

CHAPTER FOUR

ENERGY

In 1383, the temporary distortions in crude oil supply resulted from natural disasters, geo-political tensions in the Middle-East, rising demand for crude oil in Asia and the U.S., and the difficulties in refining and distributing process were the main factors which helped crude oil prices rise in the international markets.

As of beginning of 1383 (March 20, 2004), the Organization of Petroleum Exporting Countries (OPEC) raised its production quota in five stages. First was on April 1st, 2004 and last was on March 1st, 2005.

OPEC

Primary Energy Consumption

Primary energy consumption by the OPEC member countries grew by 6.6 percent to 591.3 million tons oil equivalent in 2004, against 554.8 million tons oil equivalent in 2003. Among primary energy bearers, crude oil and natural gas are consumed by member countries to a large extent, hydroelectricity and coal are consumed by Iran, Venezuela, Indonesia and Algeria sparingly. Nuclear energy is not consumed by any of the OPEC member countries. In 2004, Middle East members (Saudi Arabia, Iran, Kuwait, U.A.E. and Qatar) with total consumption of 383.2 million tons oil equivalent had a higher amount of consumption as compared to other members (Venezuela, Indonesia and Algeria). Iran with 155.5 million tons oil equivalent ranked the first among OPEC members and Saudi Arabia with 137.2 million tons oil equivalent ranked the second.

OPEC PRIMARY ENERGY CONSUMPTION IN 2004(1)						(million tons oil equivalent)
	Oil	Natural gas	Coal	Nuclear energy	Hydro electricity	Total
Middle East members	185.5	193.9	1.1	0	2.7	383.2
Saudi Arabia	79.6	57.6	0	0	0	137.2
Iran	73.3	78.4	1.1	0	2.7	155.5
Kuwait	13.7	8.7	0	0	0	22.4
United Arab Emirates	15.6	35.6	0	0	0	51.2
Qatar	3.3	13.6	0	0	0	16.9
Other members	91.7	74.7	23.1	0	18.6	208.1
Total	277.2	268.6	24.2	0	21.3	591.3

Source: BP Statistical Bulletin, 2005

(1) Excludes Iraq, Libya and Nigeria.

Crude Oil Reserves

OPEC crude reserves decreased by 0.1 percent to 890.3 billion barrels in 2004 as compared with the previous year. Out of 11 OPEC member countries, the largest reserves belong to Saudi Arabia (by 262.7 billion barrels), and Iran (by 132.5 billion barrels), followed by Iraq and Kuwait (by 115 and 99 billion barrels), respectively.

OPEC PROVEN OIL RESERVES						(billion barrels)	
	2002	2003▲	2004	Percentage change		Share (percent)	
				2003	2004	2003	2004
Middle East members	718.0	723.0	722.2	0.7	-0.1	81.1	81.1
Saudi Arabia	262.8	262.7	262.7	*	0	29.5	29.5
Iran	130.7	133.3	132.5	2.0	-0.6	15.0	14.9
Iraq	115.0	115.0	115.0	0	0	12.9	12.9
Kuwait	96.5	99.0	99.0	2.6	0	11.1	11.1
United Arab Emirates	97.8	97.8	97.8	0	0	11.0	11.0
Qatar	15.2	15.2	15.2	0	0	1.7	1.7
Other members	163.6	168.1	168.1	2.7	0	18.9	18.9
Total	881.6	891.1	890.3	1.1	-0.1	100.0	100.0

Source: BP Statistical Bulletin, 2005

OPEC Production Ceiling

OPEC production ceiling was reduced by one million barrels per day since April 1st, 2004, from 24.5 million b/d at the end of 2003. This could be traced back to the excess supply of oil in the market. With the rise in crude prices, OPEC raised the output ceiling by 2 million b/d to 25.5 million b/d since July 1st, 2004. Another 500 thousand barrels were added since August 1st, making 26 million barrels per day and the last rise in output ceiling in 2004 was in November 1st by one million barrels to 27 million b/d. As of March 1st, 2005, the output ceiling reached 27.5 million b/d, up by 500 thousand barrels per day.

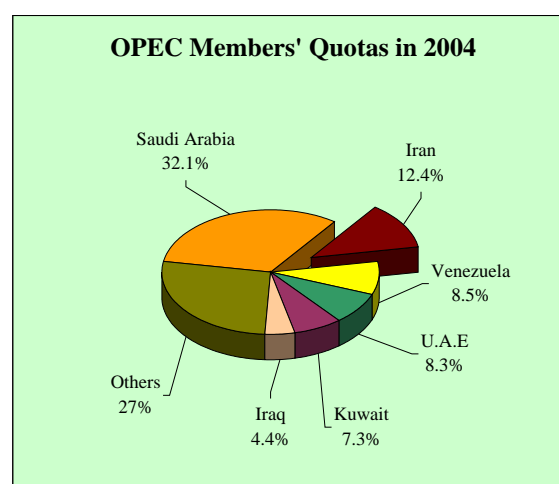
OPEC PRODUCTION QUOTA						(mb/d)
	April 2004	July 2004	August 2004	November 2004	March 2005	
Saudi Arabia	7.638	8.288	8.450	8.775	8.937	
Iran	3.450	3.744	3.817	3.964	4.037	
Other members (1)	12.412	13.468	13.733	14.261	14.526	
Production ceiling	23.500	25.500	26.000	27.000	27.500	

Source: www.opec.org

(1) Excludes Iraq.

Crude Oil Production

In the review year, average OPEC crude oil production with 7.3 percent rise reached 32.9 mb/d, as compared to 2003. Increase in the OPEC production quotas was done in line with targets such as market regulation and provision of sufficient supply to stabilize the crude market. In this year, production of OPEC Middle East members with 7.1 percent rise reached 22.8 mb/d. Production of other members reached 10.1 mb/d, up by 7.9 percent. Saudi Arabia with 32.1 percent share and a production of 10.6 mb/d ranked the first.



OPEC CRUDE OIL PRODUCTION (1)							(thousand b/d)	
	2002▲	2003▲	2004	Percentage change		Share (percent)		
				2003	2004	2003	2004	
Middle East members	19,188	21,273	22,773	10.9	7.1	69.3	69.2	
Saudi Arabia	8,970	10,222	10,584	14.0	3.5	33.3	32.1	
Iran	3,414	3,999	4,081	17.1	2.1	13.0	12.4	
Iraq	2,035	1,350	2,027	-33.7	50.1	4.4	4.4	
Kuwait	1,861	2,238	2,424	20.3	8.3	7.3	7.3	
United Arab Emirates	2,125	2,547	2,667	19.9	4.7	8.3	8.3	
Qatar	783	917	990	17.0	8.0	3.0	3.0	
Other members	9,666	9,413	10,154	-2.6	7.9	30.7	30.7	
Total	28,854	30,686	32,927	6.3	7.3	100.0	100.0	

Source: BP Statistical Bulletin, 2005

(1) Includes NGL, shale oil and oil sands.

Consumption of Oil Products

In 2004, average consumption of crude products grew by 5.4 percent to 5.9 mb/d as compared with 2003. The highest and the lowest amounts of consumption were related to Saudi Arabia and Qatar with 1.7 and 0.08 mb/d, respectively. Iran with 1.55 mb/d consumption accounted for 26.3 percent of total OPEC consumption.

OPEC CONSUMPTION OF OIL PRODUCTS (1)							(thousand b/d)	
	2002	2003▲	2004	Percentage change		Share (percent)		
				2003	2004	2003	2004	
Middle East members	3,494	3,711	3,936	6.2	6.0	66.3	66.7	
Saudi Arabia	1,522	1,629	1,728	7.0	6.1	29.1	29.3	
Iran	1,385	1,472	1,551	6.2	5.4	26.3	26.3	
Kuwait	222	238	266	6.9	11.8	4.2	4.5	
United Arab Emirates	284	296	306	4.0	3.6	5.3	5.2	
Qatar	79	77	84	-3.1	9.7	1.4	1.4	
Other members	1,931	1,889	1,969	-2.2	4.2	33.7	33.3	
Total (2)	5,424	5,600	5,905	3.2	5.4	100.0	100.0	

Source: BP Statistical Bulletin, 2005

(1) Includes domestic demand for oil, aviation and navy fuel, fuel for refineries and oil wastes.

(2) Excludes Iraq, Nigeria and Libya.

Natural Gas Reserves

Proven natural gas reserves declined by 0.1 percent in 2004 as compared to 2003 and amounted to 88.7 trillion cubic meters. Iran and Qatar with 27.5 and 25.8 trillion cubic meters have the highest amount of proven natural gas reserves among OPEC member countries.

OPEC PROVEN NATURAL GAS RESERVES							(trillion cubic meters)	
	2002	2003▲	2004	Percentage change		Share (percent)		
				2003	2004	2003	2004	
Middle East members	69.9	71.0	70.9	1.6	-0.1	80.0	80.0	
Saudi Arabia	6.6	6.8	6.8	2.4	0	7.7	7.7	
Iran	26.7	27.6	27.5	3.4	-0.4	31.1	31.0	
Iraq	3.2	3.2	3.2	0	0	3.6	3.6	
Kuwait	1.6	1.6	1.6	2.8	0	1.8	1.8	
United Arab Emirates	6.1	6.1	6.1	0	0	6.8	6.8	
Qatar	25.8	25.8	25.8	0	0	29.0	29.1	
Other members	17.6	17.7	17.8	1.0	0.1	20.0	20.0	
Total	87.5	88.8	88.7	1.5	-0.1	100.0	100.0	

Source: BP Statistical Bulletin, 2005

Production of Natural Gas

In 2004, OPEC natural gas production, with a growth of 5.1 percent, reached 455.2 billion cubic meters, as compared to 2003. The highest amount of natural gas production was related to Iran (85.5 billion cubic meters) accounting for 18.8 percent of total OPEC natural gas production. Algeria, with production of 82.0 billion cubic meters, accounted for 18.0 percent of total OPEC production.

OPEC PRODUCTION OF NATURAL GAS							(billion cubic meters)	
	2002	2003▲	2004	Percentage change		Share (percent)		
				2003	2004	2003	2004	
Middle East members	212.6	226.9	244.2	6.7	7.6	52.4	53.6	
Saudi Arabia	56.7	60.1	64.0	6.0	6.5	13.9	14.1	
Iran	75.0	81.5	85.5	8.7	4.9	18.8	18.8	
Kuwait	8.0	9.1	9.7	13.8	6.6	2.1	2.1	
United Arab Emirates	43.4	44.8	45.8	3.2	2.2	10.3	10.1	
Qatar	29.5	31.4	39.2	6.4	24.8	7.2	8.6	
Other members	199.1	206.4	211.0	3.7	2.2	47.6	46.4	
Total	411.7	433.3	455.2	5.2	5.1	100.0	100.0	

Source: BP Statistical Bulletin, 2005

Consumption of Natural Gas

OPEC natural gas consumption, with 5.7 percent rise, amounted to 298.4 billion cubic meters. Middle East members consumed 215.4 billion cubic meters of natural gas (72.2 percent of total members consumption), up by 6.5 percent compared to 2003.

OPEC CONSUMPTION OF NATURAL GAS (1)							(billion cubic meters)	
	2002	2003▲	2004	Percentage change		Share (percent)		
				2003	2004	2003	2004	
Middle East members	191.4	202.2	215.4	5.6	6.5	71.7	72.2	
Saudi Arabia	56.7	60.1	64.0	6.0	6.5	21.3	21.4	
Iran	79.2	82.9	87.0	4.7	4.9	29.4	29.2	
United Arab Emirates	36.4	37.9	39.6	4.1	4.5	13.4	13.3	
Kuwait	8.0	9.1	9.7	13.8	6.6	3.2	3.3	
Qatar	11.1	12.2	15.1	9.9	23.8	4.3	5.1	
Other members	83.1	80.0	83.0	-3.7	3.8	28.3	27.8	
Total	274.5	282.2	298.4	2.8	5.7	100.0	100.0	

Source: BP Statistical Bulletin, 2005

(1) Excludes Iraq, Nigeria and Libya.

IRAN

Production and Export of Crude Oil

In 1383, in compliance with the quota set by the OPEC, Iran's average crude oil production amounted to 3.9 mb/d, up by 4.9 percent. With the improvement in the global economic growth, world demand for crude oil increased markedly, raising Iran's average crude oil export by 6.5 percent to 2.6 million barrels per day. Nevertheless, export of oil products plummeted by 7.6 percent to 261 thousand b/d when compared with the previous year. In the review year, crude oil exports out of total oil exports (including crude oil and oil products) amounted to 90.7 percent. Average price of each barrel of crude oil export went up by 35.0 percent to \$35.81.

Geographical Distribution of Crude Oil Exports

In 1383, out of total crude oil exports, 25.8 percent was exported to Western Europe, showing a significant rise as compared to 1382. However, the share of crude export to Japan declined in the review period and reached 20.6 percent.

In the review year, 35.8 percent of crude oil was exported to Asia and the Far East, which was 5.9 percent more than that of 1382. Moreover, 7.4 percent of crude oil was exported to Africa and 10.4 percent to other regions.

Domestic Price of Oil Products

According to the 1383 Budget Law, the average price of oil products increased in this year. On this basis, the price of regular gasoline, gas oil, kerosene and fuel oil with respective 33.1, 3.1, 3.1 and 7.1 percent increase, reached Rls. 800, 165, 165 and 94.2 per liter, respectively.

Domestic Consumption of Oil Products

In 1383, domestic consumption of oil products reached 1,216 thousand b/d, showing 8.5 percent rise as compared to the previous year. In the review year, consumption of gas oil and gasoline with 28.6 and 27.6 percent share in total consumption of oil products reached 348 and 335 thousand b/d.

Natural Gas

In 1383, a total of 97.7 billion cubic meters natural gas were domestically consumed, 12.8 percent more than that of 1382. It is to be noted that in the review year, 5.9 billion cubic meters natural gas were imported. The natural gas exports amounted to 3.5 billion cubic meters, showing 2.9 percent rise as compared to the previous year.

Electricity Generation

In 1383, generation of electricity grew by 8.1 percent and amounted to 162 billion kwh. Out of total generated electricity, 159 billion kwh (98.3 percent) was generated by power plants affiliated to the Ministry of Energy and 2.8 billion kwh (1.7 percent) by other institutions.

Steam power plants generation, with 87.4 billion kwh, had the highest share in electricity generation and diesel power plants with 245 million kwh the least. The highest growth in electricity generation, i.e. 19.1 percent, was attributable to gas and combined cycle power plants. The amount of electricity generated by diesel power plants was reduced by 15.8 percent and the amount of electricity generated by hydro power plants grew by 4.5 percent to 11.6 billion kwh. Moreover, another 40 million kwh electricity was generated by wind power plants.

Electricity Consumption

In 1383, consumption of electricity increased by 8.5 percent to 125.5 billion kwh. In this year, the highest growth in electricity consumption was attributable to industrial sector by 10.7 percent when compared with the previous year. Growth in electricity consumption in agriculture, household, public and commercial sectors was 10.4, 10.1, 7.5, and 5.1 percent, respectively. Household and industrial uses respectively held 32.8 and 32.4 percent share in electricity consumption and together consumed the highest amount of electricity.

		CONSUMPTION OF ELECTRICITY (1)				(million kw/h)	
				Percentage change		Share (percent)	
		1382	1383	1382	1383	1382	1383
Household		37,429	41,196	5.7	10.1	32.4	32.8
Industrial		36,735	40,681	7.4	10.7	31.8	32.4
Public		13,562	14,575	8.9	7.5	11.7	11.6
Commercial		7,466	7,846	6.2	5.1	6.5	6.3
Agricultural		15,574	17,195	19.2	10.4	13.5	13.7
Street lighting		4,893	4,035	45.4	-17.5	4.2	3.2
Total		115,659	125,528	9.6	8.5	100.0	100.0

Source: Ministry of Energy

(1) Includes sale of electricity to subscribers.