

## Can The Oil Price Remain High?

By Mamdouh G. Salameh\*

The oil industry experienced in 1998 the worst oil price crash since 1986 with oil prices, in real terms, reaching levels not seen for 26 years. A barrel of Brent had been worth about \$20/b in autumn 1997 but, by the end of 1998, its price had dropped to \$10. Although industry observers had predicted a downturn in oil prices since early 1997, nevertheless the extent of the fall caught most players and experts by surprise.

In March 1999, cutbacks in production by the major producing countries pushed the oil price higher. Is this increase merely temporary, prior to prices weakening again, or will it lead to prices stabilizing close to current levels? The following factors will determine whether or not current oil prices are sustainable:

- The global oil demand
- OPEC's discipline
- Iraq's oil exports
- Reserve depletion rate
- New oil discovery rates

level than before (see Table 1).

Demand for petroleum products should continue to grow reaching 76.89 mbd this year and rising to a projected 85.61 mbd by 2005 and 96.37 mbd by 2010 with Middle East producers having to meet the major part of the additional demand. However, that will depend on the necessary investment being made to expand production capacity.

There is no doubt that production cutbacks by OPEC and an improving rate of compliance by its members have contributed to the oil price surge and led to an enormous stock draw of 2.9 mbd in the fourth quarter of 1999. However, the real reason for the strength of the oil price is the present healthy state of the global economy which grew in 1999 at 3% and is expected to grow this year by a projected 3.5%. The economic background remains good for oil. This has fuelled a growing global demand for oil projected to rise at a rate of 2.4% this year. When a country such as South Korea, which was crisis-stricken in 1998, increases its oil consumption in one year by 10% as it did in 1999, one can see why the oil price remains so strong.

### OPEC's Discipline

In November 1997 OPEC, in the expectation of certain

**Table 1**  
**World Oil Demand**  
**(mbd)**

Regions	1996	1997	1998	1999	2000	2005	2010
North America	22.27	22.71	23.20	23.70	23.99	25.84	27.84
Central & South America	4.30	4.48	4.90	4.90	4.94	5.87	6.97
Europe	15.61	15.79	16.12	16.36	16.67	17.96	19.35
CIS	4.36	4.34	4.26	4.02	4.12	4.55	5.15
Middle East	4.01	4.03	4.12	4.19	4.31	5.00	5.80
Africa	2.26	2.32	2.40	2.41	2.47	2.79	3.23
Asia-Pacific	18.93	19.80	19.38	19.71	20.39	23.60	28.03
World	71.74	73.47	74.38	75.29	76.89	85.61	96.37

Sources: IEA / BP Amoco Statistical Review of World Energy, June 1999 / East-West Center, Honolulu, USA / Author's Projections.

### Global Oil demand

World oil demand is now rising at about 2.4% a year and would have been higher but for the economic crisis which hit the Asia-Pacific region during 1997-98. The Asian crisis which spread to other regions such as Russia and Latin America, proved an effective brake on demand. While consumption of oil products in the Asia-Pacific region had grown at over 5% per annum for several years, it actually declined in 1998. Growth has resumed in 1999 but at a lower

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<sup>1</sup> See footnotes at end of text.

demand growth, raised its production quotas by nearly 10%, from 25.03 mbd to 27.50 mbd from the first of January 1998, despite the fact that two months earlier, Iraq's oil exports had reached 1.3 mbd and OPEC's production was rising.

However, OPEC's decision which coincided with a very mild winter, growing Iraqi crude oil exports and the continuing crisis in Asia, soon led to a sharp decrease in oil prices. Matters were made even worse by some members exceeding their quotas. In an attempt to curb the fall in prices, OPEC sought in spring 1998 to involve a number of non-OPEC producers in an effort to reduce crude oil production.

In March 1998, Saudi Arabia, Venezuela and Mexico concluded an agreement to reduce their production by 600,000 b/d. In addition, they urged other producing countries to take similar action, in order to reduce production by 1.5 to 2.0 mbd. OPEC members agreed voluntarily in March 1998 to cut production. Overall, the cut was more than 1 mbd, that is little less than 5% of the total quotas. Non-OPEC producers

such as Mexico, Oman, Norway, Egypt, Yemen and Russia also committed themselves to reduce output.

But, by April 1998, it became apparent that more cuts in production were needed to stop the downward slide in the oil price. So by June 1998, OPEC decided on further reductions totalling 1.355 mbd. Overall, from July 1998, OPEC had agreed to cuts amounting to 2.6 mbd.

In the event, up to the beginning of 1999 OPEC production only fell slightly, the cuts made by the ten member states excluding Iraq being largely offset by an increase in Iraq's output.

With world production giving a large surplus over the level of demand, prices continued to fall, reaching less than \$10/b at the end of 1998. The position was aggravated by very high stock levels. At the end of September 1998, stocks of crude oil and products reached over 4 bb in the OECD countries alone, who only account for 60% of world demand.<sup>1</sup> Stock levels have been increasing since 1996 and did not start to fall until the end of 1998.

The consequences of this situation were dramatic, particularly for the producing countries. That is why the principal producers agreed to a further production cutback in March 1999 amounting to more than 5 mbd of which 4 mbd had been agreed to by OPEC countries. The reductions decided in March 1999 resulted in a marked increase in prices.

Although the positive impact of lower oil prices on the economies of the main consuming countries remains limited (the cost of energy barely representing 1% of their GDP), the magnitude of the fall in market prices over 1998 was a cause of great concern for the major exporters. In the Gulf countries, 1998 GDP fell by about 2%. OPEC oil revenues fell by \$62 bn, or by 36% in 1998 from their 1997 level (see Table 2).

**Table 2**  
**OPEC Oil Revenues ( US \$ bn)**

Country	1996	1997	1998	change 98/97
Algeria	9.1	9.3	5.9	-37%
Indonesia	5.7	5.3	3.0	-43%
Iran	18.7	18.1	11.2	-38%
Iraq	0.8	4.6	5.2	+13%
Kuwait	13.6	13.7	8.3	-40%
Libya	9.5	9.1	5.7	-37%
Nigeria	15.8	15.5	9.6	-38%
Qatar	4.0	5.2	3.6	-31%
Saudi Arabia	56.8	56.3	36.1	-36%
UAE	17.0	18.8	12.1	-36%
Venezuela	18.7	18.8	12.0	-36%
Total	169.7	174.7	112.7	-36%

Sources: OPEC / Center for Global Energy Studies (CGES), London / Petrostrategies.

### **Iraq's Oil Exports**

The key player and driving force in the new geopolitics of oil could be Iraq. This is because once the UN sanctions are lifted, Iraq is determined to increase oil production to 6 mbd by 2005. Iraq is now willing to open up to outside investment by offering production-sharing contracts (PSCs) to would-be-investors. No other major Middle Eastern producer has been willing to do so. That Iraq is willing to do so suggests that it is desperate to increase production and that it will be willing to ignore the OPEC line.

Iraq has increased daily oil exports from 700,000 b/d in November 1997 to 2.2 mbd in 1999.<sup>2</sup> With a current production capacity of 3 mbd, Iraqi oil exports are projected to reach 2.45 mbd this year.

Because of rising oil demand from the Asia-Pacific region and OPEC's limiting of its production, the oil market has been very tight for almost a year. In this tight market, Iraq has become the enormously powerful "swing" producer - the only country willing and able to suddenly turn on or off its oil tap. In November 1999, Iraq pushed oil prices up almost \$1 a barrel in a single day when it turned off its spigots to protest UN sanctions. This time, with oil inventories very low, any interruption in crude oil supply could cause prices to skyrocket.

Judging from reported increases in reserves worldwide, the excess of oil produced over demand now stands at about 700,000 b/d. If that much overproduction causes depression-level prices, what would happen if Iraq chose to withhold 2-3 mbd as it now could?

Although growing Iraqi oil exports have partly offset the production cuts agreed by OPEC and non-OPEC producers, it is doubtful as to whether they can exert as strong a downward pressure on the price of oil so as to cause a major drop.

### **Global Reserve Depletion Rate**

Estimates at the end of 1999 indicate that there were just 935 bb of conventional oil yet-to-produce. What is common to all types of production is that peak production occurs at approximately the same time as the mid-point of total yield, except where production is artificially constrained by allocation arrangements.<sup>3</sup>

Different countries are at different stages of their depletion curves. Some are past their mid-point and in terminal decline, for example, the United States; some are close to mid-point, such as Norway and the UK. However, the five Gulf producers are at a very early stage of depletion and can exert a "swing" role, making up the difference between world demand and what others can supply. They can do this only until they themselves reach mid-point, probably by 2013.

It is predicted that the world's mid-point of depletion will come when 900-1,000 bb have been produced (half the ultimate reserves of 1,800-2,000 bb) which, with 865 bb already produced, will probably be in 2-5 years' time. Assuming this coincides with peak production, shortages could be expected on this basis to arrive sometime between 2001 and 2004.<sup>4</sup>

It can be argued, therefore, that the anticipation of shortages is bound to lead to a radical increase in the price of oil in the opening years of the new millennium. That would be likely to curb increases in demand, so that actual physical shortages could be delayed for a few years; but this delay will depend on the Middle East "swing" producers. However, by 2008 they will be supplying 50% of the world's needs and by 2013 will be close to the mid-point of their own depletion. Although much higher prices will cushion the effect, chronic shortages of conventional oil would be predicted to develop from around 2010 onwards. This raises the question as to how relaxed or concerned the oil industry should be about the fact that it has been depleting known reserves of around 1,034 bb at roughly 2.6%, or 27 bb, per annum.<sup>5</sup>

*(continued on page 16)*

## Can The Oil Price Remain High? (continued from page 15)

### New Oil Discovery Rates

Almost 90% of the world's conventional oil has been found. This time, an oil price crisis cannot be solved by bringing in fresh production from known basins awaiting development.

The widely held view that improved seismic surveying and seismic interpretation have improved drilling success rates, is not borne out by the 1998 figures. The 1998 success rate for exploration drilling (outside North America) was 29%, well down on the 38% level recorded in 1997.

The world is currently consuming 27 bb of oil a year on a rising trend, yet finding around 6 bb/year on a falling trend. It is essential to bear in mind that 70% of current oil production comes from fields more than 30 years old. Furthermore, peak discovery was in the 1960s despite the technological advances and massive drilling activity since then. On this basis, we are about to face a peak in production corresponding to intensive exploration 30 years ago.

The total global reserve addition of 7.6 bb in 1998 was slightly better than in recent years but still represents only 28% of the 27 bb produced in 1998. Over the last five years only 38% of global oil production has been replaced by new discoveries (see Table 3). According to Petroconsultants' 1999 World Petroleum report (WPT), the cumulative shortfall over the last five years amounted to 50 bb.<sup>6</sup>

**Table 3**  
**Crude Oil Reserve Additions, 1992 - 1998\***  
(bn b)

Year	Added in Year	% of Annual Production
1992	7.80	33
1993	4.00	17
1994	6.95	28
1995	5.62	23
1996	5.24	21
1997	5.92	22
1998	7.60	28
1992-98	43.13	25
Annual average	6.16	24

Source: WPT, 1999.

\* Data for world excluding the USA and Canada.

What all this means is that the Middle East "swing" producers, with 65% of the world's proven oil reserves but with just over a third of global production, will assume a clear-cut leadership of the supply side of the oil market. In the major OPEC oil-producing countries, both exploration and investment in capacity expansion are down to minimum levels because the decision-makers in these countries have come to realize that the smaller the gap between output and capacity, the less the need to sell their oil at bargain basement prices.

### What About Non-Conventional Oil?

The view is often expressed that technical progress will soon make up for the increasing natural scarcities, by developing acceptable substitutes and/or lowering the extraction and exploration costs of new reserves.<sup>7</sup> While some – and possibly a great deal – of the non-conventional oil such as heavy oil, tar sands oil and shale oil will eventually be

available, it is unnecessarily reckless to believe, on the basis of evidence available at the present time, that it will be adequate from a quantitative point of view.

Oil supply from outside OPEC countries is expected to start declining from this year onward. Oil supply from Middle East producers is projected to peak by around 2013. Since the total conventional oil supply will not be able fully to match demand, additional supplies of liquid fuels are expected to become available from non-conventional sources. By 2008, global demand is projected to rise to 90 mbd, of which Middle East producers will account for 45 mbd, with non-OPEC producers providing another 35 mbd, whilst the balance of 10 mbd is supposed to come from non-conventional sources rising to 20 mbd in 2014 and 80 mbd by 2030.<sup>8</sup> This is not only an exceptionally daunting task, but virtually impossible.

Gas is at a relatively early stage of depletion. Gas production is likely to grow to a peak or high plateau around 2020 allowing it to form a valuable substitute for conventional oil. However, it is in the area of transportation that the potential loss of cheap oil will make its effect felt most. It is also doubtful as to whether natural gas is going to play a major part in the transportation sector especially when the growth in world population and the escalating demand for electricity is brought into the picture.

### Conclusions

Rising global oil demand and the continuation of OPEC's discipline and adherence to cutbacks in production will ensure that the oil price remains relatively high in the short-term. And although growing Iraqi oil exports have partly offset the production cuts made by OPEC and other principal non-OPEC producers, they may not exert as strong a downward pressure on the oil price so as to cause a major drop.

In the long-term, rising global oil demand and a declining discovery rate of new reserves coupled with a projected decline in non-OPEC production could lead to a radical increase in the price of oil in the opening years of the new millennium with shortages expected to arrive sometime between 2001 and 2004. Only a major expansion in E&P expenditure by the oil industry over a prolonged period could slow down the upward trend of the oil prices. Yet, without sustained high oil prices, no major E&P expenditure would be forthcoming.

### Footnotes

1 Jean-Pierre Favennec, "Can The Oil Price Remain Low?" Conference Proceedings of the 20th Annual North American Conference, August 29-September 1, 1999, Orlando, FL, USA, p.458.

2 Hart's E&P, December 1999, p. 143, also EIA's International Petroleum Statistics Report, Washington D.C., August, 1999, p.4.

3 Mamdouh G. Salameh, "Technology, Oil Reserve Depletion & the Myth of Reserves-to-Production (R/P) Ratio." Conference Proceedings of the 19th Annual North American Conference, October 18-21, Albuquerque, New Mexico, p.229.

4 Ibid., p.230.

5 EIA's International Petroleum Statistics Report, p. 17.

6 Petroconsultants' "World Petroleum Trends Report", 1999.

7 H. Houthakkar, "Oil & the Global Agenda", Nature, 4 August 1997.

8 Jean-Marie Boudaire, "World Energy Prospects to 2020." A paper presented to the British Institute of Energy Economics, London, 2 July 1998), pp.5-6.