

# OIL

*By Manouchehr Takin  
Senior Petroleum Upstream Analyst  
Centre for Global Energy Studies (CGES)*

**H**igh oil prices characterised the world oil market throughout the year 2000. The price had risen from about US\$10/bbl (US Dollars per barrel) in early 1999 to more than US\$30 in late 1999. The high price continued throughout the year 2000, though some fluctuations occurred. The daily price of North Sea Brent even jumped to above US\$35/bbl for a few days in late August-early September. These prices had not been seen since a temporary spike during the Iraqi occupation of Kuwait in 1990. For the year 2000 as a whole, the Brent price went above US\$30 and below US\$25 for some weeks but remained mostly within this range. The average price for the year was US\$28.4/bbl – not experienced since the early 1980s!

OPEC (the Organisation of Petroleum Exporting Countries) increased its crude oil production a number of times during the year in order to reduce the high prices. It managed to arrest the rising trend but could only lower the price to around US\$25/bbl late in the year 2000 and in 2001.

Industry profits soared in 2000 and in contrast with 1999, the companies did increase their exploration and capital expenditure. However, the longer term oil price considered by companies for their prospect evaluation in exploration and development operations is still not much above US\$15/bbl. Mergers and acquisitions continued, though to a lower extent than in the previous years. The companies also remained concerned about their performance in the stock market.

## Geographic Distribution of Supply and Demand

In any analysis of the oil market, it is always useful to note the uneven geographic distribution of oil supply and demand in the

world. This factor necessitates the very large-scale international trade in oil. More than 57% of the oil produced in the world is traded between countries. In addition, a great deal of trade and transportation also takes place within each country, until the oil reaches the main consumption centres. The Middle East has the largest share of world oil supplies while North America has the largest share of demand, as seen in Table 1. Although not shown in the tables, the US holds about 2.8% of world oil reserves, while its oil consumption is about 25% of the world's total. The size of the Middle East oil reserves (greater than 65% of the world) suggests the future dependence of the world on oil from the Middle East. Furthermore, noting that the US consumes about a quarter of the oil produced in the world today, the US interest in the Persian Gulf could be better appreciated.

## Demand for Oil

World oil demand in 2000 grew at a lower rate than in 1999. However, it should be noted that the high annual growth in 1999 was exceptional and reflected the very low growth in 1998. In particular, the exception was in the Asia Pacific region (Table 2) that had suffered from an economic recession and

World Oil Supply and Demand Pattern in the Year 2000		
	Demand %	Supply %
Middle East	5.8	30.6
North America*	31.8	19.1
Asia Pacific	27.3	10.5
FSU	4.6	10.5
Africa	3.1	10.4
Latin America	6.4	9.5
Europe	21.0	9.3
<b>Total</b>	<b>100.00</b>	<b>100.00</b>

\* Includes Mexico.

Source: International Energy Agency, with modifications.

<b>World Oil Demand ('000 bbl/d)</b>			
	<b>1998</b>	<b>1999</b>	<b>2000</b>
Middle East	4.2	4.3	4.4
North America	23.1	23.9	24
Asia Pacific	19.3	20.2	20.6
FSU	3.7	3.5	3.5
Africa	2.3	2.3	2.3
Latin America	4.8	4.8	4.8
Europe	16.1	15.8	15.8
<b>Total</b>	<b>73.5</b>	<b>74.8</b>	<b>75.4</b>

Source: International Energy Agency, with modifications.

its oil demand had actually fallen by 600,000 bbl/d (barrels per day) in 1998. Starting from a low base, the resumption of economic growth led to the annual increase of 900,000 bbl/d in 1999. However, the incremental demand by the Asia Pacific region in the year 2000 was about 400,000 bbl/d and the world total was 600,000 bbl/d. The quantitative effects of the economy and the price of oil on the demand for oil have been a subject of debate. In this respect it is interesting that some analysts attribute the low demand growth in the year 2000 to the high price of oil in that year. For the year 2001, analysts' forecasts for demand have been revised downwards from 2 Mbb/d (million barrels per day) made in December 2000 to 0.5 Mbb/d in July 2001. These revisions reflect the fear of continuing recession in the US and other countries, as well as the effect of price.

Another interesting observation in Table 2 is the demand in the FSU (Former Soviet Union). After almost a decade of decreasing oil demand (from almost 9 Mbb/d in the late 1980s to 3.5 Mbb/d in 1999), the falling trend appears to have been arrested, possibly because it has reached the minimum level.

### Crude Oil Production

Table 3 shows crude oil production for the main geographic regions of the world in the past four years. Production figures are also given for the total of OPEC and non-OPEC countries. It is important to note the decrease in production (mostly in OPEC) in 1999 and an increase in production (again mostly in

OPEC) in 2000. The decrease and increase in production had been deliberate policy by the main exporters in order to raise or to lower the price of oil.

More details of crude oil production for the past four years are presented in Table 4. Examining the non-OPEC countries, the greatest decrease occurred in the UK, followed by Colombia, the US and others. The greatest increase in crude oil production was in the FSU, followed by Norway, Canada, Mexico, Denmark and others. The overall production in the year 2000 increased by almost half a million barrels per day in these countries and by about 800,000 bbl/d for total non-OPEC countries.

Examining the OPEC countries, the greatest increase was in Saudi Arabia, followed by Venezuela, Kuwait, the UAE (United Arab Emirates) and others. In total, OPEC's average annual production increased by 1.6 Mbb/d. This is in contrast to the decrease of 1.3 Mbb/d in 1999. The production decrease had been intended to arrest the collapse in the price of oil and to reverse its trend. On the other hand, the production increase was to reverse the rising price trend and to lower oil price to more 'reasonable' levels. Both these measures were successful in 1999 and 2000. The oil price profile shows that by the end of the year 2000, oil prices were lowered from the US\$30-35/bbl range to about US\$25/bbl.

<b>Crude Oil Production ('000 bbl/d)</b>			
	<b>1998</b>	<b>1999</b>	<b>2000</b>
Middle East	20,973	20,268	21,535
The Americas	17,727	16,883	17,204
E Europe & FSU	7,331	7,379	7,780
Asia Pacific	7,036	7,021	7,337
Africa	6,851	6,566	6,680
W Europe	6,252	6,379	6,385
<b>OPEC</b>	<b>27,801</b>	<b>26,458</b>	<b>28,085</b>
<b>Non-OPEC</b>	<b>38,348</b>	<b>38,038</b>	<b>38,837</b>
<b>Total World</b>	<b>66,149</b>	<b>64,496</b>	<b>66,922</b>

Totals may not add up due to independent rounding.

Source: Oil and Gas Journal.

In discussing the policy actions by OPEC, it is important to note that Iraq has acted independently from OPEC production programming. The country had remained outside the world oil market due to the UN sanctions imposed in 1990. Limited exports were resumed under UN control only in 1997. The export volume was later raised and Iraq's oil exports have since been limited by its production and export capacities. The country is not subjected to OPEC production quotas in order to compensate for more than six years in which Iraq could not export to the international markets.

### Oil Market Factors

The status of the economy in the main consuming areas of the world, the weather conditions and the volume of oil stocks all affect the demand for oil. On the other hand, the discovery and development of new oil fields and the production performance of existing fields around the world affect the supply. However, the more important determinant of global supply is the production policy of the main producers. Other than supply and demand, market perception plays a very important role, namely, the market players' expectations for short- and medium-term developments. However, the third important factor is geopolitics. All these factors contributed to the relatively high price in 1996 and 1997, the very low price in 1998 and the systematic price rise starting in spring 1999. Greater details of these factors have been given in the previous issues of *Mining Annual Review*.

### Producers' Actions – 1998 to 2001

In response to the low prices in 1998, OPEC and some non-OPEC countries (Mexico, Norway and others) twice decreased their production ceilings (commencing from April and from July), a nominal total of about 3.2 Mbbbl/d. The oil price did not recover. They had to decrease their production by about 2 Mbbbl/d for the third time in April 1999. In response, the price decline was arrested and a dramatic price rise commenced. The price of oil increased from about US\$10/bbl in

March 1999 to more than US\$30/bbl early in 2000.

In response to the high price of oil, the producers increased their production by nominally 1.7 Mbbbl/d starting from April 2000, then by 708,000 bbl/d from July and again by 800,000 bbl/d from October. A fourth increase of 500,000 bbl/d in production was introduced by OPEC starting from October 31. The latter was interesting because it was carried out under the OPEC 'price mechanism'. OPEC production was to be increased or decreased by 500,000 bbl/d whenever the price of oil (more specifically defined as the 'OPEC Basket') went above US\$28/bbl or below US\$22/bbl and remained so for a specified number of days.

Crude Oil Production ('000 bbl/d)			
	1998	1999	2000
FSU	7,014	7,175	7,571
US	6,244	5,882	5,834
China	3,200	3,195	3,236
Norway	3,015	3,018	3,205
Mexico	3,071	2,906	3,012
UK	2,633	2,725	2,504
Canada	2,017	1,901	2,035
Brazil	956	1,086	1,128
Egypt	866	852	813
Colombia	754	816	687
Argentina	847	800	760
Syria	553	537	523
Denmark	238	300	363
Congo	265	264	265
<b>Non-OPEC</b>	<b>31,673</b>	<b>31,456</b>	<b>31,936</b>
Saudi Arabia	8,297	7,732	8,264
Iran	3,608	3,504	3,682
Venezuela	3,122	2,787	3,028
UAE	2,297	2,059	2,233
Nigeria	2,132	1,964	2,034
Iraq	2,110	2,525	2,567
Kuwait	2,075	1,873	2,099
Libya	1,392	1,347	1,414
Indonesia	1,315	1,280	1,267
Algeria	824	754	809
Qatar	661	633	688
<b>OPEC</b>	<b>27,801</b>	<b>26,458</b>	<b>28,085</b>

Source: *Oil and Gas Journal*.

As seen in the oil price profile, in response to each production increase, the price decreased for a certain period but it began to increase again soon afterwards. However, a longer lasting decline began late in the year 2000. It was in response to this decline, and with the experience of the major oil price decline in 1998, that OPEC decided to reverse its actions and lower its production by 1.5 Mbbbl/d commencing from February 2001. The price of oil went up but soon began to decline again, leading OPEC to lower production by another 1 Mbbbl/d from April 2001.

### **OPEC Reactive or Proactive**

An interesting point about OPEC actions is that the production increases in the year 2000 and the decreases so far in 2001 could be described as 'proactive'. These were in contrast to the previous actions in which OPEC had been criticised as being 'reactive or passive'. However, the organisation has faced criticism of acting too late for increasing production and too soon for reducing production. It is explained that in this way, there had been insufficient opportunity or incentive for the volume of oil stocks to increase around the world. With the relatively low volume of inventories, the market had remained comparatively tight. Any accident or disruptive event could then cause an increase in the price of oil. As already mentioned, perceptions of market players, ie, fearing possible shortages, could initiate a price rise even before a shortage actually occurs or it would accentuate the price increase.

With the above oil price pattern in the spot and futures markets, the volume of stocks have remained low since mid-1999. In particular, there has not been an incentive for operators to purchase high priced prompt oil and put it in inventories when the prices in the futures market are lower. Thus during the spring, the refiners have not purchased enough crude oil and their gasoline (petrol) stocks have not grown sufficiently in preparation for the high demand in the summer. Similarly, heating oil stocks have not

grown sufficiently in preparation for the high demand in winter. No actual shortages occurred in 2000, but the low inventories and the perception of possible shortage resulted in very high prices of gasoline and heating oil, thus higher prices for crude oil. A similar situation could exist for the year 2001.

From OPEC's point of view, its policy is considered as successful in not allowing the growth of oil stocks and avoiding downward pressure on the price of oil as was the case in 1998. On the other hand, consumers prefer the price to be lower and would welcome a price collapse. There are also others who recommend a lower price of oil as a better strategy for OPEC itself. They argue that although the higher prices bring higher revenues for OPEC, they will soon encourage greater production from high cost non-OPEC regions, thereby undermining OPEC. The price of oil went up but soon began to decline again, leading OPEC to lower production by another 1 Mbbbl/d from April. In spite of the recommendations by many analysts, the organisation decided not to increase its production when it met in June and July 2001. It is interesting to note that the analysts' warning of oil price hike has not yet happened, the oil market actually become weaker following the last OPEC meeting.

Lastly, it should be noted that the US is both a major producer of oil and a major consumer. It would prefer the price not to be too low as this would damage its domestic oil and gas exploration and production industry. On the other hand it would also prefer the price not to be too high as this would cause a heavy import bill and a negative current account balance. The US political pressure on the producing countries has been discussed in the previous issues of *Mining Annual Review*. The ideal price, however, is not clearly or publicly defined. A price of US\$25/bbl has been said to be reasonable, though this could refer to the price of the US marker crude WTI (West Texas Intermediate), or the North Sea 'Brent', or the 'OPEC Basket'. These prices differ by several

dollars, but the crude is not always specified when the politicians say the price of oil is reasonable, too high or too low.

### **Taxation on Petroleum Products and Refining Capacity**

In detail, the market developments have been more complicated than suggested by the overall discussions given above. For example, high gasoline prices, especially in the US, have been mostly caused by the introduction of stringent gasoline specifications by many State Governments, as well as the Federal Government. The capacity of the US refineries is also limited, since no new refineries have been built in the US for several years. The production of 'reformulated' and other forms of gasoline has not been sufficient, irrespective of the lower crude supplies from OPEC.

The unusually high prices of natural gas in the US have also contributed to the high price of oil. The supply of gas has not been growing at a sufficient rate to meet the growing demand in the US market in the past few years. Gas has been increasingly used in electricity generation, as well as the commercial and residential sectors. With insufficient supplies, the price of natural gas has trebled in the US. Many users have thus

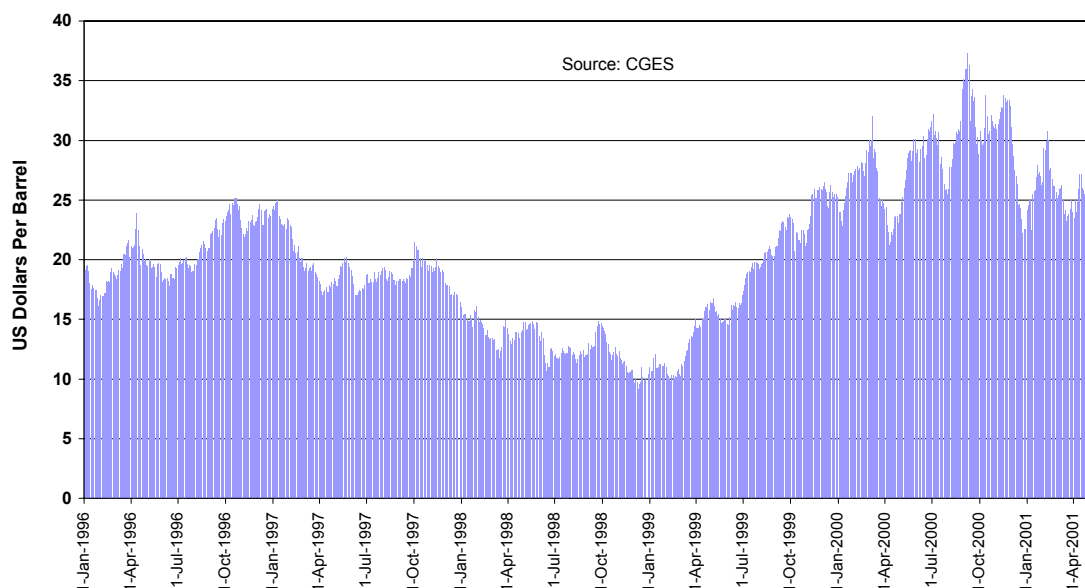
reverted to the use of oil, thus increasing oil demand even further.

The high taxes on petroleum products also complicate the market. In some countries, almost three-quarters of the price of gasoline paid by the final consumer at the pump is taxation by that country's government, ie, a source of government revenue. In general, when the crude price falls, taxes are increased so that petroleum product prices remain the same. However, the taxes then tend to remain in place; in most cases they are not reduced when crude price rises later.

It is interesting that although such high taxes had been imposed for many years in the major industrial countries, the public only became aware of them in the year 2000. A wave of protests against the high taxation took over the UK and many other European countries. Petroleum product taxes are lower in the US, but they also attracted public attention in that country.

Finally, it is interesting to note that the price of oil, taxation in the consuming countries, stringent product specifications, shortage of refining capacity and OPEC policies have all become subjects of public debate. Depending on the political 'atmosphere' or the 'mood'

**A Profile of the Price of Oil**  
(Dated Brent, Jan 1996-May 2001)





and the direction of debate at the time, politicians or the media could blame any one of these factors.

### **Market Outlook**

As usual, the price of oil in the coming months depends on a number of factors. The most obvious is OPEC policy. The organisation has stated that its goal is a stable market and a price of about US\$25/bbl (a range of US\$22 to US\$28/bbl). OPEC has acted in a more cohesive way since 1998. Though the actual production decrease or increase has not been 100% of OPEC's nominally approved levels, its production discipline has been very reasonable, especially compared with OPEC's performance in the past. At the time of writing, the organisation was to meet in September and possibly once more before the end of 2001. OPEC Decisions have to be considered for any market outlook. The organisation appears determined not to allow a fall in the price of oil. However, it has also demonstrated that it does not support very high prices and has acted to reduce them to more 'reasonable' levels, though those outside OPEC might prefer lower than the US\$25/bbl target!

Oil export policy of Iraq is also critical. The country ceased exports temporarily in protest to the UK/US proposal for modifying UN sanctions in July 2001. These proposals were withdrawn for further negotiations in the Security Council. Such developments for the rest of the year could complicate world oil supplies and OPEC might have to modify its decisions.

On the demand side, there has been an improvement in the shortages and high prices of natural gas in the US, thus less use of as substitute. However, if the economies recover in the US and other countries, oil purchases could increase in anticipation, during the coming months. On the other hand, if it is expected that the recession could continue into the year 2002, there will be even less demand for oil. In this case, OPEC would have to reduce production further and its discipline will then become more critical for preventing an oil price fall.

In summary, OPEC appears to act with greater responsibility, observe discipline and defend the average price of US\$25/bbl. Thus, the outlook is for the relatively high prices to continue in the rest of 2001 and into 2002. However, prices would not be as high as the peaks observed in the year 2000.