Price of Crude Oil to Remain High

Following the fall in the price of oil in 1986, oil prices ranged – apart from a few short-lived exceptions – from US-$ 15 to US-$ 20 per barrel until the mid-1990s. Since then the price fluctuations have been much more substantial. Oil prices plunged to US-$ 10 between mid-1996 and the end of 1998, then rose until September 2000 – to over US-$ 36. Oil stocks were low at the beginning of 2000, and so it was no surprise that prices remained high until the summer. But the sustained nature of the price rise was not expected because, following a number of production increases by OPEC in the second and third quarters of the year, much more crude oil was being produced than consumed. The price of oil did not fall sharply until October. This was probably largely due to fears that economic growth in the USA could suddenly end in recession. A further drop in prices was avoided when OPEC announced that it would considerably reduce its crude oil output again in February 2001. The fact that stocks are still low, especially in the USA, suggests that OPEC will succeed in keeping crude oil prices within the target corridor of US-$ 22 to US-$ 28.

Futures markets becoming increasingly significant

Strong price fluctuations are not unusual in the case of raw materials, which are subject to seasonal demand swings and whose production offers little scope for price elasticity. The increasing fluctuations in the price of crude oil and mineral oil products since the mid-1990s indicate that in the oil sector, too, price trends are increasingly controlled by markets.

The significance of markets for price formation in the mineral oil sector has in fact increased over the last few decades as the degree of vertical integration in the international oil industry has lessened.[1] As early as the 1980s spot prices became the new reference prices in almost all supply contracts for oil, and government price controls were largely abolished.[2] Futures markets then emerged in addition to the spot markets at the end of the 1980s. Trading on the basis of future contracts now accounts for a large share of physical transactions on the oil markets.[3] Price formation on these markets is now also influenced by expectations, e.g. speculation about political developments in the Middle East. However, futures markets can also be used by refineries and traders as security against price risks. All in all, the futures markets have probably reduced the volatility of crude oil prices: during periods of sharp oil-price increases the prices for future deliveries have been significantly lower than the spot prices for immediate deliveries, while they have been significantly higher in periods when crude oil prices were plunging (cf. figure 1).

Many observers believed the fall in crude oil prices in 1997 and 1998 meant that OPEC had lost control over the oil markets. But the sharp price increase caused in 1999 by the relatively modest production restrictions imposed by OPEC showed that this was probably a premature conclusion. If OPEC manages to stabilise oil prices at a high level this year, it will emerge from the recent years' upheavals with renewed strength.

Increased capacity utilisation favours rise in crude oil prices

The causes of the price surge during the last two years must be sought in long-term developments. In the mid-1980s large-scale surplus capacities in the oil industry – especially in Saudi Arabia – led to a fall in crude oil prices. The drop in prices was also due in large part to the introduction of netback pricing by Saudi Arabia. Under this mechanism crude oil prices are derived from the difference between the sales prices that the refineries can obtain and a fixed margin. The refineries were thus interested in selling as much oil as possible, at whatever price. This rapidly led to excess production and a plunge in oil prices. Although Saudi Arabia quickly adjusted its pricing policy,[4] the old price levels were not reached again until Iraq invaded Kuwait in 1990.

Investment activity in the oil industry has declined since the mid-1980s, while oil consumption has

[1] This shift is also reflected in the business reports of the international oil companies. While in 1970 Shell, Exxon, Mobil and BP each still extracted more or less as much oil as they refined and sold, in 1999 their refinery output exceeded their crude oil production by 71%, while sales exceeded production by 234%. Cf. Deutsche BP AG: 'Energy economics and policy: the petroleum industry worldwide.' Hamburg, 29 January – 2 February, 2001. M. Howard: 'Oil Majors', SS 010.

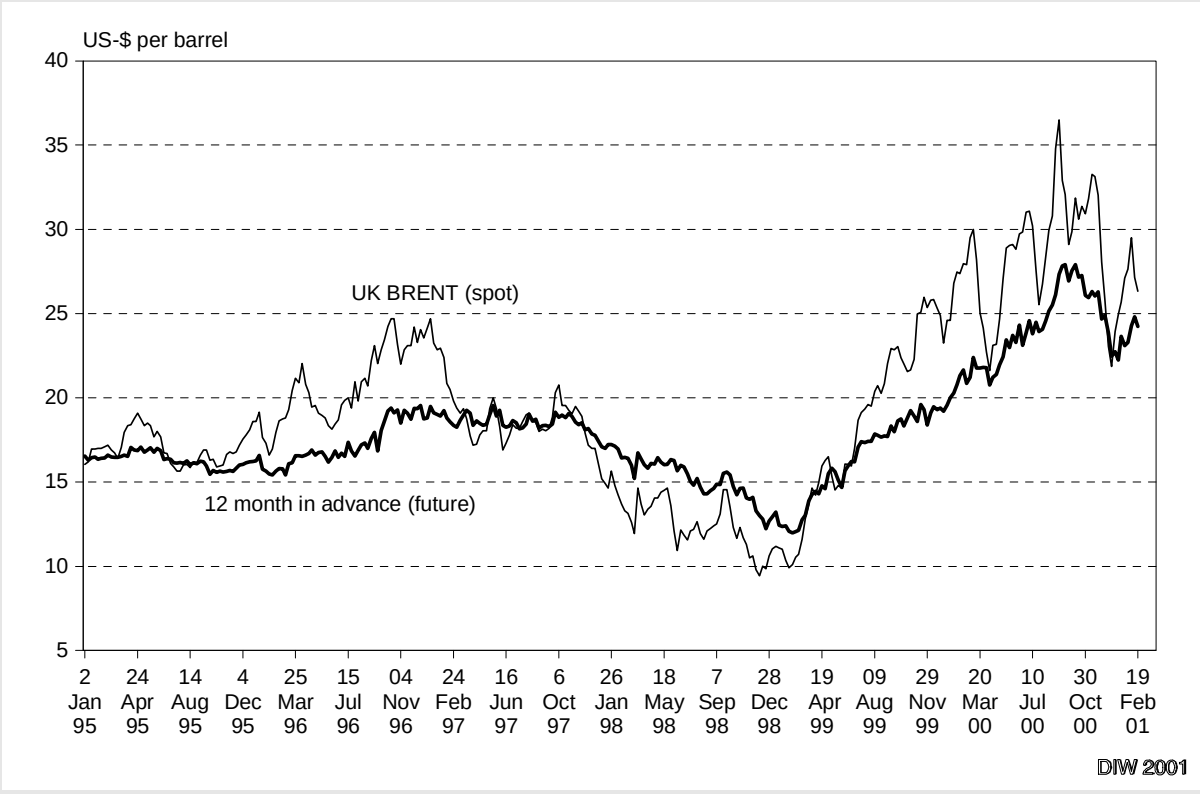
[2] The USA abolished price controls for the oil sector in 1983, British North Sea oil has been sold at market prices since 1985, and OPEC officially ended its administered price system in 1987.

[3] The existence of futures markets lowers the incentive to reduce temporary supply risks by means of increased stock-building. This may have contributed to the substantial decrease in oil stocks in relation to oil consumption in the second half of the 1990s, especially in the USA.

[4] Oil minister Yamani, who was responsible for this policy, was dismissed from his post.

Figure 1

Spot and Future Prices for Brent Crude Oil



Sources: Petroleum Intelligence Weekly; IPE London.

expanded significantly. The capacity utilisation of the oil fields, refineries and tankers has thus intensified. The shift from surpluses to shortages was particularly substantial in the case of the OPEC producers. While in the mid-1980s a total of between 14 and 16 million barrels a day (mbd) of the OPEC countries' capacities were unutilised, their capacity reserves have now shrunk to less than 2 mbd. A large share of the unused capacities are found in Saudi Arabia. Most of the other OPEC countries increased their oil production as far as possible in 2000, and some countries have even increased production to levels they will not be able to sustain in the medium term.[5] As a rule, the non-OPEC countries have fully utilised their production capacities since the 1970s.[6]

The refineries and tankers went through a similar development. At the beginning of the 1980s the capacity utilisation of the refineries was still around 70% worldwide. Now it is well over 80%, and amounts to no less than 90% in the USA and Europe. The utilisation of tanker capacities has also risen sharply since the mid-1980s – to over 95% in January 2000.[7]

Between the mid-1980s and the mid-1990s crude oil prices mostly ranged from US-$ 15 to US-$ 20. This price level more or less corresponds to the marginal costs for oil extraction in areas with particularly high costs. The fact that capacity shortages occurred nonetheless is due to OPEC's refusal to fully exploit its extraction potential. In fact, OPEC's production capacities have actually decreased in recent years. Despite enormous technical advances in oil exploration and extraction, production increases outside OPEC did not suffice to offset the decrease. One explanation might be insufficient oil resources in this group of countries. It is also possible that the margins earned in the mineral oil industry were not a sufficient incentive to compensate for the additional risks and cost burdens.

[5] Some of them are even risking damaging their repositories, which would limit future production possibilities.

[6] Mexico, Norway and Russia curbed their output in 1998 in order to support OPEC in its efforts to stabilise prices.

[7] Cf. Michael C. Lynch: 'Oil prices enter a new era.' In: *Oil & Gas Journal*, February 12, 2001, pp. 20-30.

Oil resources becoming depleted?

It has been suggested in the public debate that there is a link between the current oil price surge and the prospect of a depletion of conventional oil resources. In fact no direct link exists between the two. The oil reserves established worldwide at the end of 1999 are sufficient in mathematical terms to sustain production at this year's level for another four decades.[8] It should then be possible, in principle, to increase overall oil production significantly, at least during this decade, without yet having to resort to particularly expensive unconventional oils, e.g. those based on oil sands and shale. However, the OPEC countries would have to contribute most to a development of this kind. The reserves calculated for these countries in 1999 would enable current production levels to be maintained in mathematical terms for a further 74 years. Outside OPEC the corresponding period was only 15 years on average, while it was only 9 years for the USA.[9] In other words, the OPEC countries could certainly increase their output substantially.

According to the estimates available on resources, production increases are also conceivable within the foreseeable future in the non-OPEC countries, largely because of the advances that have been made in exploration and extraction technology (e.g. 3D seismic, offshore technology, and secondary and tertiary oil extraction) and the use of unconventional oil resources.[10] High hopes are also placed in the extraction in the Gulf of Mexico, in the South China Sea, off the coast of West Africa and Brazil, and in the Caspian Sea. But if fundamental changes are not made in energy policy, oil production outside OPEC is unlikely to increase to such an extent that the increase in consumption in these countries can be met. The dependence of world oil provision on OPEC is thus likely to increase further.

OPEC countries opening up increasingly to foreign investment

During the 1990s some OPEC countries began opening up their oil sectors to foreign investment, especially in order to tap smaller or less favourably located oil fields and to increase the yield of older fields. Foreign companies will of course be eager to control production in accordance with commercial principles, and this might reduce the capacity of the host countries and OPEC to curb production temporarily in the interests of price stability. But the arrival of the US crude oil company Anadarko in Algeria shows that this is not necessarily the case. This company agreed in its contracts with the Algerian government to reduce its oil production proportionately whenever Algeria is obliged to do so as a member of OPEC.[11] Such agreements can create an identity of interests between the producing countries and the oil companies involved, because after all both stand to benefit from the success of such measures.

Developments in Venezuela, on the other hand, have tended rather to undermine OPEC's control of the market. Venezuela allowed foreign investment in oil fields with relatively small reserves. But thanks to the use of modern extraction technology, these fields yielded much more than expected. The result was that in 1998 Venezuela was producing more oil than its OPEC quota permitted. In Kuwait the possibility of allowing foreign companies to invest in small oil fields in politically sensitive locations near the Iraqi border is being discussed with a view to increasing the country's production by 0.9 mbd within five years.[12] The only OPEC country left today that has kept its oil production largely closed to foreign capital is Saudi Arabia.[13] Iraq, Iran and Libya are prevented to a greater or lesser degree by UN and US sanctions from using foreign capital to increase their oil production. As the sanctions against these countries are gradually removed, they are likely to try to imitate Alge-

[8] The conventional oil resources that will probably be discovered in the future are estimated to be much more substantial than the reserves. In 2000 the US Geological Survey (USGS) estimated that total world oil resources amount to around 3 000 billion barrels – around a third more than the 1994 USGS estimate. The higher figure for estimated resources was probably arrived at primarily thanks to the re-evaluation of oil fields whose whereabouts are already known. Robertson Research International arrived at a much lower estimate for as yet undetected resources. Cf. R.M. Fowler, 'World conventional hydrocarbon resources: how much remains to be discovered and where is it?' RFP paper, 16th World Petroleum Congress (WPC). Calgary, 2000.

[9] Cf. BP Amoco: *Statistical Review of World Energy*, June 1999.

[10] Technical progress accelerated in the 1990s especially in the area of offshore oil extraction. At the end of the 1980s Conoco began extracting oil from a water depth of 536 meters, while in 1999 the Brazilian company Petrobas was already extracting oil at a depth of 1 852 meters. Although oil is being extracted at ever greater depths, production costs have decreased. According to Shell, the production costs of its Auger field (water depth of 872 meters), were US-$ 16.1 per barrel when it began operating in 1994, while the production costs of its Ursa field (water depth of 1 152 meters), which started operating in 1999, are only US-$ 6.55 per barrel. However, it must be borne in mind that the oil reserves in the Ursa field are almost twice as large as those in the Auger field. It can thus be assumed that the cost reduction reported by Shell is also partly due to economies of scale.

[11] Cf. 'Anadarko's Allison tours the global oil horizon.' In: *Petroleum Intelligence Weekly*, no. 7, February 12, 2001, p. 8.

[12] Cf. A.F. Alhaiji, Colorado School of Mines: 'Would Kuwait benefit from foreign investment in its oil sector?' In: *Alexander's oil and gas connections* (http://www.gasandoil.com).

[13] Saudi Arabia invites foreign companies to invest in the processing and transport of natural gas, but not in oil extraction. Mexico, though it does not belong to OPEC, is another country that still does not permit the use of foreign capital in its oil sector.

Table 1
Scenarios for Oil Consumption Trends to the Year 2010
Million barrels per day

	1990	1997	Low economic growth		High economic growth	
			2005	2010	2005	2010
Industrialised countries	39.0	43.1	45.3	46.8	49.0	52.8
North America	20.4	21.9	24.5	26.0	26.4	29.0
Western Europe	12.5	13.7	14.0	14.0	15.1	15.7
Asian industrialised countries	6.2	6.9	6.8	6.9	7.4	8.0
Former Soviet Union and Eastern Europe	10.0	5.7	5.9	6.6	6.6	7.8
Former Soviet Union	8.4	4.0	4.3	5.1	4.8	5.8
Eastern Europe	1.6	1.4	1.5	1.5	1.8	2.0
Developing countries	17.0	24.2	26.9	30.3	34.1	43.0
Asian developing countries	7.6	12.6	14.4	16.1	18.0	22.5
Middle East	3.9	4.8	4.8	5.4	6.2	7.8
Africa	2.1	2.5	2.9	3.4	3.5	4.5
Central and South America	3.4	4.4	4.8	5.3	6.3	8.2
World	66.0	73.0	78.0	83.7	89.6	103.5

Source: Energy Information Administration: International Energy Outlook 2000. Washington, March 2000.

ria in opening up their oil sectors in a controlled manner. Iraq, especially, would then be able to expand its production significantly, which would increase the friction within OPEC about the distribution of production quotas.

Because the OPEC countries want to use most of the profits from oil exports to foster economic growth, large amounts of capital will be required from external sources to finance the expansion of capacity in the Middle East.[14] The funding should be obtainable given that, as a rule, the capital needed to expand production capacities in the Persian Gulf amounts to only a quarter of that needed in the North Sea, off the coast of West Africa or in the Gulf of Mexico. If the international banking system helps to finance the expansion of production capacities in the Middle East, the international oil concerns are likely to find it difficult in the future to persuade the financial markets of the attractiveness of investments in high-cost areas. If in the future they were to increase their own activities in the OPEC countries, a symbiosis of interest could be created, which would be at the further expense of production outside OPEC. The opening up of the oil sector in the OPEC countries could, therefore, result in more capital flowing into oil fields in the Middle East and less into areas with high production costs. OPEC would probably be strengthened rather than weakened by a development of this kind.

Outside OPEC: continued more rapid increase in consumption than in production

According to the most recent scenarios published by the International Energy Agency (IEA)[15] and the American Energy Information Administration (EIA),[16] world oil consumption will increase substantially over the next 10 to 20 years if there is no fundamental change in energy policy. Even if the world economy were to grow at the low rate of 1.7% a year, oil consumption would have increased by around 10 mbd by 2010, according to the EIA, with North America and the Asian developing countries accounting for a large part of the increase (cf. table 1). The production capacities outside OPEC, which are currently fully utilised, could probably be increased by almost 5 mbd if oil prices were low (US-$ 15 per barrel in 2010), and by around 8 mbd if oil prices were high (US-$ 25 in 2010). In other words, OPEC would have to step up production in both cases. The production capacities in the OPEC countries could be increased by up to 17 mbd by 2010. According to the EIA, conditions would have to be extremely favourable (increased offshore production, more viable resources than expected, more rapid diffusion of innovations) for the increase in non-OPEC production capacities (over 13 mbd) to exceed the increase in non-OPEC consumption. The situation

[14] Cf. HRH Prince Faisal Bin Turki Bin 'Abdul 'Aziz al-Sa' ud: 'Financing Petroleum Development and the Experience of Saudi Arabia.' World Petroleum Congress. Calgary, 13 June, 2000.

[15] International Energy Agency: *World Energy Outlook 2000*. Paris 2000.

[16] Energy Information Administration: *International Energy Outlook 2000*. Washington, March 2000.

Table 2

Trends for Oil Production Capacities to the Year 2010

Million barrels per day

	1998	Low oil prices		High oil prices		High production[1]	
		2005	2010	2005	2010	2005	2010
OPEC	34.2	44.6	51.1	38.3	41.4	35.0	38.2
Persian Gulf	24.0	30.4	35.5	26.0	28.5	24.1	27.0
of which:							
Iran	3.9	4.7	5.3	4.1	4.2	4.0	4.3
Iraq	2.8	3.5	4.4	3.0	3.5	2.8	3.3
Kuwait	2.6	3.3	4.0	2.9	3.4	2.7	3.2
Saudi Arabia	11.4	14.9	17.1	12.4	13.7	11.3	12.5
Venezuela	3.4	5.4	6.3	4.5	5.0	3.8	4.3
Other OPEC countries	6.8	8.8	9.3	7.8	7.9	7.1	6.9
Non-OPEC	44.5	45.9	49.9	47.7	52.6	52.1	57.9
USA	9.3	8.0	8.1	8.7	9.1	8.7	9.1
Canada	2.7	3.0	3.2	3.1	3.3	3.2	3.4
Mexico	3.5	3.7	3.8	3.9	4.1	4.1	4.3
North Sea	6.3	7.1	6.7	7.1	7.0	7.7	7.5
China	3.2	3.3	3.4	3.3	3.6	3.6	3.9
Former Soviet Union	7.2	7.5	10.0	7.6	10.3	9.1	11.8
Africa	2.8	2.8	3.5	3.2	3.5	3.8	4.8
World	78.7	90.5	101.0	86.0	94.0	87.1	96.1

1 Non-OPEC.

Source: Energy Information Administration: International Energy Outlook 2000. Washington, March 2000.

would be improved especially if, in addition to a slower decrease in production in the North Sea, developments in the successor states to the Soviet Union, in Africa and in Mexico were more favourable (cf. table 2).

A recent OPEC study comes to a similar conclusion. According to this study, given a crude oil price of US-$ 30 per barrel, oil consumption could be curbed to such an extent and non-OPEC oil production – including non-conventional oil (e.g. based on shale oil) – increased so substantially that the demand for OPEC oil would decrease by up to 4 mbd (cf. table 3).[17] According to OPEC's estimates, therefore, a crude oil price of US-$ 30 per barrel would probably lead to a new fall in prices after a few years, and OPEC's income from oil would be lower overall than in the reference case based on oil prices of between US-$ 20 and US-$ 23 per barrel.[18] Saudi Arabia's former Minister for Oil, Sheikh Yamani, believes even such a reference price would still be too high.[19]

OPEC measures take effect

The oil price fluctuations since 1997 were firstly caused because oil consumption remained far below the expected levels, and secondly because OPEC implemented larger production cuts than had been anticipated. Although the demand losses and the supply deficits only amounted to a few percent of consumption, oil prices changed dramatically.

Despite the looming Asian crisis and the prospect of a related slower increase in the region's oil consumption, at its Jakarta conference in 1997 OPEC increased its production quotas by 2.5 mbd to 27.5 mbd. The result was a massive plunge in crude oil prices, which fell from around US-$ 20 per barrel in autumn 1997 to under US-$ 10 per barrel at the beginning of 1999.[20] Some observers

[17] Income from oil would also be lower, according to this scenario, than in the case of more moderate price growth. Cf. OPEC: 'A Background Paper by the Organization of Petroleum Exporting Countries (OPEC)', Vienna. 7th International Energy Forum (IEF), November 17-19, 2000. Riyadh.

[18] Whether, however, this also applies to OPEC countries with small reserves, whose exports decline anyway as their own consumption needs increase, is not clear from the OPEC analysis.

[19] In his opinion only an oil price of maximum US-$ 16 per barrel would limit the expansion of oil production outside OPEC to such an extent that the OPEC countries with large reserves would be able to significantly increase sales. Cf. Sheikh Ahmed Zaki Yamani: 'OPEC's long standing weakness.' Talk given on 17 February 2000 at The Commonwealth Institute, London. However, one can argue against this thesis that in the non-OPEC countries oil consumption increased in the 1990s at a higher rate than production, although crude oil prices generally exceeded US-$ 16 per barrel.

[20] Production had actually already been increased independently of this decision, but the Jakarta conference legitimised the step and signalled to the markets that OPEC had indeed stopped restricting its members' output. Cf. Edward Morse: 'New era opens for OPEC with end of quota epoch.' In: *Petroleum Intelligence Weekly*, December 8, 1997, p. 5.

Table 3

OPEC Model Calculations on Crude Oil Supply and Demand

Million barrels per day

	Actual 2000	Reference case[1] 2010	High oil price[2]		
			Effects on non-OPEC production in 2010		
			none	weak	strong
			Oil consumption		
OECD	48.3	53.5	49.9	49.9	50.0
Former planned economies	9.0	11.5	11.4	11.4	11.4
Other (incl. OPEC)	18.8	25.6	24.0	24.0	24.0
World	76.0	90.6	85.4	85.3	85.3
			Oil production		
OECD	21.9	21.6	23.1	25.3	26.7
Former planned economies	10.6	13.2	13.5	13.5	13.5
OPEC (incl. NGL[3])	30.5	41.0	32.4	28.9	26.5
Other	11.2	12.8	14.5	15.7	16.7
World	76.0	90.6	85.3	85.3	85.3

1 Crude oil price of US-$ 18 per barrel (2010). — 2 Crude oil price of US-$ 30 per barrel (2010). — 3 Natural gas liquids.
Source: OPEC: A background paper by Organization of Petroleum Exporting Countries (OPEC), Vienna. 7th International Energy Forum (IEF), November 17–19, 2000. Riyadh.

believed this was the beginning of the end for OPEC, but the opposite was in fact the case. The realisation that failure to curb production would mean even lower oil prices and a potential existential crisis in most of the oil-producing countries created solidarity within OPEC. In order to stop the oil price slide, OPEC reduced its production quotas twice in 1998 – initially without any apparent success. Other non-OPEC oil-producing countries, such as Mexico, Russia and Norway, announced production cuts in support of OPEC. But it was not until OPEC reduced its production quotas once again at the beginning of 1999 that the measures began to take effect. Crude oil prices then rose again just as rapidly as they had fallen in 1998, actually trebling to over 30 dollars in March 2000. In an effort to avoid excessive dampening of economic growth and oil consumption, OPEC decided at its Vienna conference at the end of March 2000 to combat the continuing rise in prices by expanding production by 1.45 mbd to 25.5 mbd (excluding Iraq). At the same time the organisation agreed to use production adjustments in the future to stabilise the barrel price for crude oil within the range of US-$ 22 to US-$ 28.[21] In addition, the members of OPEC agreed to adjust production automatically by 0.5 mbd whenever the targeted price corridor was undershot or exceeded on more than 20 successive trading days.[22] Despite these measures, oil prices continued to rise sharply until well into the autumn. It was not until economic growth in the USA weakened markedly that the oil price dropped temporarily – to under US-$ 22 per barrel at the end of December – although Iraq had reduced its oil production in December from 2.8 to 1.2 mbd following a dispute with the UN over a surcharge on its crude oil price. OPEC then announced that it would reduce its output, which initially stabilised prices. At its Vienna conference on 17 January 2001, OPEC then decided to reduce production as of 1 February by 1.5 mbd to 25.2 mbd (excluding Iraq). Although oil prices rose again at the beginning of February to over US-$ 28 per barrel, despite the prospect of a sharp economic slump in the USA, they eventually stabilised within OPEC's target corridor.

Short supplies keep prices high

Oil consumption expanded strongly between the beginning of 1998 and the end of 2000, especially in North America and Asia. In Europe, by contrast, consumption stagnated. It decreased in the successor states to the Soviet Union, but has stabilised again recently. While

[21] In August 1999 Saudi Arabia's Minister for Oil had already proposed organising the most important oil producers in a club which would stabilise crude oil barrel prices at between US-$ 17 and US-$ 22 by means of the type of market interventions used by the central banks. Cf. *Petroleum Intelligence Weekly*, August 2, 1999, p. 1: 'OPEC could be serious about cartel strategy.' Saudi Arabia had previously advocated a price target of between US-$ 18 and US-$ 20 per barrel.

[22] Cf. *Petroleum Intelligence Weekly*, April 3, 2000, p. 1: 'OPEC adds micro control to tight supply strategy.' The price target was initially linked to the price for Brent crude oil, but now it is to apply to the OPEC basket, which is usually priced lower than high-grade Brent.

Table 4

World Oil Balance, Changes in Stocks from I/1998 to IV/2000 and Forecast to IV/2001

Million barrels per day

	1998				1999				2000				2001 forecast[1]			
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
Oil consumption																
OECD	47.3	45.5	46.7	48.1	48.8	45.7	47.0	49.0	48.0	46.3	47.7	48.6	49.1	46.6	48.0	49.6
North America	22.6	23.0	23.5	23.5	23.6	23.5	24.2	24.3	23.6	23.7	24.3	24.4	24.3	23.9	24.5	24.8
Europe[2]	15.4	14.7	15.2	15.9	15.8	14.4	14.7	15.7	15.1	14.5	15.0	15.4	15.3	14.6	15.1	15.7
Pacific	9.2	7.8	8.0	8.8	9.4	7.9	8.2	9.1	9.3	8.0	8.3	8.8	9.5	8.1	8.4	9.1
Other	27.7	27.5	27.2	27.2	27.0	27.2	27.1	27.5	27.5	27.6	28.2	28.1	28.4	28.6	28.7	29.1
Former Soviet Union	4.6	4.2	4.1	4.1	3.6	3.3	3.4	3.7	3.6	3.4	3.5	3.7	3.7	3.4	3.3	3.5
China	4.4	4.2	4.0	4.0	4.4	4.6	4.3	4.6	4.7	4.6	5.1	4.8	4.9	5.0	5.0	5.3
Rest of Asia	6.8	6.7	6.7	6.9	7.0	7.1	7.1	7.1	7.1	7.3	7.3	7.3	7.4	7.5	7.5	7.6
World	75.0	73.0	73.9	75.3	75.8	72.9	74.1	76.5	75.5	73.9	75.9	76.8	77.5	75.2	76.7	78.7
Oil production[3]																
OECD	22.6	22.0	21.3	21.6	21.5	20.9	21.3	22.0	22.2	21.7	21.7	21.9	22.2	22.0	21.9	22.6
North America	14.9	14.7	14.2	14.3	14.1	13.9	13.9	14.1	14.3	14.3	14.3	14.2	14.5	14.6	14.6	14.8
Europe[2]	6.9	6.6	6.3	6.8	6.8	6.5	6.7	7.1	7.1	6.6	6.6	6.9	6.9	6.6	6.5	6.9
Other (excl. OPEC)	22.8	22.7	22.8	23.1	23.2	23.1	23.2	23.5	23.6	23.7	24.1	24.5	24.5	24.5	24.5	24.7
Former Soviet Union	7.3	7.2	7.3	7.4	7.4	7.4	7.5	7.6	7.7	7.8	8.0	8.2	8.2	8.3	8.4	8.4
OPEC	31.3	31.1	30.2	30.3	30.6	29.1	29.1	29.0	29.3	30.7	31.3	31.9	30.8	28.7	30.3	31.4
World	76.7	75.8	74.3	75.0	75.3	73.1	73.6	74.5	75.2	76.2	77.1	78.2	77.5	75.2	76.7	78.7
Difference																
Total	1.7	2.8	0.4	–0.3	–0.5	0.2	–0.5	–2.0	–0.3	2.3	1.2	1.4	0.0	0.0	0.0	0.0
Net change in stocks[4]																
OECD	–0.1	2.0	0.3	–0.8	–0.7	0.5	–0.4	–2.6	–0.3	0.9	0.4	–0.8	–	–	–	–

1 Data from IEA. — 2 Incl. Turkey. — 3 Incl. condensate, natural gas liquids, unconventional oil, volumetric net gains during refining process, and liquid energy sources based on alcohol and coal. — 4 Plus sign indicates an increase, minus sign indicates a reduction in stocks.
Sources: IEA: Oil Market Report, Paris, 9 August, 2000, and 19 January, 2001.

output decreased slightly in North America, it stagnated in Europe. The global increase in demand for crude oil was mainly met during this period by production increases on the part of OPEC and the successor states to the Soviet Union. Import needs increased in North America and Asia, in particular.

All in all, production significantly exceeded consumption in 2000, though not to the same extent as in 1998. If OPEC were to refrain from further production cuts, consumption would remain below production again from the second quarter of this year onwards. The difference could be used to build up stocks to a normal level again. However, OPEC fears that a development of this kind could be accompanied by a drastic drop in prices, and thus does not exclude further production restrictions in the second quarter of 2001 (cf. table 4).

While crude oil production significantly exceeded oil consumption in 1998 and 2000, the increase in statistically recorded stocks was much lower.[23] The reason might be that only the stocks held by the oil companies in their refineries, oil terminals and oil depots, and – as far as the figures are known – the volumes of oil in pipelines and tankers are statistically recorded, while the oil stocks held in power plants and by wholesalers and private households are not. However, it cannot be ruled out that some companies deliberately provide false figures, for example in order to strengthen their position in the poker game for production quotas within OPEC or when seeking loans.[24]

According to the available data, around two-thirds of world oil stocks are held in the OECD countries, which corresponds more or less to these countries' share of world oil consumption. Within the OECD, almost half of the stocks are held in North America, while more than half are held in western Europe and in OECD Pacific countries (Japan, Korea, Australia and New Zealand) (cf. table 5). Because countries with strong consumption

[23] This led to a discussion about the reliability of the IEA's data and about the so-called missing barrel phenomenon.

[24] It is very possible that Iraq might act in such a way. Another indication of such strategic practices might be the late revisions made to production data, as happens regularly in the USA.

Table 5
Stocks and Ranges of Mineral Oil at End of Year/Quarter

	1995	1996	1997	1998	1999	I/2000	II/2000	III/2000
				Million barrels				
OECD	3 733	3 745	3 850	3 974	3 699	3 680	3 758	3 790
Industry	2 536	2 546	2 643	2 725	2 470	2 445	2 525	2 553
North America	1 168	1 138	1 211	1 283	1 126	1 108	1 162	1 172
Western Europe	938	930	940	989	906	927	917	929
Pacific	430	477	493	454	438	410	446	453
Government	1 198	1 199	1 207	1 249	1 228	1 234	1 232	1 237
North America	592	566	563	571	567	569	569	570
Western Europe	307	330	329	362	346	349	349	352
Pacific	299	303	315	315	315	315	315	312
Other stocks	998	1 001	1 030	1 063	989	984	1 005	1 013
Oil on tankers	784	798	812	859	808	826	853	837
World	5 516	5 544	5 692	5 896	5 496	5 489	5 615	5 638
				Days of supply				
OECD	81	80	82	83	77	79	79	76
Industry	55	55	56	57	52	53	53	52
North America	53	50	52	54	48	47	48	48
Western Europe	63	62	62	65	60	64	61	58
Pacific	49	53	59	53	47	51	54	50
Government	26	26	26	26	26	27	26	25
North America	27	25	24	24	24	24	23	23
Western Europe	21	22	22	24	23	24	23	22
Pacific	34	34	37	37	34	39	38	34
World	88	86	88	89	83	84	85	82

Sources: International Energy Agency: Oil Market Report, Paris, 9 August 2000 and 19 January 2001; OPEC: Monthly Oil Market Report, Vienna, January 2001.

growth need larger stocks than countries with stagnating or declining consumption, the IEA measures the ranges of the supplies in days on the basis of the expected consumption over the next three months for each period. Commercial oil stocks already lasted 10 to 12 days longer in western Europe than in North America between 1995 and 1999, while the difference was no less than 17 days in the first quarter of 2000. However, given that oil consumption has risen sharply in the USA in recent years, while it has stagnated in Europe, the range of the USA's stocks should really be longer than those of Europe.[25] While the oil stocks of the OECD Pacific countries are also lower than those of western Europe, unlike in the USA the range of the stocks has now increased again substantially after a decline in 1999. This trend suggests that insufficient oil stocks in North America, and especially in the USA, contributed to the oil price explosion in 1999 and 2000. North America's stocks have still not yet reached normal levels. The EIA thus believes there is a risk that petrol will be in short supply again in the USA this summer and that the prices for fuel, but also for other mineral oil products and crude oil, will remain high.

Conclusion

While the oil price surges of the 1970s and in 1990 were caused by political crises, the sharp rise in oil prices in 1999 was the result of relatively minor production restrictions on the part of OPEC. The price fluctuations on the oil markets have increased since the mid-1990s, because investments in the oil sector in some regions have not kept step with the strong consumption growth, and capacities are thus scarce in the oil industry worldwide. OPEC's room for manoeuvre in pricing is additionally broadened by the limited conventional oil resources outside OPEC, and in the short term also by the persistently low stocks, especially in the USA. These factors suggest that OPEC will manage for the time being to stabilise the price of crude oil within the target corridor of between US-$ 22 and US-$ 28 per barrel.

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[25] This is also suggested by the fact that oil supply in the USA became increasingly dependent on imports during the 1990s; in net terms around half of the USA's oil needs are now met by imports.