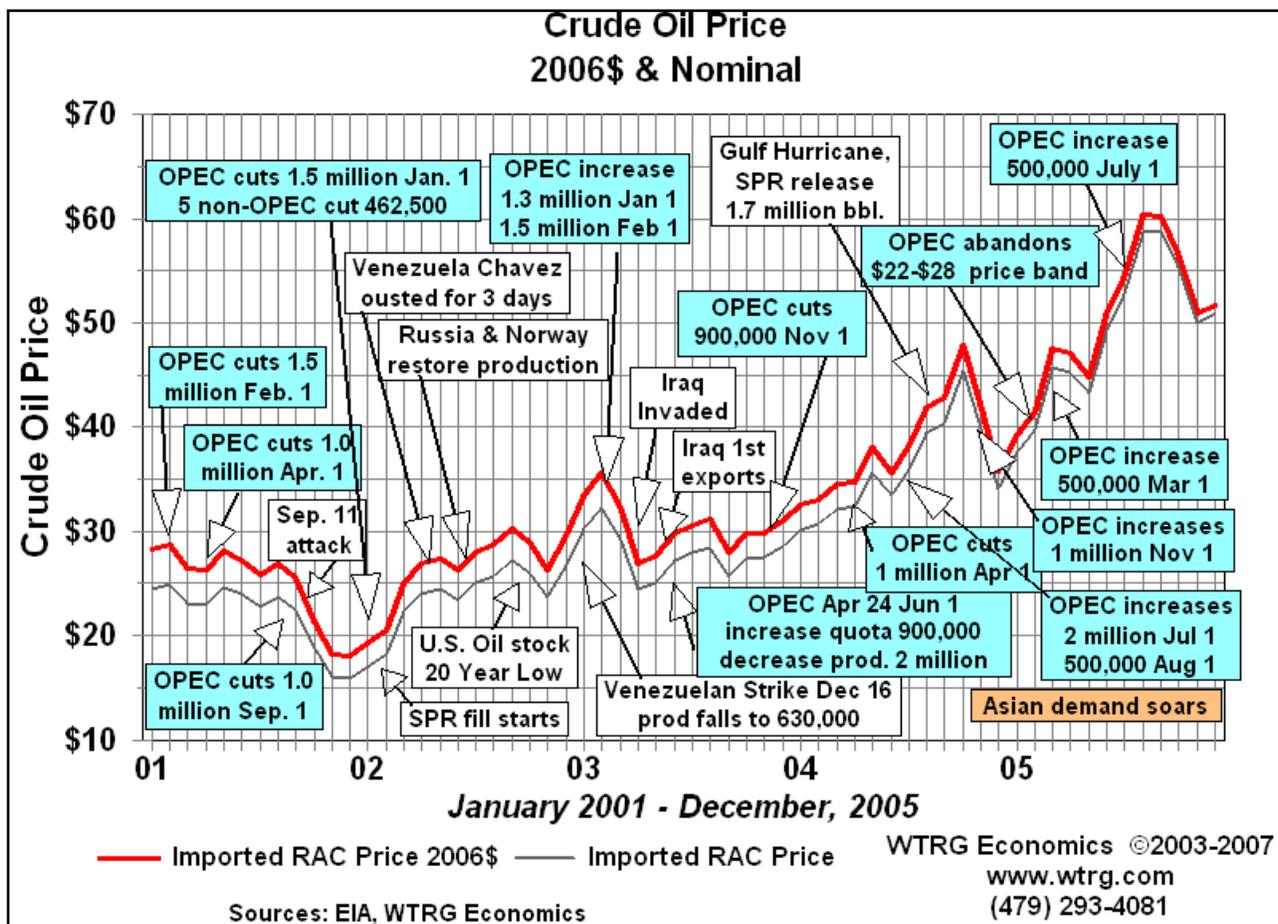
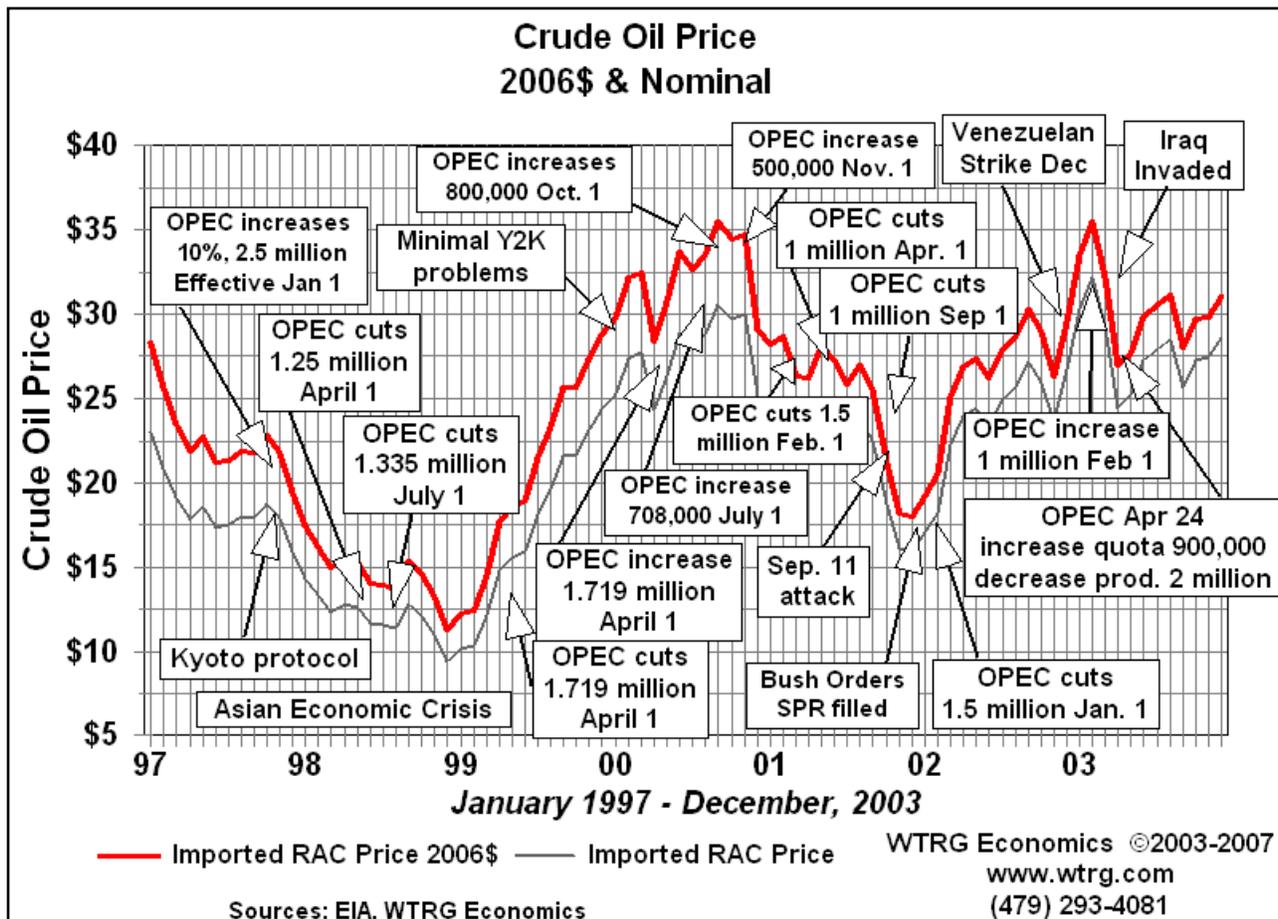


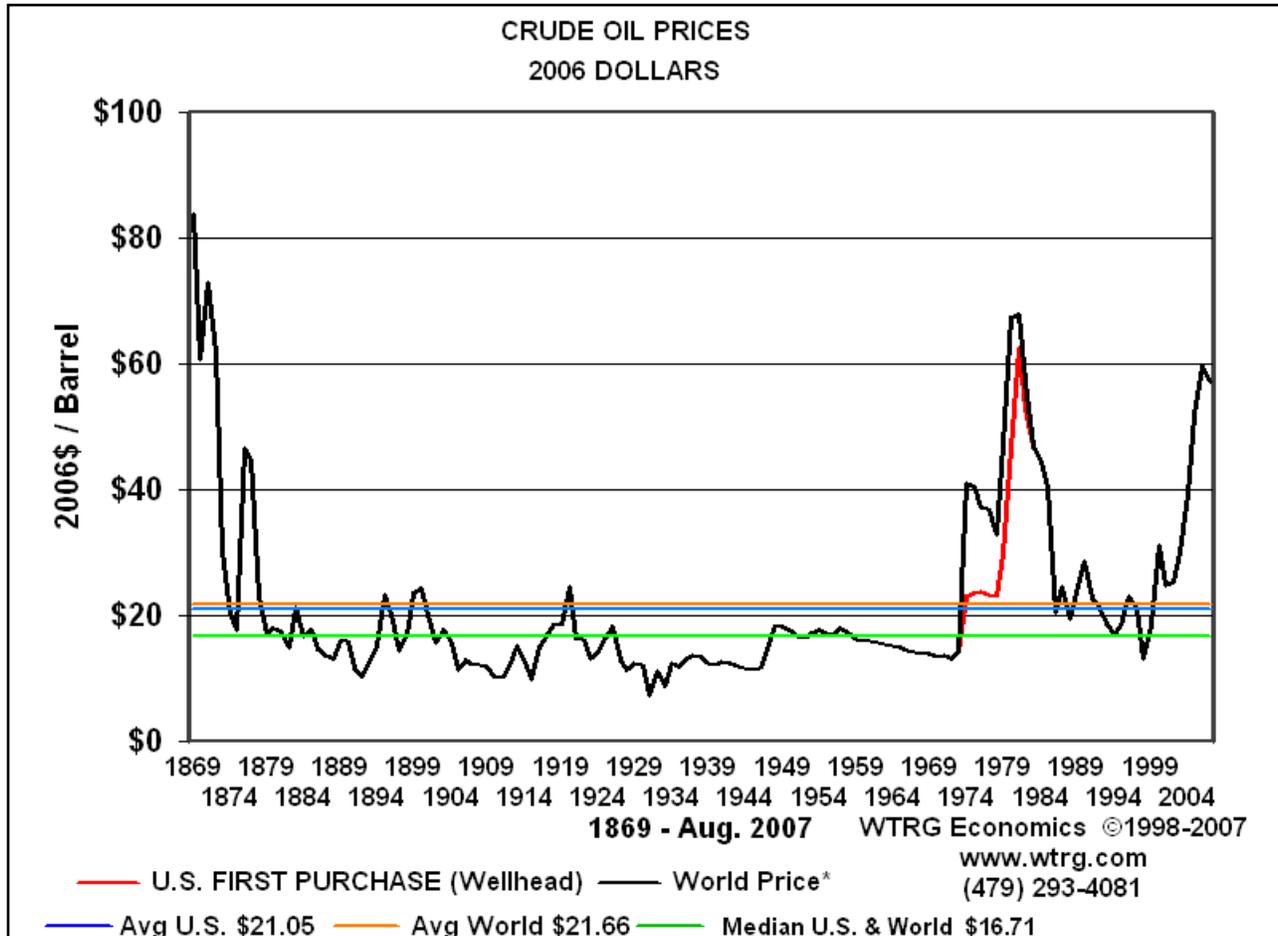
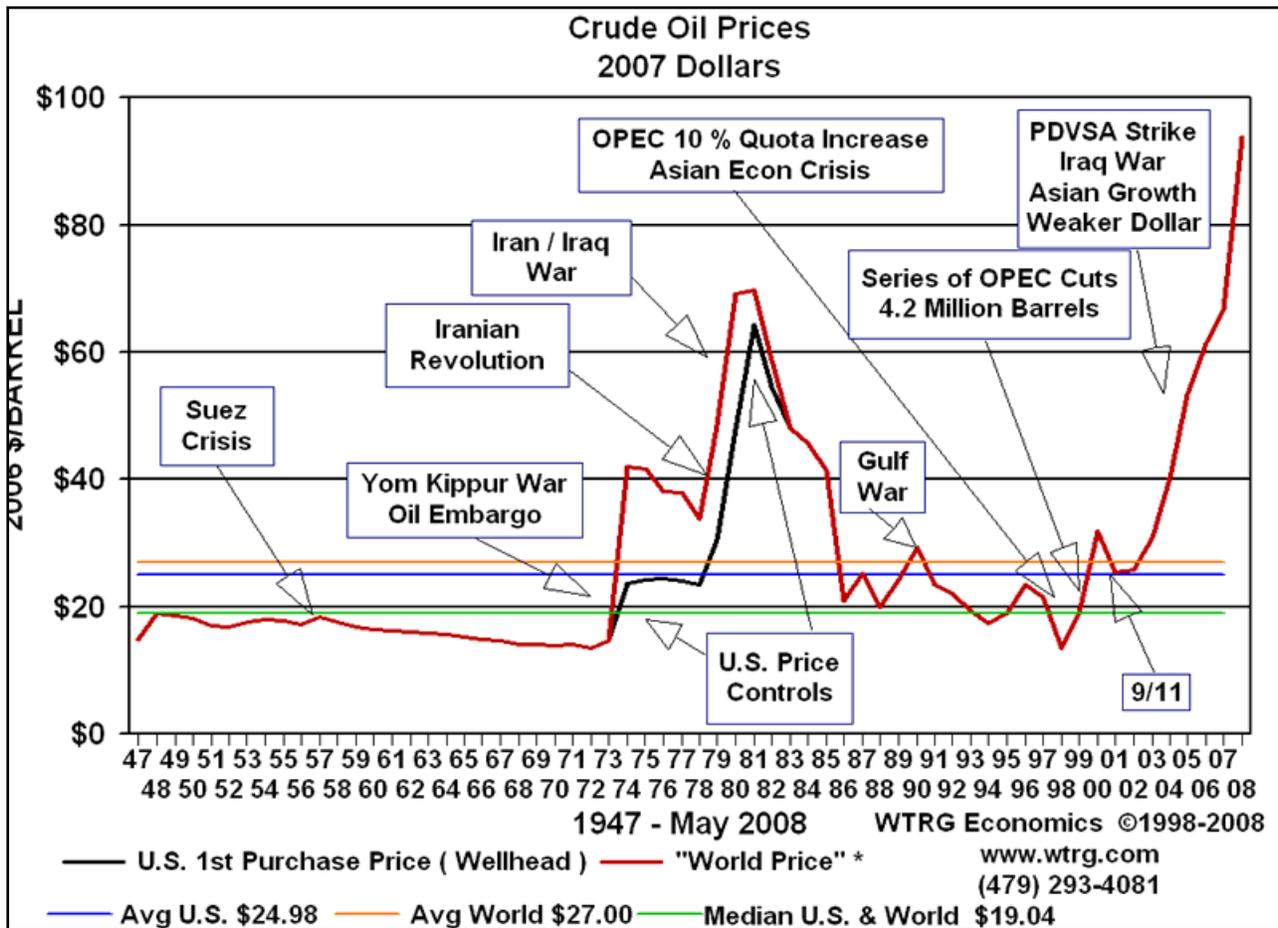
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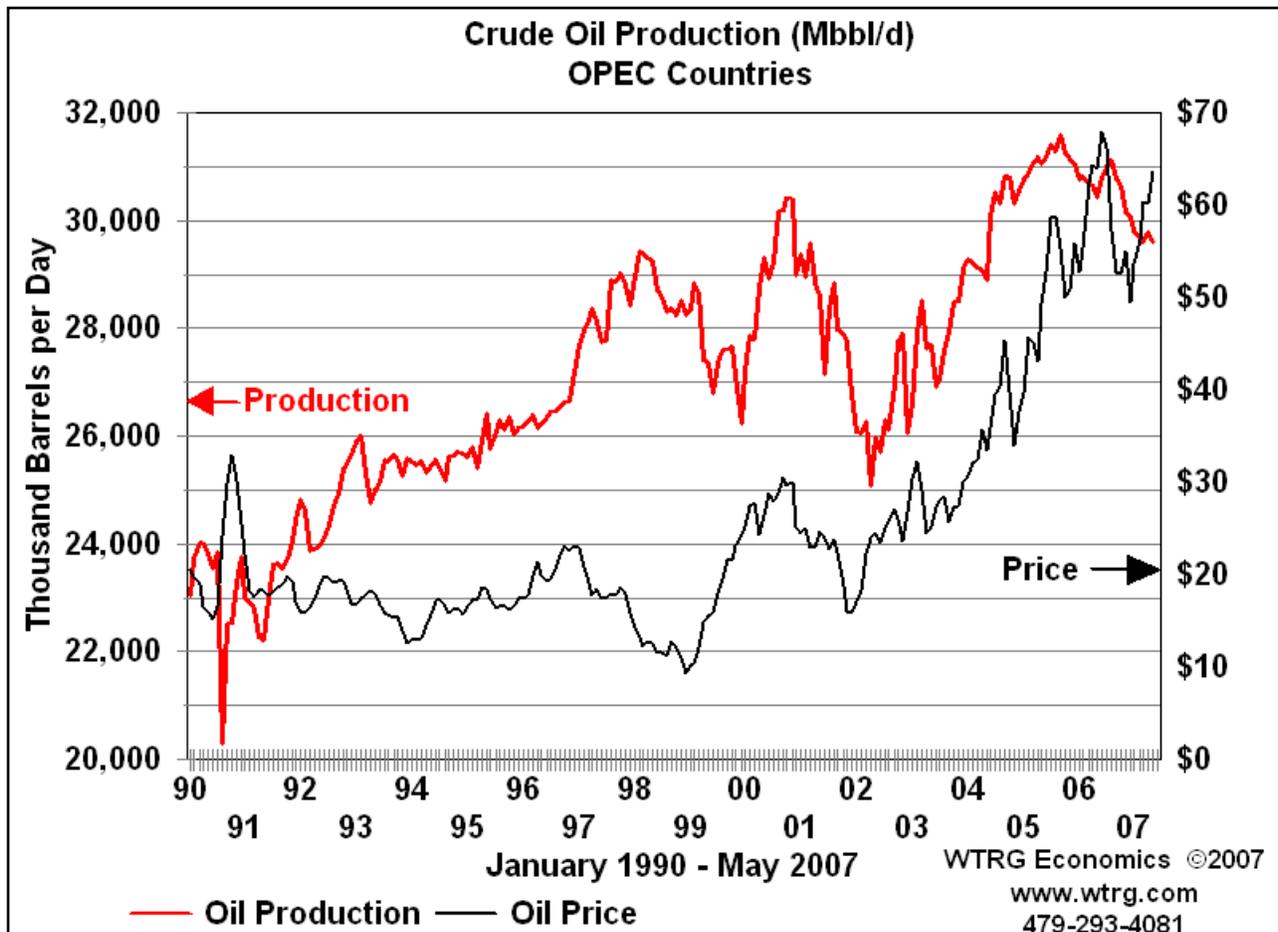
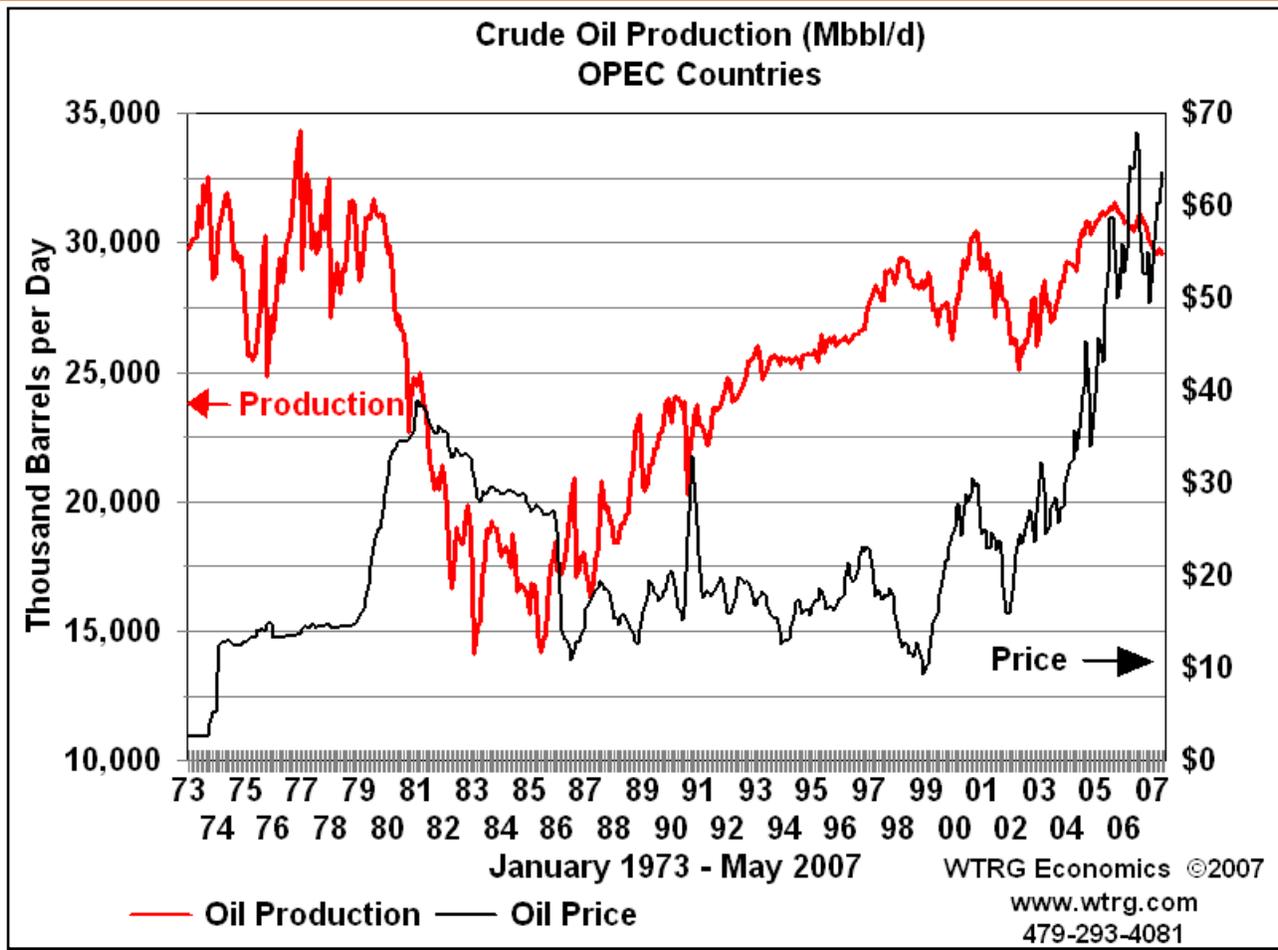


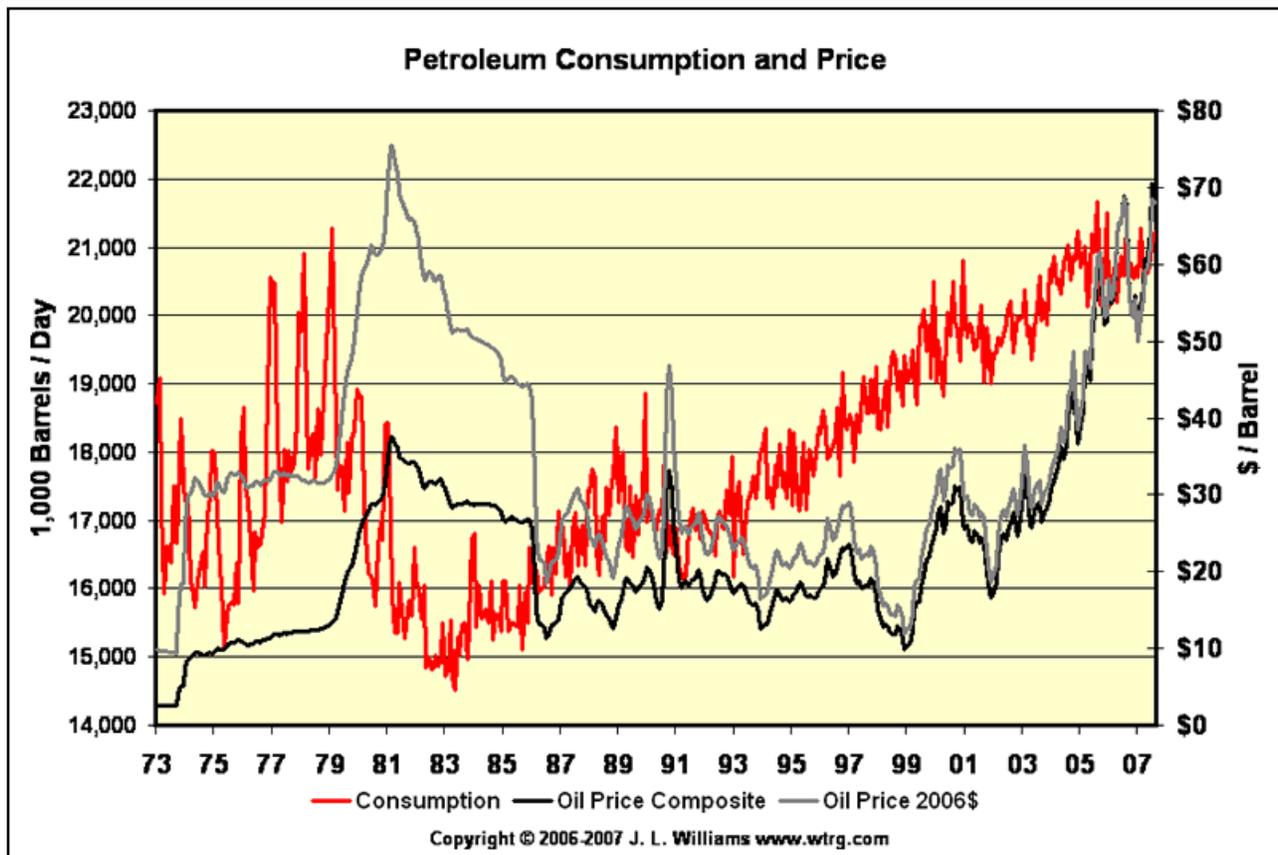
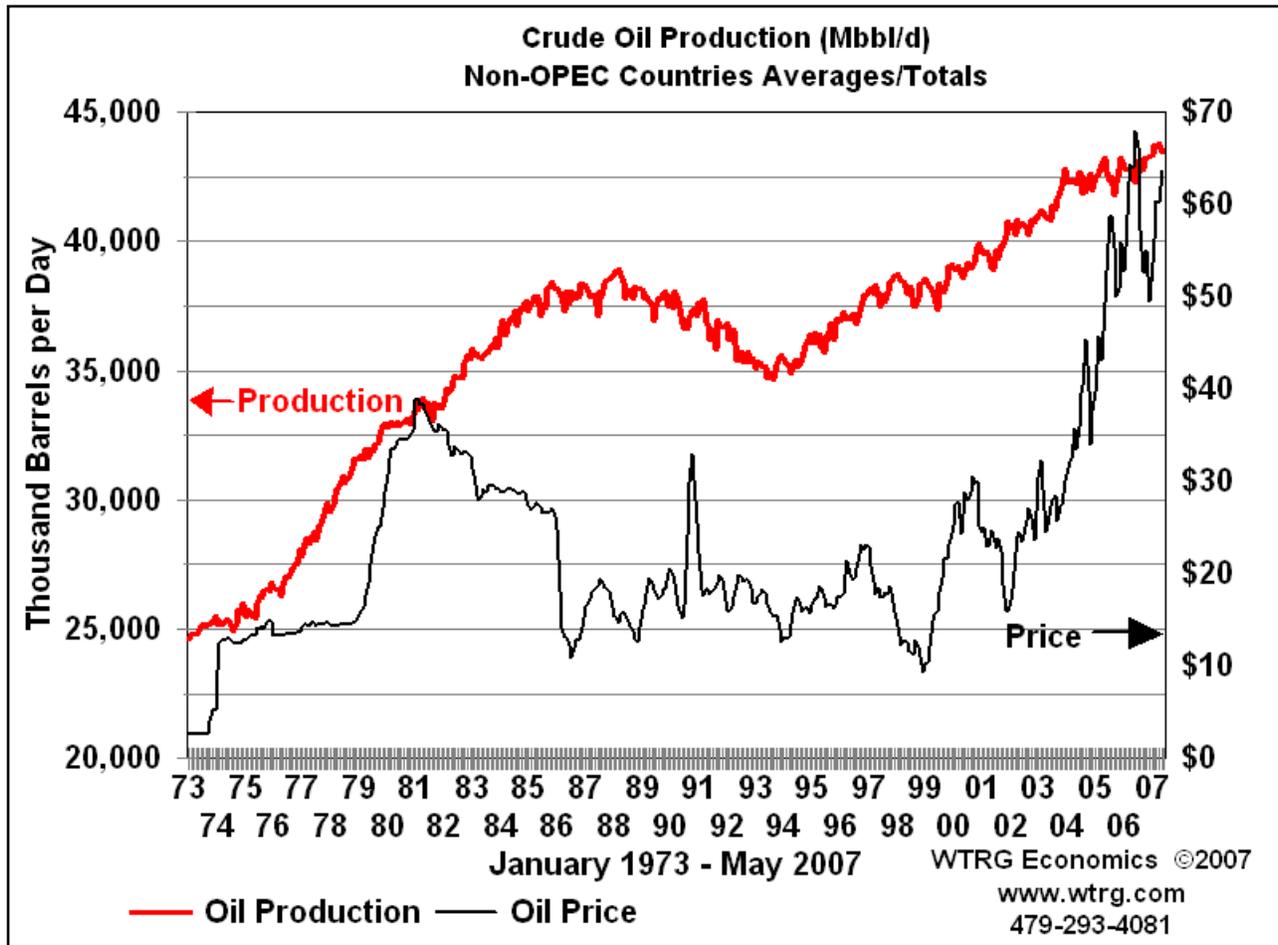
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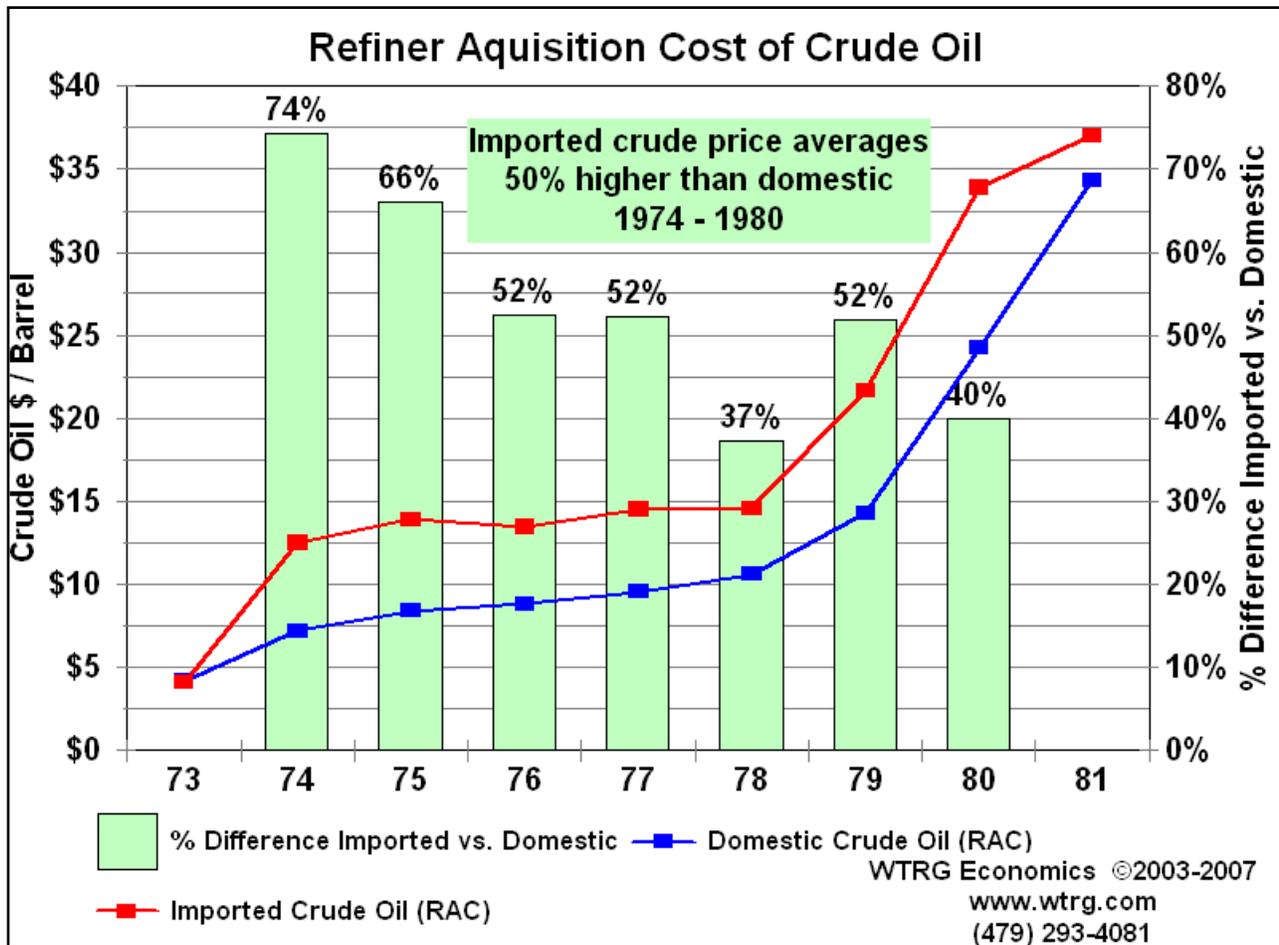
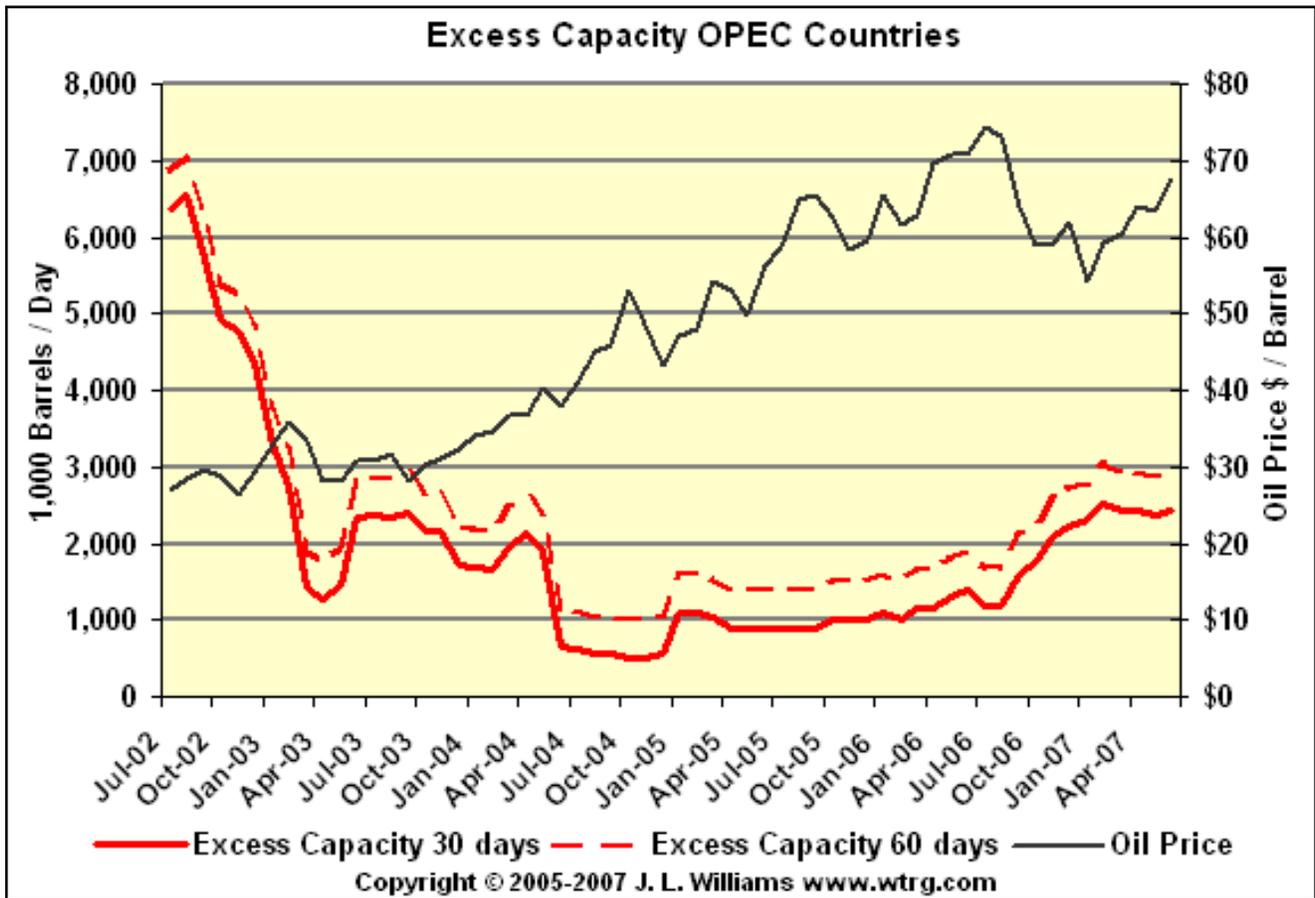


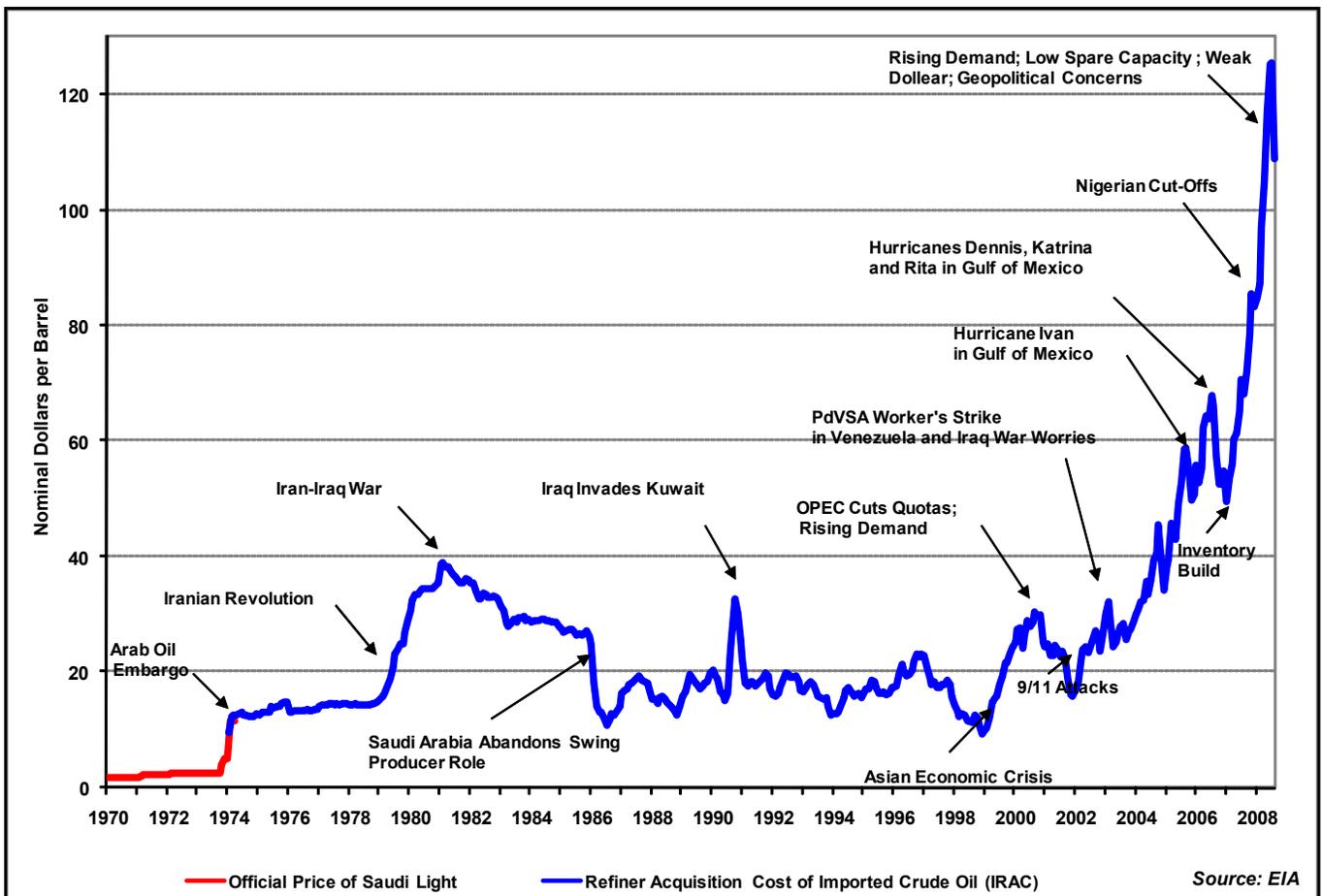
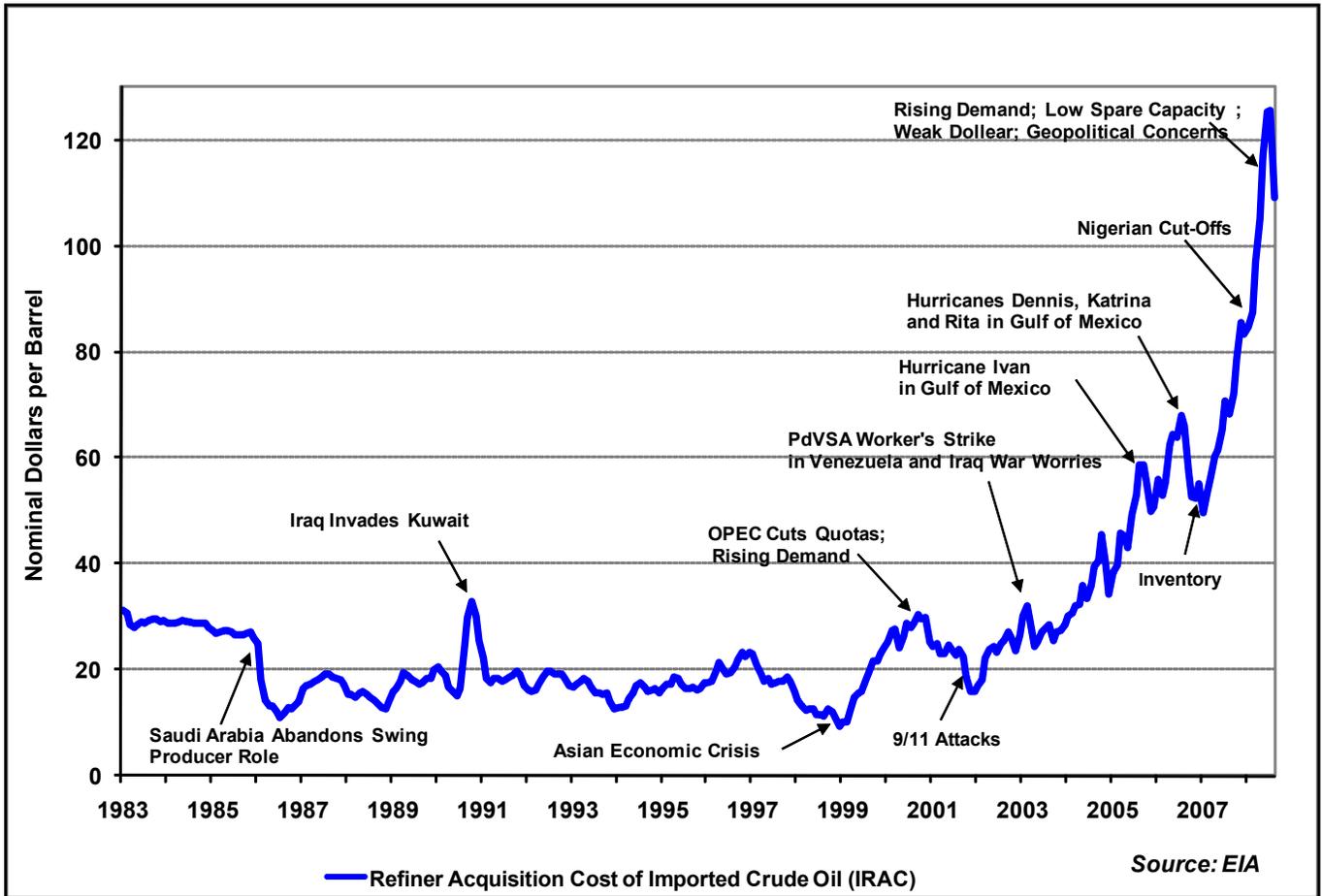


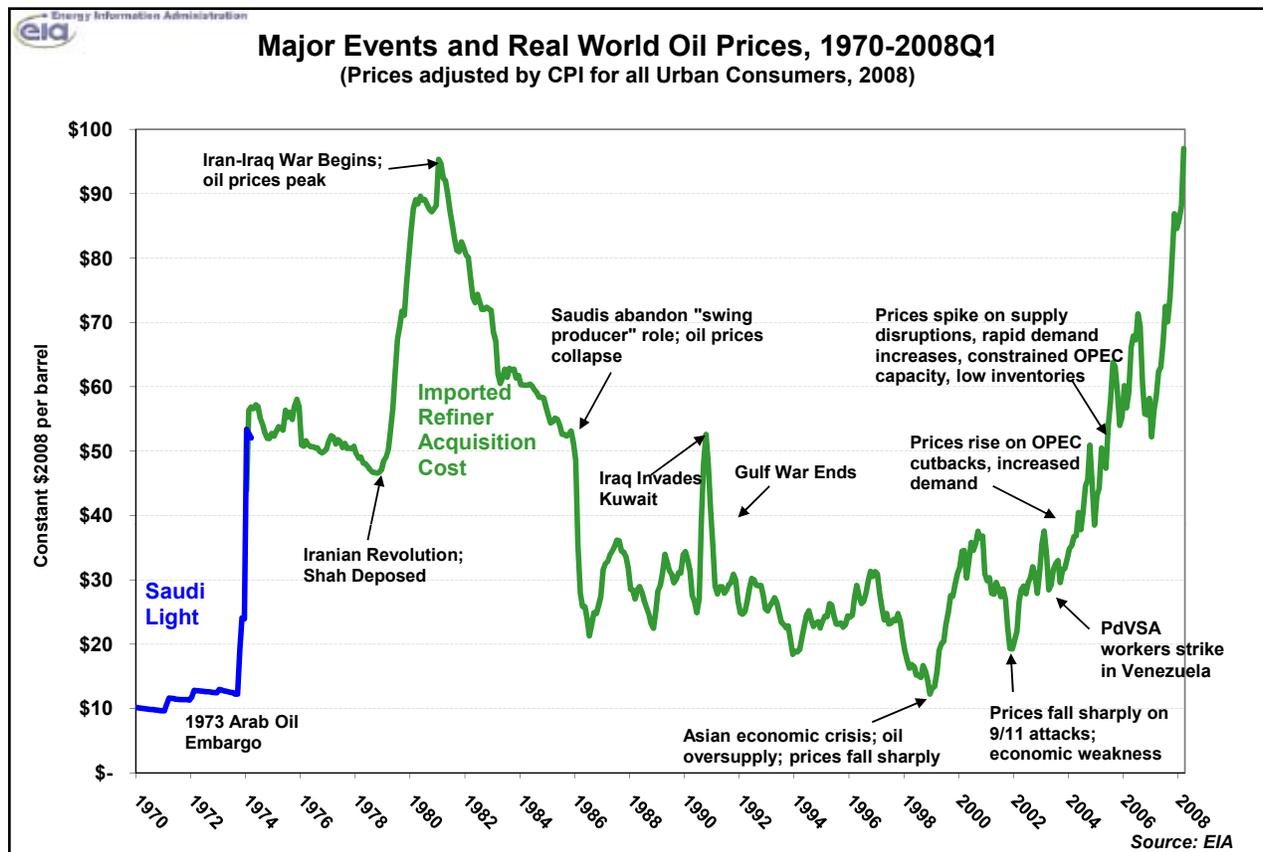
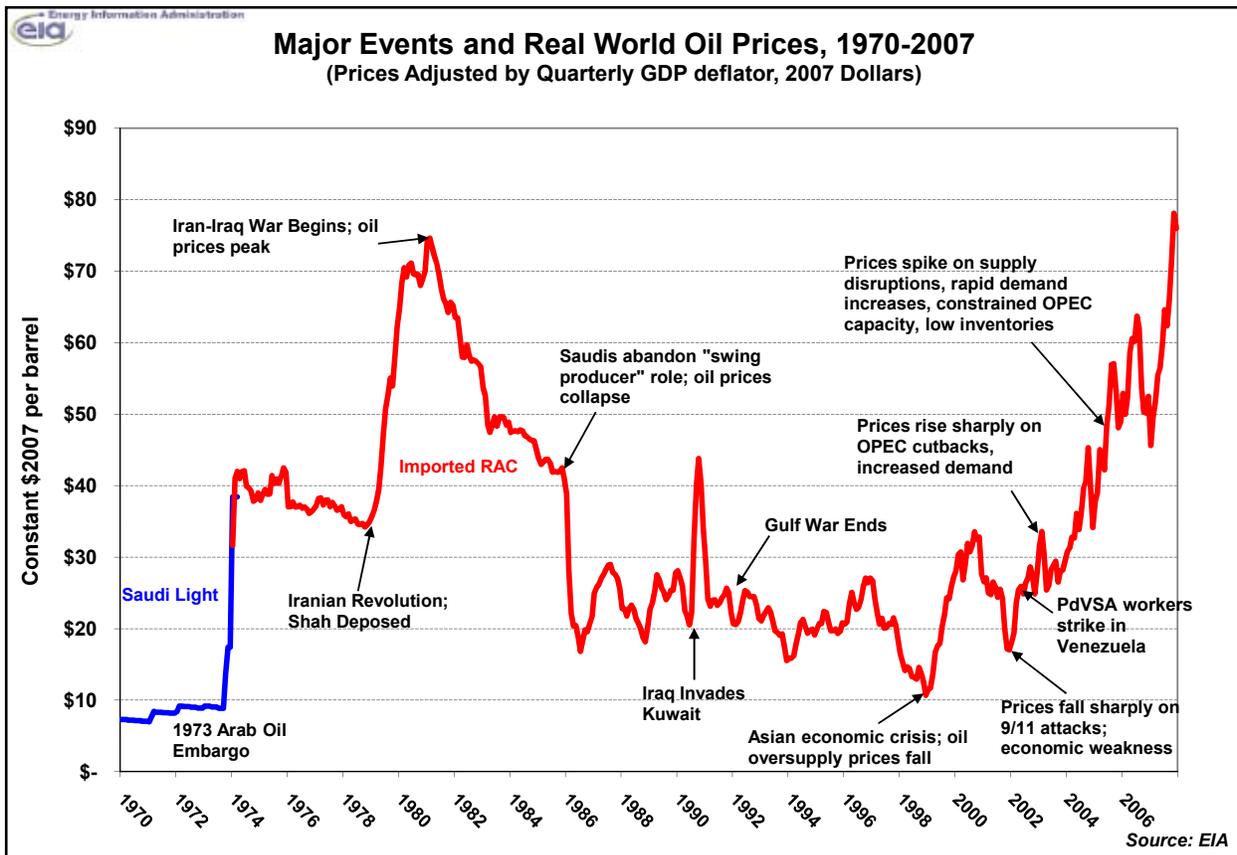












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# Online Resources

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## MAPS

### Various Oil Maps

[http://www.lib.utexas.edu/maps/map\\_sites/oil\\_and\\_gas\\_sites.html](http://www.lib.utexas.edu/maps/map_sites/oil_and_gas_sites.html)

### Interactive Map and Statistics

<http://gcaptain.com/maritime/blog/tag/world-oil/>

## OIL TRADE

### World Oil Price Chronology (1970-2007)

[http://tonto.eia.doe.gov/country/timeline/oil\\_chronology.cfm](http://tonto.eia.doe.gov/country/timeline/oil_chronology.cfm)

### Monthly Energy Market Chronologies

(1996-2008) [http://www.eia.doe.gov/cabs/MEC\\_Past/index.html](http://www.eia.doe.gov/cabs/MEC_Past/index.html)

(2009) [http://www.eia.doe.gov/cabs/MEC\\_Current/January.html](http://www.eia.doe.gov/cabs/MEC_Current/January.html)

### World Oil Transit Chokepoints

[http://www.eia.doe.gov/cabs/World\\_Oil\\_Transit\\_Chokepoints/Background.html](http://www.eia.doe.gov/cabs/World_Oil_Transit_Chokepoints/Background.html)

### Oil Consumption Country Comparison

<https://www.cia.gov/library/publications/the-world-factbook/rankorder/2174rank.html>

### Statistics on Oil Products from/in the Middle East

[http://www.iea.org/Textbase/stats/oildata.asp?COUNTRY\\_CODE=22](http://www.iea.org/Textbase/stats/oildata.asp?COUNTRY_CODE=22)

## US ECONOMY AND OIL

### Energy Security Effect on US Economy (1970-2005)

[http://www.eia.doe.gov/security/Oil/price\\_slides.html](http://www.eia.doe.gov/security/Oil/price_slides.html)

### US Imports by Country of Origin

[http://tonto.eia.doe.gov/dnav/pet/pet\\_move\\_impcus\\_a2\\_nus\\_ep00\\_im0\\_mdbl\\_m.htm](http://tonto.eia.doe.gov/dnav/pet/pet_move_impcus_a2_nus_ep00_im0_mdbl_m.htm)

## NATURAL GAS

### General Natural Gas Overview and Statistics

[http://www.eia.doe.gov/oiaf/ieo/nat\\_gas.html](http://www.eia.doe.gov/oiaf/ieo/nat_gas.html)

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Natural Gas Reserves

<http://www.eia.doe.gov/emeu/international/reserves.html>

**General Statistics and Article Database**

[http://www.iea.org/textbase/stats/gasdata.asp?COUNTRY\\_CODE=22](http://www.iea.org/textbase/stats/gasdata.asp?COUNTRY_CODE=22)

**BP Natural Gas Review, including Historical Data 1965-2008**

<http://www.bp.com/subsection.do?categoryId=9023762&contentId=7044550>

**Natural Gas Market Review (2008)**

[http://www.iea.org/Textbase/Publications/free\\_new\\_Desc.asp?PUBS\\_ID=2048](http://www.iea.org/Textbase/Publications/free_new_Desc.asp?PUBS_ID=2048)

**Natural Gas Transport and Pipeline Information**

<http://www.eia.doe.gov/emeu/cabs/caspgase.html>

## *MISCELLANEOUS RESOURCES (INCLUDING GENERAL OIL INFO)*

**Middle East Energy News**

<http://energy.einnews.com/middle-east/>

**Middle East Economic Survey**

<http://www.mees.com/>

**Country Analysis Briefs from DoE**

<http://www.eia.doe.gov/cabs/>

<http://www.eia.doe.gov/cabs/Algeria/Background.html>

<http://www.eia.doe.gov/cabs/Egypt/Background.html>

<http://www.eia.doe.gov/cabs/Libya/Background.html>

<http://www.eia.doe.gov/cabs/Iran/Background.html>

<http://www.eia.doe.gov/cabs/Iraq/Background.html>

<http://www.eia.doe.gov/cabs/Kuwait/Background.html>

<http://www.eia.doe.gov/cabs/Oman/Background.html>

<http://www.eia.doe.gov/cabs/Qatar/Background.html>

[http://www.eia.doe.gov/cabs/Saudi\\_Arabia/Background.html](http://www.eia.doe.gov/cabs/Saudi_Arabia/Background.html)

<http://www.eia.doe.gov/cabs/Sudan/Background.html>

<http://www.eia.doe.gov/cabs/Syria/Background.html>

<http://www.eia.doe.gov/cabs/UAE/Background.html>

<http://www.eia.doe.gov/cabs/Yemen/Background.html>

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**Statistical Review of Energy 2009 (worldwide statistics including Middle East)**

<http://www.bp.com/productlanding.do?categoryId=6929&contentId=7044622>

**AME Info (Middle East business newsletter with energy section)**

[http://www.ameinfo.com/energy\\_oil\\_and\\_gas/](http://www.ameinfo.com/energy_oil_and_gas/)

**AME Info by company (see Shell, BP, etc.)**

[http://www.ameinfo.com/news/Company\\_News/](http://www.ameinfo.com/news/Company_News/)

**OPEC**

<http://www.opec.org/home/>

**MAJOR OIL COMPANIES**

**BP**

<http://www.bp.com>

**Chevron**

<http://www.chevron.com/>

**Global Issues**

<http://www.chevron.com/globalissues/>

**ConocoPhillips**

<http://www.conocophillips.com/index.html>

**Country Pages**

[http://www.conocophillips.com/about/worldwide\\_ops/country/africa/algeria.htm](http://www.conocophillips.com/about/worldwide_ops/country/africa/algeria.htm)

[http://www.conocophillips.com/about/worldwide\\_ops/country/middle\\_east/iraq.htm](http://www.conocophillips.com/about/worldwide_ops/country/middle_east/iraq.htm)

[http://www.conocophillips.com/about/worldwide\\_ops/country/middle\\_east/qatar.htm](http://www.conocophillips.com/about/worldwide_ops/country/middle_east/qatar.htm)

[http://www.conocophillips.com/about/worldwide\\_ops/country/middle\\_east/saudiArabia.htm](http://www.conocophillips.com/about/worldwide_ops/country/middle_east/saudiArabia.htm)

[http://www.conocophillips.com/about/worldwide\\_ops/country/middle\\_east/uae.htm](http://www.conocophillips.com/about/worldwide_ops/country/middle_east/uae.htm)

[http://www.conocophillips.com/about/worldwide\\_ops/country/africa/libya.htm](http://www.conocophillips.com/about/worldwide_ops/country/africa/libya.htm)

**Dutch Royal Shell**

<http://www.shell.com/>

**ExxonMobil**

<http://www.exxonmobil.com/Corporate/energy.aspx>

**Outlook**

[http://www.exxonmobil.com/Corporate/energy\\_o.aspx](http://www.exxonmobil.com/Corporate/energy_o.aspx)

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## **Pricing and Earnings**

[http://www.exxonmobil.com/Corporate/energy\\_issues.aspx](http://www.exxonmobil.com/Corporate/energy_issues.aspx)

## **Gazprom**

<http://www.gazprom.com/>

## **Lukoil**

<http://www.lukoil.com/>

### **Reserves and Production**

[http://www.lukoil.com/static\\_6\\_5id\\_252\\_.html](http://www.lukoil.com/static_6_5id_252_.html)

## **Saudi Aramco**

[www.saudiaramco.com](http://www.saudiaramco.com)

## *RENEWABLE ENERGY*

### **MENA Renewable Energy Conference (incl. essays on RE in the MENA region)**

<http://www.menarec.net/> (see “Menarec 4 for most recent information)

### **Power Engineering Magazine – Middle East (articles on developments in MENA)**

[http://pepei.pennnet.com/articles/print\\_toc.cfm?p=89](http://pepei.pennnet.com/articles/print_toc.cfm?p=89)

### **ME Energy Use and Carbon Dioxide emissions 1980-2001**

<http://www.eia.doe.gov/emeu/cabs/carbonemiss/chapter5.html>

### **Abu Dhabi Carbon Neutral City**

[www.masdaruae.com](http://www.masdaruae.com)

### **Business Council for Sustainable Energy**

<http://www.bcse.org/index.php>

### **Renewable Energy Policy Project**

<http://www.repp.org/>

### **Global Energy Network Institute**

<http://www.geni.org/>

### **Open Secrets (Oil and Gas Lobby Section)**

<http://www.opensecrets.org/industries/indus.php?cycle=2010&ind=E01>

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