

**EXCLUSIVE****ENERGY**

# 2 Trillion Barrels Of Oil Waiting To Be Consumed

Carter's soon to be announced energy program calls for unprecedented cutbacks in petroleum consumption for the United States, implicitly, across the globe. There are two basic arguments widely used to justify the Carter-Schlesinger energy plan. The first is that the world is facing an imminent shortages of fossil fuels, which will run out before alternative energy sources come on line. The second argument is that the U.S. is increasingly "vulnerable" to foreign suppliers. The U.S. could be slapped with another embargo from the Arab producing nations in a less dramatic action, the Organization of Petroleum Exporting Countries (OPEC) will continue to raise the price of oil.

The "U.S. vulnerability" argument is obviously bogus. The oil producers have made repeated gestures toward cooperation with the U.S. and the advanced countries to secure oil-for-technology deals for development. They have shown willingness to cooperate with the consuming nations at the North-South meeting in Paris to establish a new world economic order. Saudi Oil Minister Sheikh Ahmed Zaki Yamani stated in January that the price of oil could come down once a resolution to the world economic crisis was reached through the North-South talks. Similarly, the Arab oil producers have been aggressive in attempting to organize for a Geneva conference to settle the Mideast crisis and eliminate the threat of a renewed war. Clearly it is the "vulnerability" of the New York banks to new monetary arrangements for expanded world production and trade, not U.S. national security, which preoccupies the Carter Administration.

The question of actual shortage is disproved by the fact that the Middle East producers, as well as numerous other areas are sitting on billions of barrels of unexploited oil. The existence of these vast reserves has been purposefully withheld from the American public by Rockefeller's oil companies, the CIA, and other agencies. The following is a region-by-region summary of world oil potential:

## *The Middle East*

If one is to assess the prospects for future oil output the place to start is Saudi Arabia. The latest figure announced for Saudi reserves is approximately 150 billion barrels, though the Arabian American Oil Company (ARAMCO) puts their estimate at about 177 billion. It is based on these extremely conservative figures that ARAMCO estimates that Saudi Arabia could produce 12 million barrels a day (mbd) for a century, about three and one half mbd more than the Saudis have produced up to the present. Despite Saudi Arabia's large output,

Saudi reserves continue to climb annually, due to the discovery of new fields and the continual upping of the size of already producing fields. (See Tables 1 and 2)

It is widely acknowledged that even the highest current public estimates of Saudi reserves are a gross underestimation. The former U.S. Ambassador to Saudi Arabia has gone on record estimating that there are at least 300 billion barrels under the ground awaiting exploitation. As the map (1) shows, large portions of the peninsula have yet to be explored, most notably the huge empty quarter which is known to possess oil. Preliminary drillings and small finds indicate that the crude from the Empty Quarter is of the highest quality. Similarly, areas north of Riyadh are believed to possess high quantities of oil. These reserves were discussed by a Japanese delegation to Riyadh in February. The Japanese had hoped to open up the field in a technology-for-oil arrangement and Japanese sources put the potential of this single area at about five mbd.

Following the December OPEC meeting Saudi Oil Minister Yamani announced that his government intends to increase output to 14 mbd by the end of 1977. According to Donald Wells, a former Saudi economic consultant the Saudis could be producing 20 mbd with very little effort, the target personally set by Yamani prior to the 1973 Middle East war. The Saudis face no major technological limitations to achieving such a goal, and the ease of acquiring the oil (at 10 cents a barrel, Saudi oil is the cheapest to produce in the world) makes a stepup in Saudi output crucial for global economic growth. At present, the Saudis are making sizable investments in water injection systems to keep the output strong in older fields.

The offshore Persian Gulf also offers highly favorable prospects for increased oil production. Unlike the tumultuous North Sea, offshore drilling in this region can take place in one of the most propitious climates in the world. According to the *Offshore* magazine, current offshore pumping in the Gulf contributes about 3.5 mbd, or approximately 14 percent, to the total Mideast oil output of about 25 mbd. It is anticipated that this percentage will double in the near future. The Gulf emirate Abu Dhabi figures to be the producer to make the greatest contribution to offshore oil expansion. A Zapata Oil Company official in Abu Dhabi's sister emirate of Dubai recently confirmed in a interview with *Offshore* the large amount of oil still untapped under the Persian Gulf, and predicted a dramatic upturn in drilling activity in coming years.

At present Abu Dhabi has increased the allowable maximum production from its offshore fields and has commissioned the French state-owned firm CFP to

**Table 1— Crude Oil Remaining Reserves of Saudi Arabia at Year End**

In Billion U.S. Barrels

Year	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
<b>Total</b>	<b>78.00</b>	<b>80.40</b>	<b>136.00</b>	<b>136.70</b>	<b>138.70</b>	<b>138.26</b>	<b>137.07</b>	<b>136.83</b>	<b>141.04</b>	<b>144.58</b>

**Table 2— Crude Oil Production of Saudi Arabia**

In U.S. Barrels  
1966 - 1975

Year	Total	Percentage Change
1966	949,659,835	
1967	1,023,839,853	+ 7.8
1968	1,113,717,011	+ 8.8
1969	1,173,893,164	+ 5.4
1970	1,386,658,836	+ 18.1
1971	1,740,632,763	+ 25.5
1972	2,201,961,695	+ 26.5
1973	2,772,605,428	+ 25.9
1974	3,095,088,427	+ 11.6
1975	2,582,535,244	- 16.6

being expanded and two new fields, Sirri C and D, are expected to begin production this year. A very large off shore find was made in the straits of Hormuz a few months ago by the Brazilian state-owned company, Petrobras. With an anticipated capacity of 300,000 barrels a day, the Hormuz field could significantly augment Brazil's high-paced efforts toward energy self-sufficiency (see below). Iran's Marun field, the country's largest and most recently discovered, is currently producing 1.4 mbd thanks to stepped-up drilling activity. Marun's output is soon to climb by another 100,000 barrels a day, a rate which it is expected will be maintained for coming years. The Iranian government has already approved the installation of a number of gas injection systems into the already active wells, reflecting Saudi Arabia's similar move to extend the life and efficiency of producing wells.

The size of Iran's total oil reserves is as yet undetermined. A well-informed source at the Hudson Institute (which specializes in energy) is insistent that Iran's reserves are in the neighborhood of 200 to 300 billion barrels. This expert emphasized the gross underestimation of both Saudi and Iranian reserves. Moreover, it has recently come to light that Iran has gas reserves under the Persian Gulf in the Kangas fields which may well rival the world's largest known reserves now found in the Soviet Union. It is of course natural to assume that where there is gas there is oil. The Hudson Institute official added that the U.S. could rely solely on Persian Gulf oil supplies if necessary. To date, he added, no one has done an adequate analysis of Iran's actual reserves situation. The same situation exists for Iraq which is known to have equally large amounts of still unexplored crude.

expand the Zakum field to produce 450,000 barrels a day more than it is currently yielding. Abu Dhabi Marine Areas Ltd. will soon provide the Zakum field with high technology drilling capacity known as the "supercomplex," one of which is already installed in the Umm Shaif field.

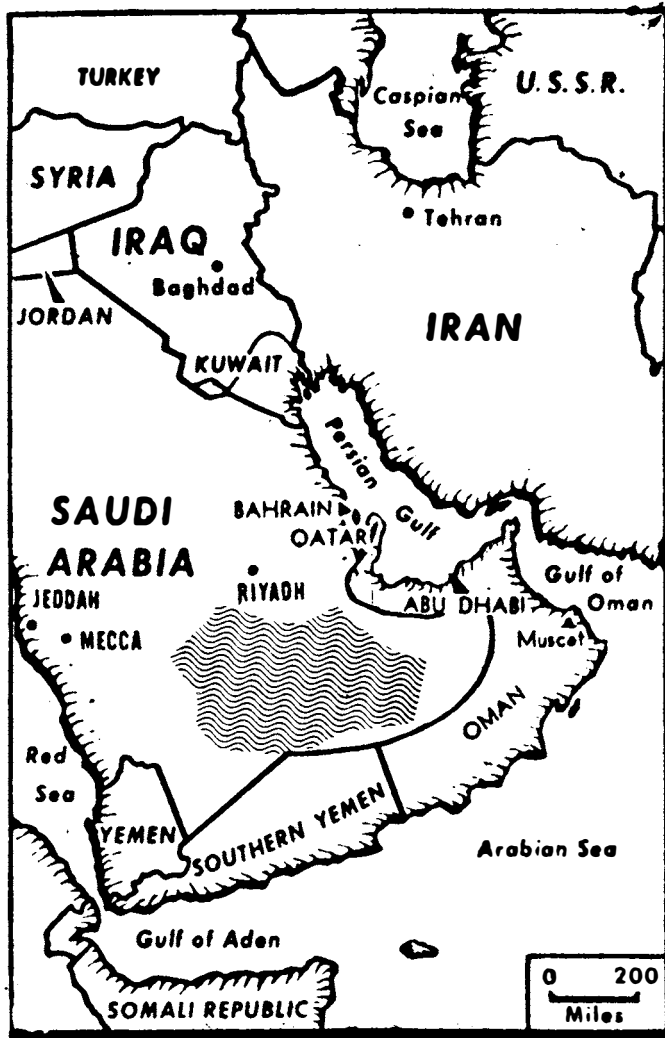
Last week, the Abu Dhabi government formed a new state owned company to oversee offshore activity, with the participation of British Petroleum, CFP, and a group of Japanese companies. In addition, United Arab Emirates Oil Minister Manah Oteiba has stated that the UAE could easily increase production by an additional 300,000 barrels a day.


On the other side of the Persian Gulf, Iran has its own share of both onshore and offshore activity aimed at expansion of output. The Ardeshir offshore fields are

#### *Africa*

In North Africa, Libya is making a concerted effort to step up production of its 70 percent nationalized petroleum industry. Last year Occidental opened a new field in the Sirtica Basin, where the Almas field was discovered and developed by Oxy under a far reaching production sharing agreement giving Libya 81 percent of all commercial oil output. Other foreign companies have agreed to explore onshore in Libya under comparable terms that allow the government no less than 85 percent commercial discoveries. According to the Libyan National Oil Corporation, exploration done last year by a group of French, Austrian, and German companies has yielded a new field which is being described as Libya's

Map 1



 The Empty Quarter

largest to date. Libya is looking to regain the past output of the large Sarir field which before nationalization in 1971 was producing over 400,000 b-d. It has since slumped to about 200,000 b-d, but the Qaddafi government envisages output by 1980 from this field alone of 900,000 b-d. British Petroleum, from which the field was originally nationalized, may be invited back into Libya to help revitalize it.

A major political prerequisite for expanded petroleum production necessary to service the world economy is nationalization. Since 1974 in particular, momentum among Mideast oil producers to take greater political control over the remaining private interests in their respective nations has gained. Saudi Arabia has finalized the terms of complete takeover of the enormous heretofore Rockefeller-dominated ARAMCO operations. Following a round of talks between Yamani and ARAMCO in Europe last month, the Saudis have agreed to establish a state-run institute to oversee managing their soon-to-be acquired remaining 40% of ARAMCO now held by Exxon, Mobil, Socal, and Texaco. An agreement was reached last year between the government of Qatar and the consortium of oil companies which still held 40 percent interest in its output. Added to this,

non-Rockefeller independent and state-owned oil companies have moved into exploration in the Mideast and North Africa. Companies like Italy's ENI, the Brazilian Petrobras, Elf Erap of France, Spain's Hispanoil and OMV of Austria are becoming favored exploration partners for the producing nations. At least two dozen Japanese companies are partners in production and exploration in the Persian Gulf, while about 60 companies including larger U.S.-based independents such as Anoco, Conoco and Philips are gaining steam within the area.

The same holds true for the continent of Africa, where vast regions are yet unexplored. Large territory with sedimentary basin — an indicator of possible oil deposits — covers about half of the continent. Discounting the North African producers, Gabon and Nigeria are Africa's only two members of OPEC. Yet, of the 51 countries or territories in Africa, 32 have issued petroleum exploration permits and Kenya, Tanzania, and Somalia have taken the lead in geological and geophysical exploration while the most drilling has taken place in Camerous, South Africa and Chad. It is thought that the landlocked state of Chad has sizeable amounts of reserves. In the case of the African states the viability of investment in expanded exploration must be weighted against the cost of both production and transportation. Nevertheless, the pattern of investment — in chiefly from Europeans and Mideast oil-producing states — in oil exploration and oil-related industry such as refining capacity, indicates a certainty that there are worthwhile amounts of exploitable crude, which will aid in furthering African development.

#### *India and Latin America*

Since the fourfold increase in the price of oil, a number of Third World nations have mounted a remarkable effort to become oil producing states. Often under adverse environmental and political conditions countries such as India have built an oil industry up from the ground in the space of two years. Such an accomplishment on the part of an underdeveloped country belies the worn-out slogans that building new oil-producing infrastructure to expand production takes too much time and is too costly. Prior to 1974, India had been unable to solicit concessions from advanced sector oil companies even though Soviet advisors had helped to establish the presence of considerable reserves in India's Bombay High region in the Arabian sea. Unfortunately, the Soviets did not have the offshore technology to aid the Indians in undertaking production. For India, like other developing countries who have been virtually bankrupted by the high cost of oil, the drive for near self sufficiency by the early 1980s — which would mean an output of about 250,000 mbd — will enhance its prospects for further industrial development. This was the national development plan put forward by former Prime Minister Gandhi and while her successor's commitment to industrialization is highly questionable, the Desai government has made it clear it will stick to the national oil development plan. Last year the Bombay High offshore field began production with two operating platforms. The plan for the future includes 18 platforms. The Soviets also have identified another field in the Arabian Ocean which is expected to draw about 80,000 b-d, the Basein structure

near the Bombay High. India's Oil and Natural Gas Commission expects to soon put Bassein on stream at 20,000 b-d, to reach 60,000 b-d by the end of the year. Apart from the Bombay High, which the government has reserved for itself, a number of other promising sites in southern India and off the eastern coastline have been awarded for exploration to foreign companies — again with the prominent exception of the Rockefeller-dominated multinationals. While India need not become an exporter of oil in the near future, it takes some of the burden off the Gulf producers which have been supplying its oil by beginning to meet its own needs.

Brazil has also escalated efforts at domestic oil production since the fourfold price increase. As also in the case of India, Brazil is not expected to become a net exporter of oil but is aiming to produce at least half of its 1.2 mbd daily consumption, thus cutting down on its huge oil import bill. To date Brazil is 80 percent import dependent.

Since 1974, serious efforts at exploration have been ongoing with promising results in the Northwest states of Sergipe and Alagoas, five major fields discovered in the Campos Basin off the state of Rio de Janeiro, and new finds off the mouth of the Amazon in the north. This year alone the state-owned company Petrobras plans to drill 96 wildcats, 55 of which will be offshore.

Current offshore production comes almost entirely from the northeast section of the country (see map 2)

with the fields being shallow and close to shore, making for relatively easy extraction. Aside from domestic efforts to upgrade oil output (which include contacts with Royal Dutch Shell, British Petroleum, and Elf Erap) Petrobras has moved aggressively abroad into joint ventures with the Mideast producing nations and these have yielded sizeable finds. Petrobras's Iranian find has a potential of up to 300,000 b-d and a find of approximately the same size as recently reported in Iraq. Joint exploration still continues in Algeria.

A similar potential for domestic oil production exists for neighboring Argentina. According to the April 4 issue of the Oil and Gas Journal, the south Atlantic Ocean off Argentina may well become a boom area for exploration in the near future. With the Malvinas basin, the Burdwood Bank, the Falkland Plateau, and the San Jorge basen established as areas of possible petroleum sediments, Oil and Gas notes that two of these areas looks excellent, citing reports from London. (map 3) British Petroleum is slotted to play a major role in Argentina's petroleum development. British Petroleum recently participated in a three-year contract to explore off Bahia Blanca for Argentinian's state-owned oil company, YPF. This is a positive signal that an understanding is being reached between the UK and Argentina following their longstanding sovereignty dispute.

Mexico's recently publicized 60 billion barrels reserves, which puts that country on a par with Kuwait, makes it Latin America's probable near future exporter of oil. The English language daily of the United Arab Emirates this month, however, noted that even the 60 billion barrel estimate is low, claiming Mexico rather possesses 100 billion barrels of oil, the third largest reserves in the world! Like Indonesia, Mexico faces the political question of whether its oil will be used for expanding the industrial base of its economy or to serve as collateral on rollover credits for the country's considerable foreign debt. The scope of its reserves makes expansion of Mexico's one mbd output a political concern of the Rockefeller interests. This is both because Rockefeller's New York banks hold the lion's share of Mexico's debt and because if any sizeable amount of the oil exported by Mexico's state-owned Petroleos Mexicanos (Pemex), falls outside the hands of the multis Exxon's traditional control of oil markets could be upset.

There has been high level contact between the Arab oil-producing nations and Mexico, which the London-based *Sunday Telegraph* recently revealed may pay off in an Arab investment of \$5 billion in the Mexican economy. This is no doubt designed to prevent the cooptation of Mexico's oil business by Rockefeller's multis which could then be used against OPEC's efforts to expand production.

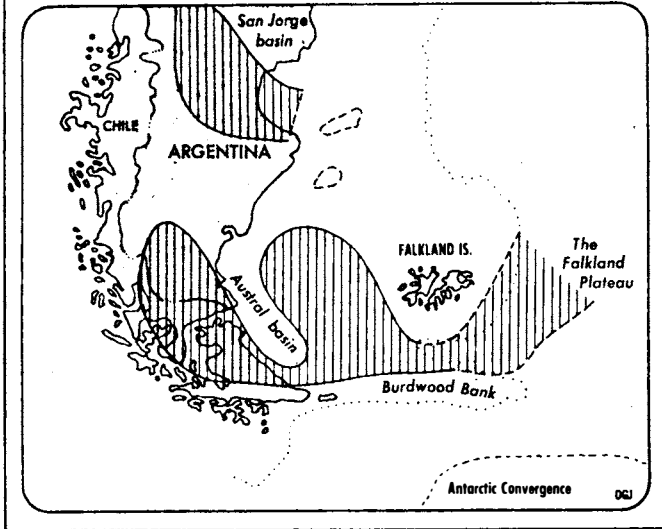
Furthermore, Pemex officials and the entire Mexican cabinet held lengthy consultations on coordination of oil prices with representatives of OPEC last summer during a visit of an OPEC delegation led by Kuwaiti Finance Minister Attiga. The features of Pemex's plan to invest upwards of \$15 billion over the next five years in developing Mexico's oil industry in many ways resembles plans for oil industrial expansion in the Mideast.

Pemex aims to produce 2.2 mbd by 1982, half of which would be for export (see table 3). According to Ing Jorge



Map 3

South Atlantic : Sedimentary Basins



Diaz Serrano, the director general of Pemex, the biggest outlays within the six year plan will be in the production sector (8 percent for exploration and 46 percent for development). Refining will get 15 percent, 17 percent will go for petrochemical development, and distribution and transportation will be allotted 13 percent. Pemex plans to drill 3,476 new wells during the six year period, with stepped up primary exploration of existing fields and the development of new offshore fields. To date Pemex had surpassed its 1977 production target of 953,000 b-d.

Table 3— Mexico: Oil Supply and Export Forecast

Thousand barrels/day	1977	1978	1979	1980	1981	1982
Crude production	953	1 246	1 522	1 781	2 028	2 242
Domestic requirement	800	910	954	1 011	1 068	1 137
Surplus for export	153	336	568	770	960	1 105
Less: processed for export	—	33	214	207	181	211
Crude for export	153	303	354	563	779	894
Refining capacity						
—nominal	865	1 035	1 270	1 380	1 470	1 670
—utilisable	795	975	1 200	1 300	1 390	1 580

*The Soviet Union*

The largest oil producer in the world, the Soviet Union's production last year topped 500 million tons (or an approximate average of 10 mbd). The Soviet Union plans to increase production by 150 million tons by 1980. The Soviet Oil Minister Valentin Shashin, according to the Kuwaiti magazine Europe and Oil, envisions new output capacity of a whopping 450,000 tons. Efforts to increase Soviet output are important in one crucial respect, which is that the Soviets intend to step up exports of oil outside the Comecon and to decrease traditional East bloc dependency on Soviet crude. During

1977 there was a marginal increase in USSR oil exports to Europe.

Increased Soviet production will be achieved from the intense exploitation of the enormous new Siberian fields the full reserves of which have not been revealed by the Soviets. The Soviets may also opt for improved recovery techniques in operational fields and possibly further exploration for offshore oil. One of the most promising offshore possibilities is the Caspian Sea. But the Soviets are faced with the constraints of inadequate offshore technology to fully exploit the oil rich Caspian sea, an extension of the wealthy Baku fields. Despite efforts by the Baku Offshore Oil Institute to develop semi-submersible rigging, such efforts are insufficient to drill into the deep untapped Caspian floor. With a contribution from Western Europe in providing the necessary technology the Caspian could soon be a thriving producer. Such agreements with the West have in part been worked out. Late in 1976 the U.S.'s Armco Steel and a Finnish concern won a contract to provide the Soviets with exploration rigs. British Petroleum, with the most advanced offshore techniques gained through the North Sea, signed a cooperation agreement with the Soviets in September 1976 after which it was revealed that the two parties were in the advanced stage of negotiating contracts for production rigging.

The Caspian area is ideal for investment to increase offtake because large amounts of refinery and pipeline infrastructure is already in place. The Caspian venture and offshore areas such as the gas rich Black Sea, the Sea of Azov, plus offshore drilling in the Pacific could easily surpass in scale that of the North Sea and greatly contribute to the Soviet Union's production increase target of 640 million tons (about 12.9 mbd). The Comecon countries have already shown signs of pulling their Balkan neighbors such as Turkey into joint ventures to process and market crude. Recently it was reported that the Soviets were considering supplying a Turkish refinery with crude oil from the Baku fields. As part of a just signed \$1.2 billion dollar trade agreement between Turkey and the USSR, the Soviets have offered to construct a refinery in Turkey on the Black Sea, while Rumania is funding expansion of a refinery north of Ankara. Indications are that the Soviets are aiming once again to extend their petroleum wealth outside the Warsaw Pact nations in efforts to relieve the threat of insufficient oil supplies at home as well as in Europe and preferred Third World countries like India. The key to the success of this drive depends directly on the technological assistance of the West and thus directly involves the political question of detente.

The International Energy Agency last month released a report predicting that by 1980 the world will experience a 14 mbd deficit of petroleum. Such an assessment is clearly based on completely erroneous zero-growth estimate of global production. Assuming that such a deficit figure is reliable, the Persian Gulf producing states could themselves easily fill the demand single-handedly for more crude in the coming years.

—Judy Wyer