





WORLD: Major trends (1980-1997)

- Total gross energy consumption growth fell to 1.1% in 1997 after the rebound registered in 1995 and 1996
- Final energy consumption, driven by transport and domestic sectors, has increased by 1.3% annually since 1980
- World primary energy production marked by a 28% reduction in CIS since 1990
- World energy production still dominated by oil, representing 37% of energy production in 1997
- NAFTA region contributed 24% of world primary energy production
- Market share of OPEC increased from 1990 to meet 41% of world oil production in 1997
- Stabilisation of oil prices resulting from sustained demand in developing countries
- Gas production, marked by the fall in CIS production in the early 90s, increased by only 0.2% in 1997
- Lack of infrastructure is the major barrier to increased gas consumption
- Solid production, driven by the United States and China, accounted for 24% of world energy supply
- Prospects for an increasing nuclear contribution, which fell for the first time in 1997, are dimming
- Asia accounted for 55% of world biomass production
- Electricity's share in final energy consumption increased by one third since 1980
- World power market characterised by privatisation, integration and foreign investment
- Power production remained largely dominated by thermal production even though its share declined slowly
- Inputs for electricity generation increasingly dominated by solid fuels
- Refinery capacities have increased only in non-OECD region since 1985
- World GDP growth accelerated since 1994, driven by the developing regions
- World energy consumption per capita stable but Asia grew by 52% since 1980
- World energy intensity improved on average by 0.9% per year since 1980
- World CO₂ emissions grew by 8% since 1990
- The contribution of CO₂ emissions from power generation increased from 28% in 1980 to 34% in 1996
- The OECD absorbed about 80% of world interregional exchanges of energy

ENERGY OUTLOOK

Total gross energy consumption growth fell to 1.1% in 1997 after the rebound registered in 1995 and 1996...

Total **gross energy consumption** in the world as a whole increased by about 1.6% per year from 1980 to 1997, but by only 1.4% annually since 1990. The developments in the period are characterised by a faster growth in the non-OECD area during the 1980's (2.9% per year against 0.9% per year in the OECD) driven by the Middle East (+5.9% per year on average), Asia (+4.2%) and Africa (3.4%). However, while the OECD area continued to increase its energy needs by 1.5% per year on average since 1990, the non-OECD world had a slower growth in demand limited to 1.3% annually. This drop in the non-OECD demand resulted from the significant decreases in Central and Eastern Europe (-2% per year on average) and the former USSR (-5.4% per year on average) which was just about compensated by the buoyant demand in the Middle East (+4.8% per year on average), Asia (+4.5%) and Latin America (+3.6%). As a consequence of the stabilisation of consumption since 1994 in CEEC and CIS considered as a whole, world energy consumption rebounded in 1995 and 1996 to reach a growth of about 2.7% per year, contrasting with a limited increase by only 0.7% between 1990 and 1994. In 1997 the increase was limited to only 1.2% despite growth of the world economy by 3.3%. This resulted from the favourable climatic conditions in the

western hemisphere and from the impacts of the financial crisis that affected South East Asia, major countries in Latin America and CIS but with a rebound effect on Central and Eastern countries.

Structurally, the weight of Asia has increased substantially since 1980 to represent 24.5% of world consumption in 1997 against only 15.8% in 1980. On the other hand, the share of CIS declined from 15.6% to 9.5%, and of Central and Eastern Europe from 4.9% to 3.0%; while the contribution of OECD as a whole to world energy consumption decreased from 52.9% in 1980 to 49.1% in 1997.

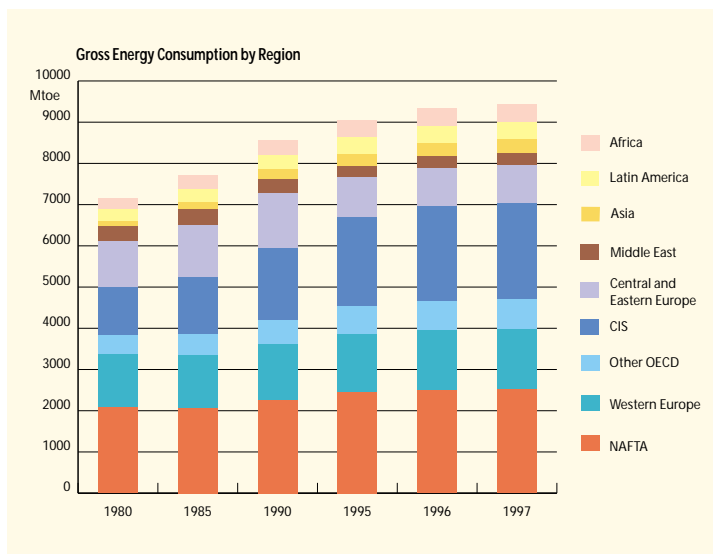
The future evolution of gross energy consumption will be heavily influenced by the restructuring of eastern economies that will lead to the resumption of industrial growth and of these economies as a whole with, as a consequence, increasing consumption of energy. On the other hand, the economic crisis in East Asia which began in the summer of 1997 and continued to deepen into the winter of 1998 with some extensions to Latin America and CIS, will certainly, in the short term, affect GDP and energy consumption growth in Asia, the most buoyant region over the last fifteen years. The preliminary estimate for 1998 indicated that world gross energy consumption will remain constant overall, but with a marked reduction in Central and Eastern Countries, Asia and OECD Pacific region. These recent economic events highlight the uncertainties attached to economic growth both in the short and long term.



TOTAL GROSS ENERGY CONSUMPTION : TOTAL BY REGION

Mtoe	1980	1985	1988	1990	1995	1996	1997	85/80	90/85	95/90	96/95	97/96
Annual % Change												
World	7273.2	7795.1	8534.1	8686.1	9178.2	9470.3	9579.4	1.4%	2.2%	1.1%	3.2%	1.2%
Bunkers	109.0	94.7	104.1	117.6	127.1	129.3	131.9	-2.8%	4.4%	1.6%	1.7%	2.1%
Western Europe	1282.0	1285.9	1338.2	1362.7	1413.5	1462.6	1459.7	0.1%	1.2%	0.7%	3.5%	-0.2%
European Union	1240.8	1240.8	1291.9	1314.2	1362.6	1411.1	1406.9	0.0%	1.2%	0.7%	3.6%	-0.3%
EFTA	41.2	45.1	46.3	48.6	50.9	51.5	52.8	1.9%	1.5%	0.9%	1.3%	2.4%
Rest of OECD	2565.2	2577.8	2800.3	2852.2	3123.6	3207.4	3246.2	0.1%	2.0%	1.8%	2.7%	1.2%
NAFTA	2103.6	2086.5	2259.8	2259.6	2454.4	2511.9	2541.7	-0.2%	1.6%	1.7%	2.3%	1.2%
OECD Pacific	430.4	452.4	493.8	540.1	607.0	627.8	633.2	1.0%	3.6%	2.4%	3.4%	0.9%
Central and Eastern Europe	354.2	370.5	381.3	333.4	279.7	293.9	289.5	0.9%	-2.1%	-3.5%	5.1%	-1.5%
CIS (1)	1131.9	1272.4	1389.1	1347.8	955.7	932.9	911.1	2.4%	1.2%	-6.6%	-2.4%	-2.3%
Africa	260.2	321.6	356.7	363.8	407.6	412.7	425.2	4.3%	2.5%	2.3%	1.2%	3.0%
Middle East	133.5	191.3	228.6	237.2	295.6	315.8	329.3	7.5%	4.4%	4.5%	6.8%	4.3%
Asia	1148.4	1378.3	1601.0	1732.2	2174.5	2291.8	2350.7	3.7%	4.7%	4.7%	5.4%	2.6%
Latin America	288.8	302.4	334.9	339.1	400.9	423.9	435.8	0.9%	2.3%	3.4%	5.7%	2.8%
of which (%)												
European Union	17.1	15.9	15.1	15.1	14.8	14.9	14.7	-1.4%	-1.0%	-0.4%	0.4%	-1.4%
OECD	52.9	49.6	48.5	48.5	49.4	49.3	49.1	-1.3%	-0.4%	0.4%	-0.2%	-0.4%

(1) Including Baltic countries for statistical reasons



Final energy consumption, driven by transport and domestic sectors, increased by 1.3% annually since 1980...

The final energy consumption by sector was very varied. Energy consumption for transport, still the minor contributor, has increased regularly since 1980 by about 2% per annum in the OECD region and 2.3% in the non-OECD region as a whole, the share of OECD still achieving about 69% in 1996. Since 1990 major developments occurred in Asia (+7.6% per year on average), the Middle East (+6.7%) and Latin America (+5.1%). The near future will be marked by two major elements: the increasing contribution of transport in final energy demand (from 22.2% in 1980 to 25.1% in 1996); and the very sustained growth in emerging regions where the potential for development remained enormous

with an average energy consumption per inhabitant ranging from 58 kgoe in Africa to 71 kgoe in Asia and 242 kgoe in Latin America, compared to 1076 kgoe for the OECD as a whole and a maximum of 1650 kgoe in the NAFTA region. Energy consumption by the tertiary and domestic sector depends heavily on climatic conditions. It increased on average by 1.8% since 1980 with a contrasted evolution between the OECD region (+1.1% per year on average) and the non-OECD region (+2.2% per year) due to increasing living standards and growing urbanisation in emerging regions. As a consequence, the share of the OECD region declined from 44% in 1980 to 40% in 1996. Nevertheless this evolution was not uniform. Between 1990 and 1996, substantially warmer in the Western Hemisphere, energy consumption by the tertiary-domestic sector increased faster in the OECD region (2.3% per year on average) than in the rest of the world (+1.8%). Energy consumption by industry was only 2.6% higher in 1996 than in 1980 and still 3.3% below the peak reached in 1988. Even if this is the consequence of the sharp decline in Eastern Countries, the long-term evolution reflects all the efforts made by industrialists to reduce specific energy consumption per unit produced. Although consumption declined in the OECD region by 0.9% on average per year since 1980, it grew by 0.9% in non-OECD regions. The latter increased its share from 52% in 1980 to 60% in 1996. The growth was spectacular in Asia, driven by China and South East Asia, reaching 4.4% per year on average since 1980. In 1996, Asia, excluding Japan and New Zealand, absorbed 33% of world energy consumption by industry. As a result of this, it is clear that the evolution in non-OECD regions will be the leading force for the future.



TOTAL ENERGY CONSUMPTION BY INDUSTRY : TOTAL BY REGION

Mtoe	1980	1985	1988	1990	1995	1996	1997	85/80	90/85	95/90	96/95	97/96
Annual % Change												
World	1919.4	1907.6	2036.9	1983.2	1937.3	1969.3	na	-0.1%	0.8%	-0.5%	1.7%	na
Western Europe	321.4	275.4	278.7	274.7	268.7	271.3	272.9	-3.0%	-0.1%	-0.4%	0.9%	0.6%
European Union	310.7	264.1	268.5	264.9	258.4	261.1	262.6	-3.2%	0.1%	-0.5%	1.0%	0.6%
EFTA	10.7	11.3	10.2	9.9	10.3	10.2	10.3	1.0%	-2.7%	0.9%	-1.3%	1.8%
Rest of OECD	583.6	541.1	566.1	509.6	519.4	526.3	531.0	-1.5%	-1.2%	0.4%	1.3%	0.9%
NAFTA	465.3	423.1	442.8	378.6	383.0	385.7	388.3	-1.9%	-2.2%	0.2%	0.7%	0.7%
OECD Pacific	111.8	110.4	113.9	120.2	124.2	125.9	126.8	-0.2%	1.7%	0.7%	1.3%	0.7%
Central and Eastern Europe	123.9	119.8	111.1	98.2	68.8	70.5	na	-0.7%	-3.9%	-6.9%	2.4%	na
CIS (1)	399.7	386.1	413.5	413.5	233.7	226.5	na	-0.7%	1.4%	-10.8%	-3.1%	na
Africa	49.4	52.3	56.2	56.9	54.1	55.4	na	1.2%	1.7%	-1.0%	2.3%	na
Middle East	35.4	39.0	38.3	26.0	44.8	49.1	na	2.0%	-7.8%	11.5%	9.6%	na
Asia	328.2	410.6	482.1	514.1	638.7	658.9	na	4.6%	4.6%	4.4%	3.2%	na
Latin America	77.8	83.3	90.7	90.1	108.9	111.5	na	1.4%	1.6%	3.9%	2.3%	na
of which (%)												
European Union	16.2	13.8	13.2	13.4	13.3	13.3	na	-3.1%	-0.7%	0.0%	-0.6%	na
OECD	47.2	42.8	41.5	39.6	40.7	40.5	na	-1.9%	-1.6%	0.6%	-0.5%	na

TOTAL ENERGY CONSUMPTION BY TRANSPORT : TOTAL BY REGION

Mtoe	1980	1985	1988	1990	1995	1996	1997	85/80	90/85	95/90	96/95	97/96
Annual % Change												
World	1132.2	1211.4	1358.9	1408.3	1526.6	1572.9	na	1.4%	3.1%	1.6%	3.0%	na
Western Europe	197.1	211.7	244.8	264.6	286.8	294.7	300.4	1.4%	4.6%	1.6%	2.8%	1.9%
European Union	189.2	202.8	234.7	253.8	275.7	283.3	288.6	1.4%	4.6%	1.7%	2.8%	1.9%
EFTA	7.8	8.9	10.1	10.8	11.1	11.5	11.7	2.5%	4.0%	0.6%	2.8%	2.4%
Rest of OECD	583.5	602.2	669.4	687.8	757.8	776.2	792.4	0.6%	2.7%	2.0%	2.4%	2.1%
NAFTA	502.2	515.5	570.2	577.8	629.3	642.7	656.9	0.5%	2.3%	1.7%	2.1%	2.2%
OECD Pacific	75.7	80.1	90.4	100.5	116.3	120.5	123.3	1.1%	4.7%	3.0%	3.6%	2.3%
Central and Eastern Europe	25.4	23.9	26.9	28.0	23.2	26.8	na	-1.2%	3.2%	-3.7%	15.2%	na
CIS (1)	123.8	134.1	144.6	139.9	67.6	62.0	na	1.6%	0.9%	-13.5%	-8.2%	na
Africa	30.6	35.4	37.0	37.1	40.7	41.8	na	3.0%	0.9%	1.9%	2.7%	na
Middle East	30.1	42.1	44.8	41.1	59.4	60.8	na	7.0%	-0.5%	7.6%	2.4%	na
Asia	77.8	99.5	122.7	139.7	200.4	216.2	na	5.0%	7.0%	7.5%	7.9%	na
Latin America	63.8	62.5	68.5	70.0	90.7	94.3	na	-0.4%	2.3%	5.3%	4.0%	na
of which (%)												
European Union	16.7	16.7	17.3	18.0	18.1	18.0	na	0.0%	1.5%	0.0%	-0.3%	na
OECD	68.9	67.2	67.3	67.6	68.4	68.1	na	-0.5%	0.1%	0.2%	-0.5%	na

TOTAL ENERGY CONSUMPTION BY TERTIARY-DOMESTIC SECTOR : TOTAL BY REGION

Mtoe	1980	1985	1988	1990	1995	1996	1997	85/80	90/85	95/90	96/95	97/96
Annual % Change												
World	2045.3	2236.8	2394.1	2406.1	2609.9	2709.5	na	1.8%	1.5%	1.6%	3.8%	na
Western Europe	359.3	370.6	365.2	358.8	381.8	410.8	396.1	0.6%	-0.6%	1.2%	7.6%	-3.6%
European Union	344.9	355.0	349.2	342.6	364.7	392.9	379.0	0.6%	-0.7%	1.3%	7.7%	-3.5%
EFTA	14.4	15.5	16.0	16.2	17.1	17.9	17.0	1.5%	0.9%	1.1%	4.7%	-4.8%
Rest of OECD	549.1	564.8	607.4	593.9	653.0	679.5	670.9	0.6%	1.0%	1.9%	4.0%	-1.3%
NAFTA	464.7	467.0	496.0	476.7	516.6	539.7	530.6	0.1%	0.4%	1.6%	4.5%	-1.7%
OECD Pacific	70.9	82.6	94.2	100.3	117.0	119.7	119.2	3.1%	3.9%	3.1%	2.3%	-0.4%
Central and Eastern Europe	98.7	101.5	105.6	88.7	77.2	81.4	na	0.6%	-2.7%	-2.7%	5.4%	na
CIS (1)	266.2	318.9	339.7	338.6	363.4	358.6	na	3.7%	1.2%	1.4%	-1.3%	na
Africa	122.6	140.8	153.3	161.7	188.1	191.1	na	2.8%	2.8%	3.1%	1.6%	na
Middle East	22.4	37.4	58.8	76.8	83.9	89.0	na	10.8%	15.5%	1.8%	6.1%	na
Asia	554.7	628.4	684.9	706.6	770.9	804.9	na	2.5%	2.4%	1.8%	4.4%	na
Latin America	72.4	74.6	79.2	81.0	91.5	94.3	na	0.6%	1.7%	2.5%	3.0%	na
of which (%)												
European Union	16.9	15.9	14.6	14.2	14.0	14.5	na	-1.2%	-2.1%	-0.4%	3.8%	na
OECD	44.4	41.8	40.6	39.6	39.7	40.2	na	-1.2%	-1.1%	0.0%	1.5%	na

(1) Including Baltic countries for statistical reasons

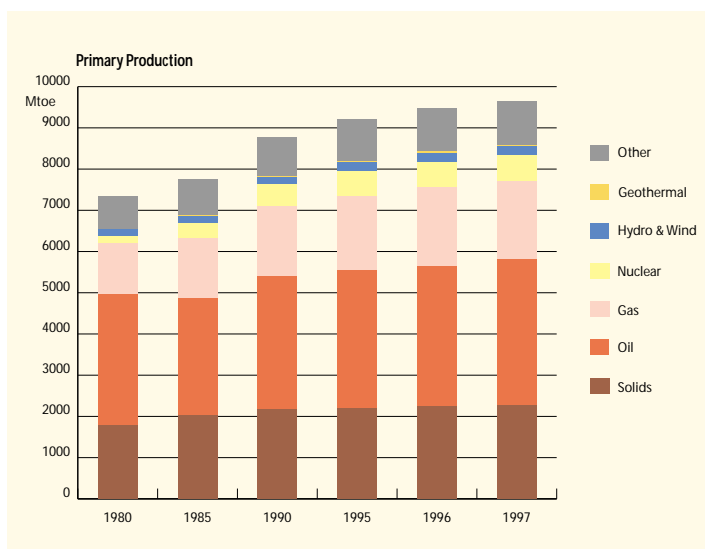


Main items

In recent years, the vision of many citizens, analysts and policy makers has shifted increasingly to the global level. This change in focus has reflected much improved global communication and transportation; greater economic interdependence via trade and overseas direct investment; and, perhaps above all, the growing recognition of the many man-made impacts which are influencing the natural environment. Huge inequalities remain. For many millions of people the vision is much more limited: for them survival remains the dominant imperative given inadequate access to basic essentials such as food, water and shelter. One-third of the global population still has no access to the commercial energy supplies seen as a fundamental necessity by the more fortunate. Despite recent financial crises in some regions, continued economic growth is leading to a steady rise in global energy consumption - particularly in the developing countries. Energy use in central and eastern Europe has fallen as these regions adjust their economies through a difficult process of market reforms and structural change. Particularly rapid growth in electricity demand and transport is a feature of most regions, reflecting rising standards of living and higher consumer aspirations. World energy use remains heavily dependent (some 82%) upon the major fossil fuels, with the carbon-free sources - renewables and nuclear power - satisfying the balance. Whilst there is growing recognition of the need to reduce global reliance upon fossil fuels, the shift away from this heavy dependence will take very many decades. Nevertheless, as the Kyoto Protocol and other similar international agreements reveal, there is now clear evidence that concern with sustainability is achieving greater prominence in both public attitudes and policy responses.

World primary energy production marked by a 27% reduction in CIS since 1990...

World **primary energy production** (equivalent to gross energy consumption aside from some stock variations and statistical errors) increased from 1980 to 1997 by about 1.6% per year, with a contrasted evolution in the 1990's. Growth was limited to 0.6% per annum for the first four years but jumped by 2.3% per year on average since then. The most recent evolution is marked by the impressive reduction of energy production in CIS (-456 Mtoe or a reduction by 28% between 1990 and 1997) and CEEC (-26 Mtoe or a reduction by 11%) compensated by increases in all other regions of the world, mainly in Asia (+420 Mtoe or +25%), the Middle East (+246 Mtoe or +26%), Latin America (+173 Mtoe or +43%), NAFTA (+153 Mtoe or +7%), Africa (+132 Mtoe or +20%) and EFTA (+94 Mtoe or +72%).



World energy production still dominated by oil, representing 37% of total energy production in 1997...

In 1997, oil was still the most important fuel with 37% of world primary energy production (43% in 1980). Its production and consumption, however, grew three times slower than total energy since 1980 even though they have accelerated significantly since 1995. The second most important fuel remained solid fuels which kept a share of about one-quarter, slowly declining since 1985 and losing about 1% market share every five years. Natural gas ranks third in meeting world needs with 20% in 1997 (17% in 1980). Gas experienced accelerating growth since 1980, excluding a relative slowdown between 1990 and 1995 due to the particular economic situation in the CIS where gas production was reduced by 18% since 1990. Renewable energy sources (hydro, geothermal, biomass and wind) come fourth in satisfying world energy consumption with almost 13% in 1997, as in 1980, growing globally at the same rate as total primary energy. Finally, nuclear energy grew the fastest in the period, mainly up to 1988 (13% per year). Its rate of growth has slowed down progressively since then and, for the first time since 1980, nuclear production diminished in 1997.

Between 1980 and 1997, OECD and non-OECD areas had approximately the same growth in total energy production (about 1.6% per year), but the evolution was slightly different over time and by regions. While between 1986 and 1990 the non-OECD world increased its production about three times faster than the OECD, on the contrary, between 1990 and 1995, primary energy production increased twice as fast in the OECD region as in the non-OECD area.



TOTAL PRIMARY ENERGY PRODUCTION : TOTAL BY REGION

Mtoe	1980	1985	1988	1990	1995	1996	1997	85/80	90/85	95/90	96/95	97/96
Annual % Change												
World	7353.7	7767.8	8520.1	8775.6	9213.2	9466.7	9646.1	1.1%	2.5%	1.0%	2.8%	1.9%
Western Europe	671.9	818.7	845.9	834.5	932.9	984.1	986.6	4.0%	0.4%	2.3%	5.5%	0.3%
European Union	608.3	735.2	740.5	703.3	738.2	763.6	761.5	3.9%	-0.9%	1.0%	3.4%	-0.3%
EFTA	63.6	83.4	105.4	131.2	194.7	220.5	225.1	5.6%	9.5%	8.2%	13.2%	2.1%
Rest of OECD	2066.3	2229.1	2325.1	2388.1	2539.3	2590.1	2617.5	1.5%	1.4%	1.2%	2.0%	1.1%
NAFTA	1910.0	2005.5	2081.5	2117.5	2215.0	2257.7	2269.6	1.0%	1.1%	0.9%	1.9%	0.5%
OECD Pacific	139.1	201.9	219.1	244.9	298.2	305.7	320.3	7.7%	3.9%	4.0%	2.5%	4.8%
Central and Eastern Europe	268.2	287.1	288.8	237.5	212.4	215.9	210.9	1.4%	-3.7%	-2.2%	1.7%	-2.3%
CIS (1)	1357.8	1512.9	1677.0	1624.6	1194.8	1198.0	1167.9	2.2%	1.4%	-6.0%	0.3%	-2.5%
Africa	532.2	566.2	606.6	661.6	722.7	748.9	793.9	1.2%	3.2%	1.8%	3.6%	6.0%
Middle East	999.8	599.0	835.7	949.7	1107.7	1127.3	1196.3	-9.7%	9.7%	3.1%	1.8%	6.1%
Asia	1137.5	1404.0	1556.6	1675.8	1989.9	2063.1	2096.0	4.3%	3.6%	3.5%	3.7%	1.6%
Latin America	319.9	350.8	384.4	403.8	513.5	539.4	577.0	1.9%	2.9%	4.9%	5.0%	7.0%
of which (%)												
European Union	8.3	9.5	8.7	8.0	8.0	8.1	7.9	2.7%	-3.3%	0.0%	0.7%	-2.1%
OECD	37.2	39.2	37.2	36.7	37.7	37.8	37.4	1.1%	-1.3%	0.5%	0.2%	-1.0%

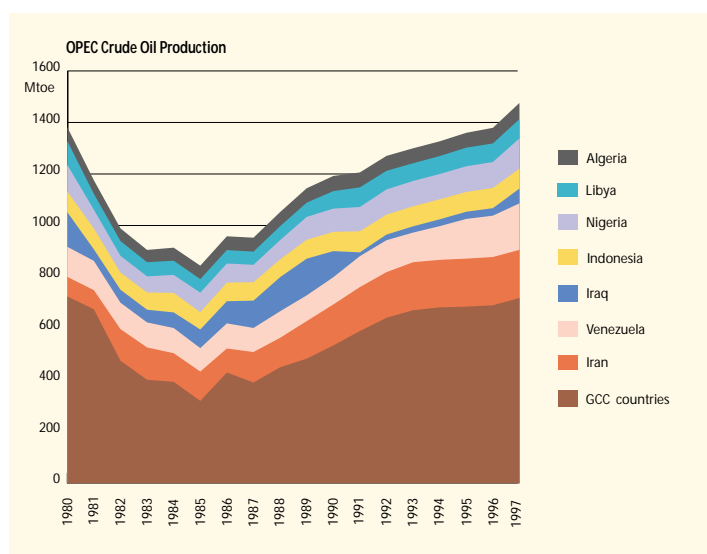
(1) Including Baltic countries for statistical reasons

NAFTA region contributed 24% of world primary energy production...

In 1997, to cover the requirements, energy production increased by 1.9%. The production continued to decline in CIS and CEEC to be close to 14% of world production in 1997 against 22% in 1980. On the other hand, sustained growth was observed in Latin America, the Middle East, Africa and OECD Pacific. In 1997 the European Union's production slowed down by 0.3% following the trend of gross inland consumption marked by warm weather conditions. The main contributor to energy production in 1997 remained the NAFTA region with about 24% of total world primary energy production (26% in 1980), followed by Asia with 22% (15% in 1980), the Middle East with 12% (14% in 1980), the CIS with 12% (18% in 1980) and Western Europe with 10% (9% in 1980).

Market share of OPEC increased from 1990 to meet 41% of world oil production in 1997...

Oil remains the dominant fuel in world production and consumption although, as stated above, it has lost share in total energy production despite a sustained growth in 1996 (+2.2%) and 1997 (+4.1%). OPEC as a whole remains the major oil producer, but its weight in total world oil production fell from 44% in 1980 (54% in 1973) to 41% in 1997, with a minimum share of 29% in 1985. Since 1990, the share of Western Europe has sharply increased (from 6% in 1990 to 9% in 1997) driven by rising North Sea production. Since 1990 production losses in CIS and Eastern countries, (about 214 Mtoe), have been compensated mainly by the Middle East

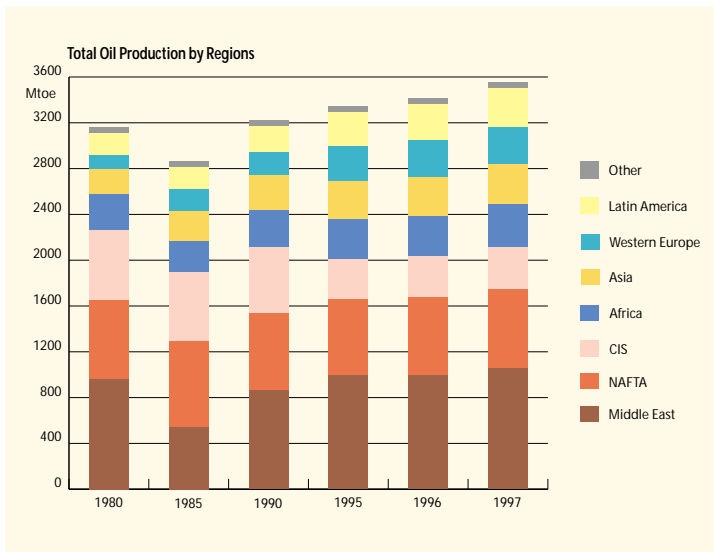


(+199 Mtoe), Latin America (+121 Mtoe) and Western Europe (+118 Mtoe), although the NAFTA region, the second world producer, remained stable.

Some key supply developments in 1997 included¹ :

- While the economies of developing Asian countries are currently experiencing a downturn, it is not expected to last long. The mid- to long-term trend appears to be for continued economic growth with resultant increases in oil demand. Oil consumption in developing countries of Asia is projected to grow by 3.8% per year to about 730 Mtoe in 2000;

¹ International Energy Outlook 1998, Energy Information Administration, US Department of Energy, 1998.



- Enhanced sub-sea technologies continue to contribute to significant optimism about the long-term potential for offshore oil production. The focus on offshore activity by major oil companies has led to record levels of demand for equipment capable of operating in water depths up to 10,000 feet. Vast areas of offshore West Africa are now considered to be promising sites for future development;
- There is enormous potential for oil production from the Caspian Basin. Estimates mention over 200 billion barrels in the Caspian Basin. Only the United States and Saudi Arabia are thought to have larger ultimately recoverable conventional oil resources. Currently, Caspian oil is only able to flow through pipelines into Russia in relatively small quantities. By the end of this decade, several pipeline routes to the Black Sea are expected to become operational;
- OPEC has increased its output quota from 25 to 27.5 million barrels per day. The new quota more closely tracks production levels already achieved in 1997;
- OPEC members outside the Persian Gulf region are expected to improve their market share over the next decade. There is significant potential for offshore oil production in Nigeria, as well as aggressive plans to expand the oil production capacity of Venezuela;
- European oil production progressively reached a peak. Led by increased production in Norway, overall production in North Sea areas rose by only 0.3% in 1997;
- Prospects for increased production both in North Africa (Libya, Egypt and Algeria) and equatorial Africa (Nigeria and Angola) brightened;
- In South America notable gains in production have been achieved by Argentina, Venezuela, Colombia and Brazil through agreements with foreign investors to revitalise production from existing oil fields;

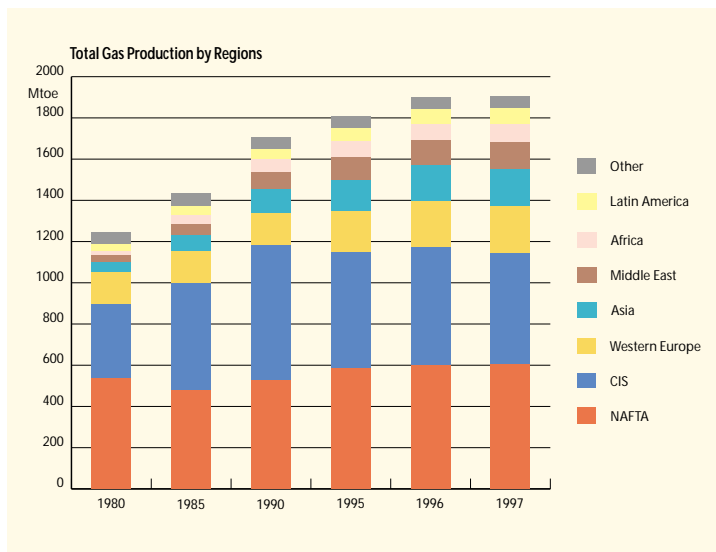
- In North America major progress in the deep offshore Gulf of Mexico and offshore Eastern Canada continued.

Stabilisation of oil prices resulting from sustained demand in developing countries...

Perhaps the most surprising development in world oil markets was the stability of prices compared to the high level reached in 1996. Early in 1996 most analysts were expecting that the resumption of Iraqi oil exports would lead to price weakness throughout the year. However, the resumption was delayed until the end of the year, inducing an increase of more than 500,000 barrels per day in aggregate OPEC supply, largely due to the exceptionally cold weather in Europe and the North America. Consequently, oil prices at the end of 1996 were nearly 40% higher than a year earlier. On the other hand, 1997 was characterised by warm weather in the Western Hemisphere. This weakened demand in Western Europe and OECD Pacific. But it remained globally strong in all developing countries, including CIS. Consequently, world oil demand increased by 2.5% in 1997, a little lower than in 1996, but somewhat higher than during 1990-1995.

Gas production, marked in the early 90's by the fall in CIS production, increased by only 0.2% in 1997...

Amongst the fossil fuels, natural gas production showed the major increase between 1980 and 1990 with a total gain of 35%. But since 1990, production increased by only 13% following the 19% reduction observed between 1990 and 1995 in the CIS production, the second world producer. The share of natural gas in world energy production grew from 17% in 1980 to 20% in 1990, remaining at this level since then. The two major contributors





during this period were the CIS (360 Mtoe in 1980 and 541 Mtoe in 1997, with a peak of 656 Mtoe in 1990) and the NAFTA region (540 Mtoe in 1980, compared to 608 Mtoe in 1997). Their global share in total gas production slowed down from 72% in 1980 to 60% in 1997. Production is increasing fastest in Asia with an annual growth of almost 9% per year on average since 1980. All the other developing regions are also increasing their production at sustained rates. In 1997, production declined in the European Union, a reaction of the Netherlands playing the role of swing producer on the European market, faced with a slight slowdown of internal consumption. Since 1990, the bulk of the consumption increase occurred in power generation.

Lack of infrastructure is the major barrier to increased gas consumption...

Throughout the world, major efforts to reduce production, transmission and distribution constraints are proceeding. Worldwide there is a great deal of construction activity to develop gas distribution and transmission systems. According to the International Pipeline and Offshore Contractors Association, 34,000 miles of natural gas pipelines are expected to be installed between 1998 and 2000. The survey included only firm projects that have secured financing and did not include projects in the former Soviet Union and China.

Some key developments supporting the world's natural gas markets in 1997 include²:

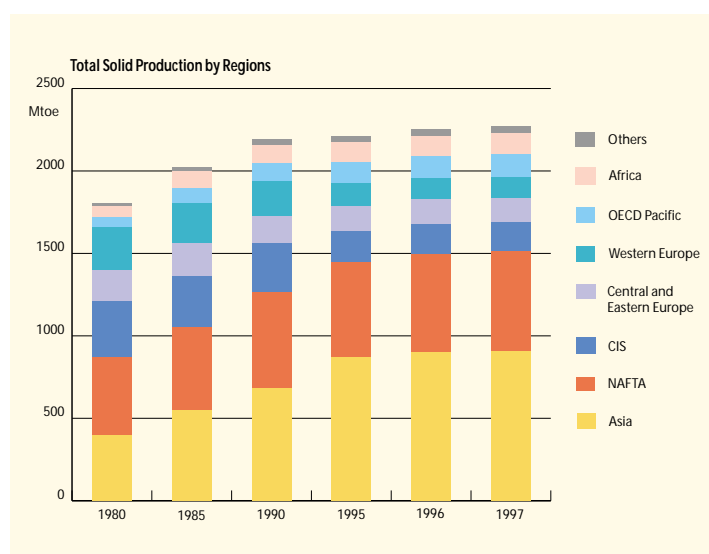
- Installation of Norfra, the world's longest sub-sea pipeline, was completed in August 1997. The pipeline extends more than 520 miles from Daupner, offshore Norway, to Dunkirk, France. Gas delivery to France was scheduled to begin in October 1998;
- Vibrant growth in Central and South America was demonstrated by the completion of the Gas-Andes pipeline. Completed in August 1997, it provided the first natural gas supplies to Santiago, Chile. Progress was also made in 1997 on other major pipeline projects, including the Bolivia-Brazil pipeline and the Atacama pipeline;
- Development of Iran's South Par natural gas field moved closer to reality as Total, Gazprom and Petrogas signed a \$2 billion contract to develop 2 billion cubic feet per day from the field;
- Substantial planned increases in pipeline capacity between the United States and Canada are underway. Most of the capacity expansion needed to support the consumption increase between now and 2000 is either already under construction or in the final planning stages.
- Planning proceeded for the development of a trans-Asian gas pipeline system to connect Indonesia with Malaysia, Myanmar,

Thailand, Singapore and the Philippines. This pipeline is likely to become operational as early as 2002;

- Several major projects to expand liquefied natural gas trade went to contract. New LNG facilities will soon be under construction in Oman, Qatar, Nigeria and Trinidad. Japan, South Korea, Taiwan and Thailand are the largest customers committed to purchase the output from these new facilities.

Solid production driven by the United States and China accounted for 24% of world energy supply...

Coal's role in energy use worldwide has shifted substantially over the decades, from a fuel used extensively in all sectors of the economy to one that is now used primarily for electricity generation and in a few key industrial sectors, such as steel, cement and chemicals. Although coal has lost market share to petroleum products and natural gas, it continues to be a key source of energy because of the dominant role it has maintained in its core markets and its success in penetrating markets in emerging economies. In 1997, coal accounted for 23.5% of the world's primary energy production, a slow decline already started in 1985. The largest producer in 1997 remained Asia (40% of the total compared to 22% in 1980), followed by NAFTA (27% in 1997, almost the same contribution as in 1980). Increased production in these two regions compensated for a slowdown in CIS and Eastern countries due to economic and political reforms and mine closures in the European Union as a consequence of the restructuring of the coal sector. In 1997, the two biggest producers were China (705 Mtoe) and the United States (562 Mtoe), followed by India (139 Mtoe), Australia (130 Mtoe) and Russia (100 Mtoe). The two major producers accounted for 56% of total world production.



² International Energy Outlook 1998, Energy Information Administration, US Department of Energy, 1998.



TOTAL SOLID PRODUCTION : TOTAL BY REGION

Mtoe	1980	1985	1988	1990	1995	1996	1997	85/80	90/85	95/90	96/95	97/96
Annual % Change												
World	1806.3	2023.7	2165.6	2189.8	2210.4	2249.5	2271.2	2.3%	1.6%	0.2%	1.8%	1.0%
Western Europe	257.8	239.8	230.8	210.1	138.2	131.5	126.5	-1.4%	-2.6%	-8.0%	-4.9%	-3.8%
European Union	257.6	239.4	230.6	209.9	138.0	131.3	126.3	-1.5%	-2.6%	-8.0%	-4.9%	-3.8%
EFTA	0.2	0.4	0.2	0.2	0.2	0.2	0.3	11.9%	-10.6%	-0.7%	-21.4%	68.2%
Rest of OECD	541.0	605.2	647.7	704.8	722.1	741.5	766.3	2.3%	3.1%	0.5%	2.7%	3.3%
NAFTA	470.2	502.5	537.1	580.2	576.7	593.6	609.9	1.3%	2.9%	-0.1%	2.9%	2.8%
OECD Pacific	64.6	92.1	99.2	112.3	133.4	135.7	143.3	7.3%	4.0%	3.5%	1.7%	5.6%
Central and Eastern Europe	189.6	200.4	202.1	164.8	146.3	150.0	145.2	1.1%	-3.8%	-2.4%	2.6%	-3.2%
CIS (1)	338.7	312.5	331.8	300.5	190.5	180.4	174.1	-1.6%	-0.8%	-8.7%	-5.3%	-3.5%
Africa	69.8	103.8	109.3	105.7	115.8	115.8	123.1	8.3%	0.4%	1.8%	0.0%	6.3%
Middle East	0.6	0.8	0.8	0.8	0.7	0.6	0.6	6.8%	1.5%	-3.7%	-11.4%	5.2%
Asia	402.6	550.7	627.5	684.8	874.2	905.3	907.6	6.5%	4.5%	5.0%	3.6%	0.3%
Latin America	6.2	10.5	15.5	18.3	22.6	24.4	27.7	11.2%	11.6%	4.3%	8.3%	13.3%
of which (%)												
European Union	14.3	11.8	10.6	9.6	6.2	5.8	5.6	-3.7%	-4.1%	-8.2%	-6.5%	-4.8%
OECD	43.9	41.2	40.0	41.2	38.4	38.3	38.7	-1.2%	0.0%	-1.4%	-0.3%	1.2%

TOTAL OIL PRODUCTION : TOTAL BY REGION

Mtoe	1980	1985	1988	1990	1995	1996	1997	85/80	90/85	95/90	96/95	97/96
Annual % Change												
World	3160.7	2862.2	3134.1	3218.7	3343.7	3416.4	3556.3	-2.0%	2.4%	0.8%	2.2%	4.1%
Western Europe	119.4	190.4	201.5	201.3	302.0	320.3	319.1	9.8%	1.1%	8.4%	6.1%	-0.4%
European Union	94.4	150.9	143.5	117.0	159.7	159.2	158.3	9.8%	-5.0%	6.4%	-0.3%	-0.6%
EFTA	25.0	39.5	57.9	84.4	142.3	161.1	160.8	9.6%	16.4%	11.0%	13.2%	-0.2%
Rest of OECD	721.8	789.0	758.1	715.0	703.7	711.2	724.3	1.8%	-1.9%	-0.3%	1.1%	1.8%
NAFTA	697.2	757.1	724.9	680.1	669.4	676.9	688.9	1.7%	-2.1%	-0.3%	1.1%	1.8%
OECD Pacific	22.2	29.7	30.6	31.2	30.6	30.7	31.8	6.0%	1.0%	-0.3%	0.3%	3.5%
Central and Eastern Europe	20.7	18.9	16.8	14.6	13.2	12.6	12.8	-1.9%	-5.0%	-1.9%	-4.6%	1.6%
CIS (1)	606.2	598.2	627.4	573.5	353.7	353.0	361.6	-0.3%	-0.8%	-9.2%	-0.2%	2.5%
Africa	310.5	270.0	282.4	323.8	340.7	357.6	381.4	-2.8%	3.7%	1.0%	5.0%	6.7%
Middle East	961.4	542.4	753.0	862.7	994.7	1003.5	1061.9	-10.8%	9.7%	2.9%	0.9%	5.8%
Asia	226.8	261.4	283.1	304.9	335.9	341.4	351.2	2.9%	3.1%	2.0%	1.6%	2.9%
Latin America	194.0	192.0	211.7	222.9	299.9	316.8	344.0	-0.2%	3.0%	6.1%	5.6%	8.6%
of which (%)												
European Union	3.0	5.3	4.6	3.6	4.8	4.7	4.5	12.0%	-7.2%	5.6%	-2.4%	-4.5%
OECD	26.5	34.1	30.5	28.4	30.0	30.1	29.2	5.2%	-3.6%	1.1%	0.4%	-2.8%

TOTAL GAS PRODUCTION : TOTAL BY REGION

Mtoe	1980	1985	1988	1990	1995	1996	1997	85/80	90/85	95/90	96/95	97/96
Annual % Change												
World	1243.4	1432.1	1613.3	1707.4	1808.5	1899.2	1902.9	2.9%	3.6%	1.2%	5.0%	0.2%
Western Europe	156.1	155.3	150.6	157.0	194.8	226.0	223.2	-0.1%	0.2%	4.4%	16.0%	-1.2%
European Union	133.3	131.9	124.7	132.9	166.6	188.6	182.2	-0.2%	0.2%	4.6%	13.2%	-3.4%
EFTA	22.8	23.4	25.9	24.1	28.3	37.4	41.0	0.6%	0.6%	3.2%	32.2%	9.8%
Rest of OECD	549.9	496.2	522.4	553.1	620.9	634.8	640.2	-2.0%	2.2%	2.3%	2.2%	0.9%
NAFTA	539.7	480.0	503.6	530.1	590.0	602.6	607.8	-2.3%	2.0%	2.2%	2.1%	0.9%
OECD Pacific	10.2	16.2	18.8	22.8	30.8	32.0	32.3	9.7%	7.1%	6.2%	4.0%	0.8%
Central and Eastern Europe	43.6	44.2	41.8	32.0	24.3	23.1	20.9	0.3%	-6.2%	-5.4%	-4.8%	-9.5%
CIS (1)	359.6	520.1	622.7	656.3	562.9	572.7	540.7	7.7%	4.8%	-3.0%	1.7%	-5.6%
Africa	20.4	42.5	52.1	61.5	74.8	79.6	88.7	15.8%	7.7%	4.0%	6.5%	11.4%
Middle East	36.2	53.9	79.4	83.7	109.6	120.3	131.0	8.3%	9.2%	5.5%	9.8%	8.8%
Asia	44.8	76.8	96.6	111.7	153.9	170.5	181.5	11.4%	7.8%	6.6%	10.8%	6.4%
Latin America	32.8	43.1	47.6	52.0	67.3	72.2	76.7	5.6%	3.9%	5.3%	7.4%	6.2%
of which (%)												
European Union	10.7	9.2	7.7	7.8	9.2	9.9	9.6	-3.0%	-3.3%	3.4%	7.8%	-3.6%
OECD	56.8	45.5	41.7	41.6	45.1	45.3	45.4	-4.3%	-1.8%	1.6%	0.5%	0.1%

(1) Including Baltic countries for statistical reasons



Prospects for an increasing nuclear contribution, which fell for the first time in 1997, are dimming...

Even as the performance of nuclear reactors improves worldwide, the prospects for increased reliance on nuclear power for electricity generation are dimming. Public concern about the safety of nuclear reactor operations and the disposal of nuclear waste makes the siting of new nuclear facilities difficult. In 1996 Japan joined the ranks of countries in which local voting initiatives recorded strong public opposition to the construction of nuclear facilities. In 1997, reflecting some plant closures in the United States and Canada, nuclear production fell for the first time since 1980. An equally important barrier to additions of nuclear power capacity in the industrialised countries is market competition, primarily from natural gas, which can be used to supply highly efficient low-cost combined cycle gas turbine power plants. In addition, the trend towards utility deregulation and privatisation has been a parallel force undermining the competitive potential of nuclear power. In developing countries, meanwhile, reliance on nuclear power was increasing, especially in Asia. China, India, South Korea and Taiwan all have sizeable construction projects planned or underway.

Asia accounted for 55% of world biomass production...

The contribution of renewable energy sources (hydro, biomass, geothermal, wind...) must be analysed from two perspectives: commercial and non-commercial energy sources. The bulk of biomass production and consumption concerned non-commercial uses mainly located in Asia (55% of total biomass production), Africa (18%), NAFTA (8%) and Latin America. Since 1980, the contribution of biomass to world energy production has remained stable at about 11%. With the exception of Africa where biomass production increased faster, the average growth rate since 1980 was relatively similar amongst the major contributors.

Low fossil fuel prices continue to constrain development of the world's renewable energy sources dedicated to commercial uses. While the costs of installing and generating electricity with renewable resources continue to decline, and technological advances improve generating efficiencies, they have not been able to keep pace with the declining costs of energy from fossil fuels. Nevertheless, in Western Europe, for environmental reasons, and in rural areas of developing countries where populations live far from institutional electricity grids, there is sustained interest in increasing the use of renewable energy sources. In particular, wind energy is experiencing some of the strongest growth among the renewable energy sources, the five top markets being located

in Germany (2,000 MWe installed at end 1997), the United States (1646 MWe), Denmark (1135 MWe) India (870 MWe) and Spain (449 MWe)³. The share of hydro in world energy production remained stable at around 2.3% with major developments in non-OECD countries where the main potential for growth is located for geographic reasons.

Electricity's share in final energy consumption increased by one third since 1980...

Throughout the world, electricity is - and will continue to be - the fastest growing component of final energy demand. In the OECD region, electricity showed strong growth between 1980 and 1997, at 2.7% per year on average, in contrast to 0.8% annual growth in total final energy demand. In the industrialised world, where electrification has been fully achieved throughout all economic sectors, increased demand was driven by economic growth and growing electrical applications in industry as well as for computers, communications, and other electronic applications for home and business uses. This demand growth is tempered by increases in energy efficiency encouraged by both regulation and technological innovation. Electricity consumption in the rest of the world grew by 3.9% per year on average since 1980 although total final energy demand increased by only 1.8% in the same period. In the developing world, there are many opportunities for the expansion of electrical applications. The marginal benefit of introducing electricity into a rural village is considerable. High value-added applications such as refrigeration and communication are the reasons that providing electricity to the wider population is a priority for most political leaders in the developing world.

World power market characterised by privatisation, integration and foreign investment...

Highlights of recent developments in electricity markets around the world are:

- Privatisation and electricity reform measures continued apace in 1997. Central and South America has led the developing world in the privatisation of electricity and the implementation of electricity reform. In 1997, Brazil followed the path, commenced first by Chile and later by Argentina, in aggressively selling off state-owned electricity assets to the public;
- Financial crises in Southeast Asia slowed down the development of the power industry. In mid-1997, several Southeast Asia nations experienced financial difficulties characterised by steep currency depreciation and sharp drops in domestic asset values. The crisis was in part precipitated by the accumulation of excessive levels of foreign debt, trade imbalances and speculative

³ Wind Energy: The Facts, European Commission, 1999.



financial investments. Consequently, the near-term power prospects for Malaysia, Thailand, Indonesia, South Korea and the Philippines have been affected;

- European electricity markets are becoming increasingly integrated. From the perspective of the future liberalisation of electricity markets, the European Parliament adopted a directive whose intent was to provide independent producers with greater access to other countries' power networks. At the same time, the United Kingdom has become the largest target of foreign direct investment in electricity and, consequently, a substantial portion of the United Kingdom electricity industry is owned by US companies. Integration of national electricity industries has progressed furthest in the Scandinavian countries. Sweden and Norway operated a joint electricity pool and Finland is scheduled to join the pool in early 1998;
- The pace of foreign investment in developing nations' electricity sectors hinged strongly on the implementation of electricity reform and the application of transparent and consistent regulatory and investment policies. Economic growth in several developing countries was restrained by a shortage of electricity capacity. Facilitating the contract negotiation phase of electric power developments will be crucial to the successful realisation of their full economic growth potential.

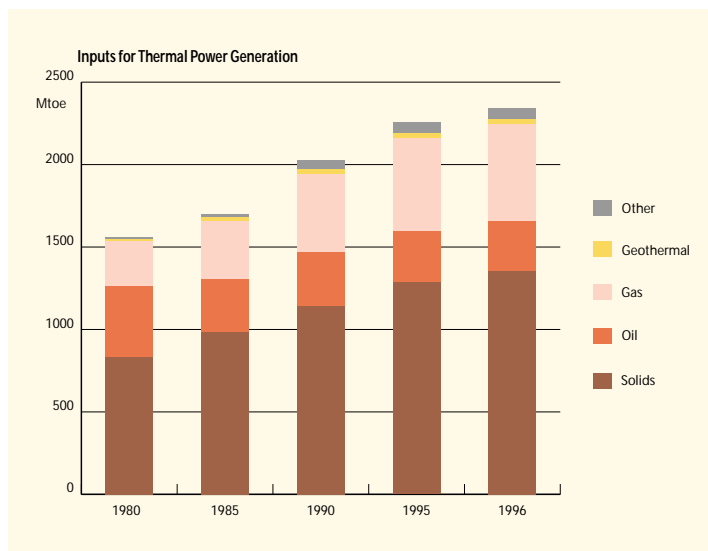
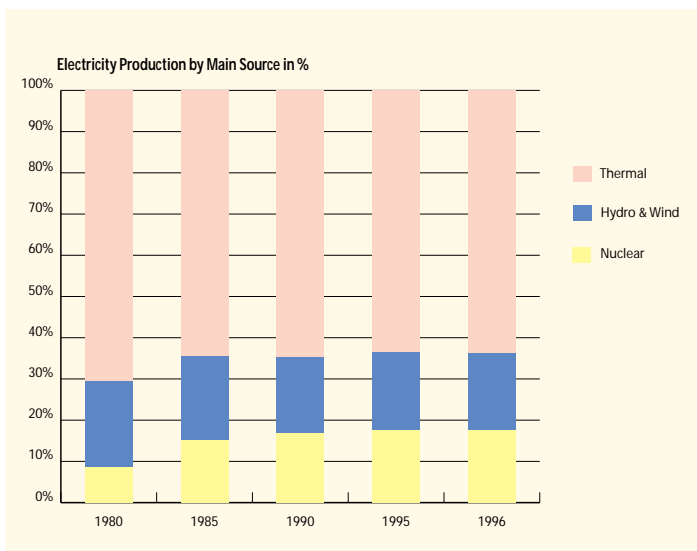
Power production remained largely dominated by thermal production even though its share declined slowly...

Thermal production continued largely to dominate total electricity generation, although its share decreased from 70% in 1980 to 64% in 1996. Nuclear's share doubled from 9% in 1980 to 18% in 1996. This growth occurred principally during the 1980's. After 1990, the increase in nuclear production has slowed down considerably due to lack of investment mainly in Western Europe and North America, increases being mainly located in Asia (+50%) and

in Japan (+58%). Hydro power, depending on hydraulic conditions, grew regularly on average by 2.3% per year since 1980. The installed capacity reached 3134 GWe in 1996, compared with 1973 GWe in 1980, or an average increase of about 2.9% per year since 1980. Thermal units, which represented 59% of additional capacity since 1980 (70% since 1990), grew by about 2.6% per year over this period. Since 1990 the expansion of nuclear capacity slowed down, and hydro capacity expanded a little slower than thermal capacity.

Inputs for electricity generation increasingly dominated by solid fuels...

Solid fuels increasingly dominated inputs for electricity generation. While these represented 54% of total input in 1980, they reached 58% in 1996. The consumption was mainly located in NAFTA (increasing by 58% since 1980), Asia growing more than fourfold, and the European Union almost stable since 1980. However, since 1990, coal consumption in the Union was declining due to the restructuring of coal industries and growing environmental concerns. It was the only part of the world, except for the CIS for other reasons, in which this trend was observed. Despite the growing consumption of developing regions, the OECD region still represents 54% of solid fuels consumption for power generation. Oil use has declined slowly since 1985. Consequently its market share was only 13% in 1996 against 19% in 1985 and 27% in 1980. The utilisation of gas has more than doubled since 1980 as power generation technologies have evolved to favour natural gas use. The main gas consumers are respectively: CIS (221 Mtoe or 38% of world gas consumption for power generation), NAFTA (130 Mtoe) and the European Union (64 Mtoe). Almost all regions of the world were showing increases in the use of natural gas to generate electricity.





Refinery capacities have increased only in non-OECD region since 1985...

The refinery capacities increased slowly by 0.7% per year on average since 1985 but in fact they remained relatively stable between 1985 and 1992, and increased by 1.4% per year on average since then. In the OECD region, in-depth restructuring led to a stabilisation of installed capacity since 1985 but the capacity utilisation rate increased regularly from 72% in 1985 to 94% in 1997. This has increased profitability of the refinery sector and enabled further costly investment in conversion units to adapt production to changing oil product demand and to provide cleaner fuels. In the non-OECD region refinery capacity grew by about 20% since 1985, the main investment being located in the Middle East (+52%) to increase the value-added of crude production, China (+100%) driven by buoyant internal demand, and Southeast Asia. At the same time, the utilisation rate in the non-OECD region fell from 80% in 1985 to only 74% in 1997 with very contrasted experience by region. Although capacities were quite saturated in the Middle East and Asia, on the other hand utilisation rates remained too low in Latin America to ensure profitability and an urgent restructuring was needed in the CIS where utilisation rates fell below 45%.

COMPETITIVENESS

World GDP growth accelerated since 1994 driven by the developing regions...

Economic growth is the main factor driving growth in energy demand, excluding variations associated with climatic conditions in industrialised regions. While the world population grew regularly by 1.6% per annum since 1980, world GDP increased by 2.5% per year on average. Economic activity was more sustained

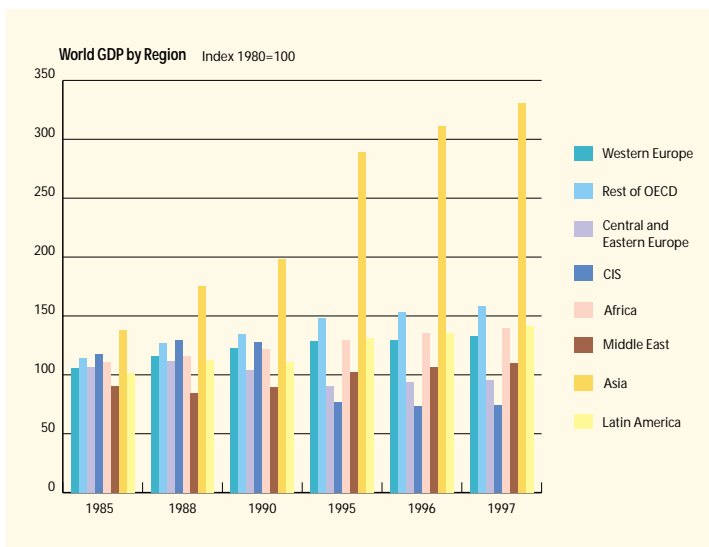
during the second part of the 1980's followed by a relative slow down, between 1990 and 1993, mainly in the OECD countries. Since 1994, world GDP accelerated to reach an average growth of 3.0% per year driven by the developing countries. Asia is indisputably the main driver with an average growth rate of 7.3% per year since 1980. As a consequence, Asia doubled its share in world GDP to pass beyond 10% in 1996. During the 1980's economic activity expanded at the same rate in OECD and non-OECD regions; but since 1990 developing regions, driven by Asia, Latin America and Middle East have been developing more rapidly.

The two main energy indicators are energy consumption per capita and energy intensity. The stage of economic development and the standards of living in each region strongly condition the link between economic growth and energy demand. Advanced economies with high living standards tend to have relatively high energy use per capita, but they also tend to be economies where per capita energy uses is relatively stable or changes very slowly. In this context, rising energy demand tends to track employment and population growth. In industrialised countries, use of modern appliances and personal transport equipment is widespread. As a result, increments to personal income tend to result in spending on goods and services that are not very energy intensive. To the extent that spending is directed at energy-using goods, it essentially involves purchases of new equipment to replace old capital stock. The new stock is often more efficient than the equipment it is replacing, so that the relation between income and energy demand is weaker.

In developing countries, standards of living, while rising, tend to be low compared to those in more advanced economies. As a result, many energy-using devices are being widely adopted for the first time, causing energy use to track rising income levels more closely. Many areas in these countries are now gaining access to electricity for the first time. Those that have electricity are expanding the variety of appliances they use. At the same time, personal car ownership is becoming an important component of consumer demand in newly industrialising areas. Double-digit growth rates in car ownership are evident in many countries, mainly in Asia.

World energy consumption per capita stable but Asia grew by 52% since 1980...

Comparing energy consumption per capita in 1997 across regions, it is clear that NAFTA shows by far the highest levels, although the inclusion of Mexico lowers this to some extent. At the other extreme, Africa and Asia have the lowest levels, significantly below the world average. At a world level, energy consumption per capita remained stable. The growth in both





GROSS DOMESTIC PRODUCT PER CAPITA : TOTAL BY REGION												
Thousand 1990 MEUR / inhabitant	1980	1985	1988	1990	1995	1996	1997	85/80	90/85	95/90	96/95	97/96
							Annual % Change					
World	2.94	3.01	3.17	3.24	3.29	3.35	3.41	0.5%	1.5%	-0.2%	1.8%	1.9%
Western Europe	12.25	12.98	14.17	14.87	15.57	15.79	16.16	1.2%	2.8%	-1.0%	1.4%	2.3%
European Union	11.99	12.69	13.89	14.58	15.27	15.48	15.85	1.1%	2.8%	-1.1%	1.4%	2.4%
EFTA	20.73	22.39	23.25	24.36	24.99	25.42	25.97	1.6%	1.7%	0.0%	1.7%	2.2%
Rest of OECD	11.51	12.42	13.30	13.80	14.35	14.72	15.06	1.5%	2.1%	0.8%	2.6%	2.3%
NAFTA	12.18	12.94	13.67	13.93	14.47	14.80	15.27	1.2%	1.5%	1.2%	2.3%	3.2%
OECD Pacific	13.18	14.97	16.65	18.05	19.10	19.77	19.90	2.6%	3.8%	0.3%	3.5%	0.7%
Central and Eastern Europe	1.85	1.92	1.98	1.84	1.61	1.67	1.72	0.7%	-0.7%	-5.5%	3.6%	2.9%
CIS (1)	2.12	2.38	2.56	2.49	1.48	1.42	1.43	2.4%	0.9%	-10.5%	-4.4%	1.0%
Africa	0.71	0.68	0.65	0.65	0.61	0.62	0.62	-0.9%	-0.9%	-1.8%	1.8%	0.5%
Middle East	4.08	3.09	2.62	2.60	2.54	2.58	2.59	-5.4%	-3.4%	0.5%	1.7%	0.3%
Asia	0.27	0.34	0.41	0.45	0.61	0.64	0.67	4.7%	5.5%	6.2%	6.0%	4.7%
Latin America	2.16	1.97	2.07	1.97	2.14	2.17	2.23	-1.8%	-0.1%	2.7%	1.5%	2.9%

(1) Including Baltic countries for statistical reasons

GROSS INLAND ENERGY CONSUMPTION PER CAPITA : TOTAL BY REGION												
toe/inhabitant	1980	1985	1988	1990	1995	1996	1997	85/80	90/85	95/90	96/95	97/96
							Annual % Change					
World	1.63	1.60	1.67	1.64	1.60	1.63	1.63	-0.3%	0.4%	-0.5%	1.8%	-0.3%
Western Europe	3.51	3.48	3.59	3.63	3.68	3.80	3.78	-0.2%	0.8%	-0.4%	3.2%	-0.5%
European Union	3.50	3.46	3.57	3.61	3.66	3.78	3.76	-0.2%	0.8%	-0.5%	3.3%	-0.6%
EFTA	3.85	4.13	4.16	4.30	4.34	4.38	4.48	1.4%	0.8%	1.2%	0.9%	2.2%
Rest of OECD	5.15	4.87	5.11	5.09	5.27	5.36	5.38	-1.1%	0.9%	1.1%	1.7%	0.4%
NAFTA	6.59	6.15	6.43	6.27	6.40	6.48	6.51	-1.4%	0.4%	1.0%	1.2%	0.4%
OECD Pacific	3.20	3.24	3.47	3.75	4.12	4.25	4.27	0.2%	3.0%	1.2%	3.0%	0.5%
Central and Eastern Europe	3.01	3.07	3.12	2.72	2.30	2.42	2.39	0.4%	-2.4%	-0.9%	5.2%	-0.9%
CIS (1)	4.26	4.58	4.87	4.66	3.27	3.20	3.12	1.5%	0.4%	-8.5%	-2.3%	-2.3%
Africa	0.56	0.60	0.61	0.59	0.58	0.57	0.57	1.4%	-0.3%	-2.2%	-1.4%	0.4%
Middle East	1.45	1.74	1.88	1.83	1.95	2.03	2.07	3.7%	1.0%	3.6%	4.2%	1.5%
Asia	0.50	0.54	0.60	0.62	0.72	0.75	0.76	1.8%	2.7%	3.8%	3.9%	1.1%
Latin America	1.00	0.94	0.99	0.96	1.04	1.09	1.10	-1.1%	0.4%	0.3%	4.1%	1.1%

(1) Including Baltic countries for statistical reasons

developing regions (mainly located in Asia and the Middle East) and the OECD region (mainly the OECD Pacific region) was compensated since 1988 by the slowdown in CIS (-36%) and CEEC (-23%). To appreciate future trends it must be stressed that Asia, which represented more than 50% of the world population in 1997, has seen its consumption per capita grow by 52% since 1980.

World energy intensity improved on average by 0.9% per year since 1980...

Total world **energy intensity** showed a slight but continuous downward trend by 0.9% a year since 1980; but the improvement was limited to 0.8% annually since 1990, and stabilised between 1994 and 1996. In 1997, world energy intensity improved by 2.1% with significant contributions from major parts of the world. The

OECD regions, which had by far the lowest energy intensity, improved their performance by 1.8% per year on average during the 1980s. But the gains have remained marginal since the beginning of the 1990's, reaching only 0.4% per year on average. Inside the OECD the best performances were achieved by NAFTA and the European Union whilst energy intensity increased in the OECD Pacific region since 1990. It must be stressed that in the industrialised countries, major improvements of energy intensity were in all cases associated with sustained economic growth. On the other hand, the non-OECD part of the world was characterised by a stabilisation of its energy intensity during the 1980s, followed by a sustained reduction since then (-1.8% per annum on average since 1990). This is despite the marked increase in the CIS (+2.2% per year) and the Middle East (+1.8% per year). It must be stressed that Asia demonstrated the best improvement since 1980, at about 2.8% per year and intensity was falling regularly. In the case

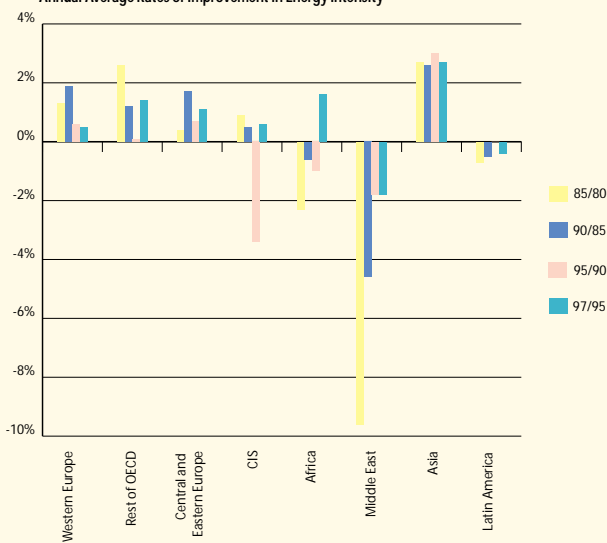


ENERGY INTENSITY : TOTAL BY REGION

toe/1990 MEUR	1980	1985	1988	1990	1994	1995	1996	1997	85/80	90/85	95/90	96/95	97/96
Annual % Change													
World	553	532	525	505	489	488	488	477	-0.8%	-1.0%	-0.3%	0.0%	-2.1%
Western Europe	286	268	253	244	237	237	241	234	-1.3%	-1.9%	0.6%	1.8%	-2.8%
European Union	291	272	257	247	240	240	244	237	-1.3%	-1.9%	0.6%	1.9%	-2.9%
EFTA	186	184	179	177	178	174	172	172	-0.1%	-0.9%	1.2%	-0.8%	0.0%
Rest of OECD	447	392	385	369	369	368	364	357	-2.6%	-1.2%	0.3%	-0.9%	-1.8%
NAFTA	541	476	471	450	447	443	438	426	-2.6%	-1.1%	-0.2%	-1.1%	-2.7%
OECD Pacific	242	216	208	208	214	216	215	214	-2.3%	-0.8%	0.9%	-0.4%	-0.2%
Mediterranean	440	430	433	444	439	449	456	447	-0.4%	0.6%	-2.2%	1.6%	-2.0%
Central and Eastern Europe	1630	1600	1573	1472	1444	1424	1446	1392	-0.4%	-1.7%	4.9%	1.6%	-3.7%
CIS (1)	2010	1921	1903	1869	2157	2205	2254	2180	-0.9%	-0.5%	2.2%	2.3%	-3.3%
Africa	790	883	936	909	960	957	927	926	2.3%	0.6%	-0.4%	-3.2%	-0.1%
Middle East	356	563	719	704	764	769	788	797	9.6%	4.6%	3.1%	2.5%	1.2%
Asia	1813	1578	1441	1382	1221	1188	1164	1124	-2.7%	-2.6%	-2.3%	-2.0%	-3.5%
Latin America	462	478	476	490	477	489	502	493	0.7%	0.5%	-2.3%	2.5%	-1.8%

(1) Including Baltic countries for statistical reasons

Annual Average Rates of Improvement in Energy Intensity

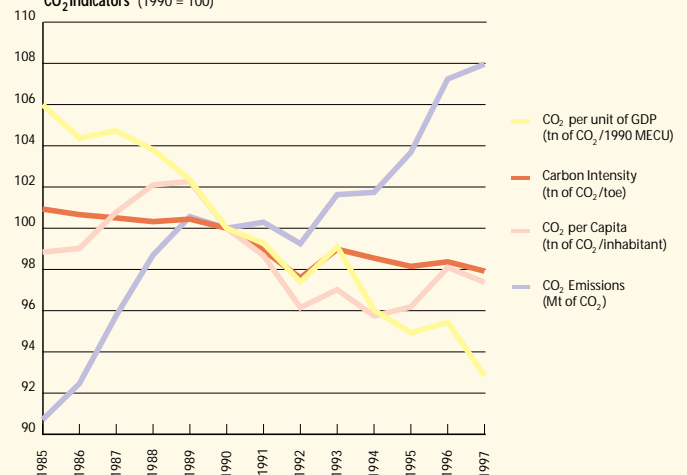


of the Middle East, gross domestic product is directly dependent on oil market revenues. Fluctuations in export volumes and oil prices induced a GDP growth of only 10% since 1980. As a result, observed increases in energy intensity resulted in fact from this particular evolution of GDP, which does not reflect less efficient use of energy by final consumers. In 1997, energy intensity was three times higher in the non-OECD region than in the OECD region, excluding the CIS and CEEC where energy intensity reached five times the OECD level.

Looking at energy intensity by sector at the world level, it must be stressed that improvements occurred in all final sectors but at different rates. The major improvement was observed in industry

with a reduction of one third since 1980. The transport sector slowly but regularly reduced its energy intensity by 0.2% since 1985, demonstrating that the development of improved vehicles is partly able to offset rapid motorization in developing regions. Finally the energy intensity of the tertiary-domestic sector, which improved about 1% per year on average during the 1980s, has remained stable since then. This is the result of a contrasted evolution: a relative stability in the OECD, slow decline - less than 10% - in CEEC and Middle East, slow increase - less than 10% - in Latin America and Africa, a marked fall in Asia (-28%) and an incredible increase in CIS where energy consumption in the tertiary-domestic sector grew slowly to cover basic needs while GDP declined by 42% since 1990.

CO₂ Indicators (1990 = 100)





CO₂ EMISSIONS (1) : TOTAL BY REGION

Mt of CO ₂	1980	1985	1988	1990	1995	1996	1997(3)	85/80	90/85	95/90	96/95	97/96
								Annual % Change				
World	18099	18699	20350	20656	21432	22161	22312	0.7%	2.0%	0.7%	3.4%	0.7%
Western Europe	3504	3156	3207	3262	3236	3331	3261	-2.1%	0.7%	-0.2%	2.9%	-2.1%
European Union	3431	3081	3131	3184	3153	3244	3174	-2.1%	0.7%	-0.2%	2.9%	-2.1%
EFTA	73	75	76	77	83	87	87	0.5%	0.6%	1.5%	4.9%	-0.2%
Rest of OECD	6598	6536	7025	7138	7630	7872	7973	-0.2%	1.8%	1.3%	3.2%	1.3%
NAFTA	5455	5359	5745	5746	6093	6280	6375	-0.4%	1.4%	1.2%	3.1%	1.5%
OECD Pacific	1074	1086	1175	1268	1387	1426	1423	0.2%	3.2%	1.8%	2.8%	-0.2%
Mediterranean	69	91	105	123	151	166	175	5.7%	6.3%	4.1%	10.3%	5.6%
Central and Eastern Europe	1060	1095	1094	957	776	805	787	0.7%	-2.7%	-4.1%	3.7%	-2.2%
CIS (2)	3267	3395	3641	3553	2318	2255	2213	0.8%	0.9%	-8.2%	-2.7%	-1.9%
Africa	431	504	547	566	624	634	653	3.2%	2.3%	2.0%	1.6%	3.0%
Middle East	387	546	639	658	860	909	947	7.1%	3.8%	5.5%	5.8%	4.1%
Asia	2288	2913	3579	3906	5237	5569	5672	5.0%	6.0%	6.0%	6.3%	1.8%
Latin America	565	554	619	616	750	786	806	-0.4%	2.2%	4.0%	4.8%	2.6%
of which (%)												
European Union	19.0	16.5	15.4	15.4	14.7	14.6	14.2	-2.8%	-1.3%	-0.9%	-0.5%	-2.8%
OECD	55.4	51.3	49.8	49.7	50.0	49.8	49.6	-1.5%	-0.6%	0.1%	-0.4%	-0.5%

(1) in this table emissions from each region include those resulting from bunker fuels
 (2) Including Baltic countries for statistical reasons
 (3) estimated values for non-OECD regions

ENVIRONMENT

World emissions grew by 8% since 1990...

CO₂ emission indicators are of prime importance in the post-Kyoto debate as the Kyoto Protocol adopted on 11 December 1997 may signal a significant change in the level of effort among industrialised countries to reduce greenhouse gas emissions. The agreed objectives, if realised, will markedly reduce or change energy use among the signatory participants. Substantial shifts in the composition of energy supply away from high-carbon fuels, substantial reductions in energy intensity, or some combination of both, will have to be achieved in developed countries.

CO₂ emissions are given on an indicative basis, being calculated using common emission factors by energy aggregates across all countries in the world. Worldwide emissions of CO₂ increased steadily by 1.3% per year during the 1980's and by 1.1% per year since then, leading to a global increase by 8% in 1997 compared to the 1990 level. Since 1990, CO₂ emissions have been increasing in almost all regions in the world, in some cases by more than 5% per year (Asia and the Middle East), with the exception of former Centrally Planned Economies due to the drastic reduction of energy consumption observed, mainly in the CIS, since 1990. The European Union stabilised its emissions, benefiting from energy efficiency improvements as the climatic conditions of 1990 and 1997 were similar. Inside the OECD region the European Union

was by far the best performer as CO₂ emissions increased by 11% in the NAFTA region, 12% in the OECD Pacific region and 13% in EFTA since 1990. At the same time, CO₂ emissions per capita showed a reduction of 0.4% a year on average since 1990 (3.8 tons of CO₂ per capita in 1997 compared to 4.0 in 1980). Carbon intensity (tn of CO₂ emitted per toe of energy consumed) declined regularly over the whole period, the main improvements being observed in industry (-18% since 1990) and the tertiary-domestic sector (-15%). Both were benefiting from the increasing contribution of electricity and the substitution of high CO₂ content energy fuels by natural gas.





WORLD : CO ₂ Emissions by sector												
Mt of CO ₂	1980	1985	1990	1995	1996	1997	85/80	90/85	95/90	95/94	96/95	96/90
												Annual % Change
Total	18075	18676	20603	21361	22126	22158	0,7%	2,0%	0,7%	1,9%	3,6%	1,2%
Bunkers	314	270	312	322	366	na	-3,0%	2,9%	0,7%	2,3%	13,4%	2,7%
Transformation	6307	7473	8475	9250	9694	na	3,5%	2,5%	1,8%	1,2%	4,8%	2,3%
Power Generation	5075	5527	6451	7149	7472	na	1,7%	3,1%	2,1%	2,0%	4,5%	2,5%
Energy sector	1232	1947	2024	2101	2222	na	9,6%	0,8%	0,8%	-1,4%	5,8%	1,6%
Final Demand sectors	11454	10932	11817	11788	12067	na	-0,9%	1,6%	0,0%	2,4%	2,4%	0,3%
Industry	4665	3979	4171	3863	3911	na	-3,1%	0,9%	-1,5%	2,2%	1,2%	-1,1%
Transport	3472	3681	4070	4292	4408	na	1,2%	2,0%	1,1%	3,8%	2,7%	1,3%
Domestic and Tertiary	3317	3272	3576	3633	3748	na	-0,3%	1,8%	0,3%	1,1%	3,2%	0,8%

The contribution of CO₂ emissions from power generation increased from 28% in 1980 to 34% in 1997...

Looking at worldwide CO₂ emissions by sector, the first conclusion is that the power generation sector remained by far the largest sector in terms of emissions. CO₂ emissions from the power sector grew by 2.4% on average since 1980, with a relative slowdown since 1990, to represent about 34% of total world emissions in 1997. This is a consequence of rapid electrification in developing regions, a trend which will continue in the near future. The growing share of solid fuels for thermal power generation accentuated this trend. Within the final demand sectors, CO₂ emissions from transport have increased since 1980 at an average growth rate of 1.5% despite a relative stability between 1990 and 1994 resulting from the particular situation in CIS and CEEC. Their share

at the level of final energy consumption increased from 30% in 1980 to 36% in 1996. The domestic and tertiary sectors showed a limited upward trend (+0.8% per year since 1980, excluding any correction for climatic conditions) due to the penetration of natural gas and distributed heat in heating markets in place of heating oil and solids. Industry presented the greatest fall in CO₂ emissions between 1980 and 1996 (-1.1% per year) but a marked reverse trend appeared since 1992 (+1.8% per year on average over the last four years) in parallel with the increasing energy consumption of this sector.

NET ENERGY IMPORT : TOTAL BY REGION												
Mtoe	1980	1985	1988	1990	1995	1996	1997	85/80	90/85	95/90	96/95	97/96
												Annual % Change
Western Europe	671.9	487.9	519.4	563.4	508.3	512.3	519.1	-6.2%	2.9%	-2.0%	0.8%	1.3%
European Union	688.4	526.3	578.2	643.7	651.3	678.8	690.7	-5.2%	4.1%	0.2%	4.2%	1.8%
EFTA	-21.4	-38.5	-58.9	-80.4	-142.9	-166.6	-171.6	12.4%	15.9%	12.2%	16.5%	3.0%
Rest of OECD	565.9	343.2	481.6	550.0	605.6	645.7	675.0	-9.5%	9.9%	1.9%	6.6%	4.5%
NAFTA	246.0	68.9	185.1	215.4	249.4	274.3	307.4	-22.5%	25.6%	3.0%	10.0%	12.1%
OECD Pacific	305.7	257.1	272.8	306.8	318.9	330.0	324.3	-3.4%	3.6%	0.8%	3.5%	-1.7%
Central and Eastern Europe	71.5	66.9	76.5	77.6	57.8	68.5	65.0	-1.3%	3.0%	-5.7%	18.4%	-5.1%
CIS (1)	-212.2	-219.2	-272.9	-260.0	-244.5	-276.6	-256.6	0.6%	3.5%	-1.2%	13.1%	-7.2%
Africa	-260.6	-241.7	-245.8	-295.8	-310.8	-328.4	-366.1	-1.5%	4.1%	1.0%	5.7%	11.5%
Middle East	-854.8	-394.6	-593.6	-701.3	-796.7	-798.9	-853.9	-14.3%	12.2%	2.6%	0.3%	6.9%
Asia	19.5	0.9	54.8	85.4	213.5	252.7	283.6	-45.9%	148.2%	20.1%	18.4%	12.2%
Latin America	-22.6	-38.8	-42.7	-51.7	-103.7	-103.5	-132.8	11.4%	5.9%	14.9%	-0.2%	28.4%
of which (%)												
OECD	1237.8	831.1	1001.0	1113.3	1114.0	1158.0	1194.1	-7.7%	6.0%	0.0%	4.0%	3.1%

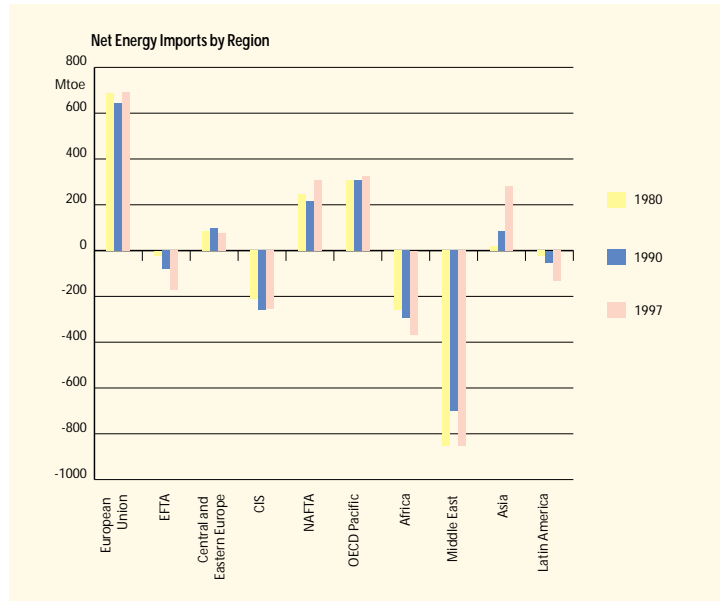
(1) Including Baltic countries for statistical reasons



GLOBAL MARKETS

The OECD absorbed about 80% of world interregional exchanges of energy...

The world **energy trade** between the main regions considered in this study (net energy imports) shows that the European Union is by far the largest net importer with a steady annual growth of 2.3% since 1985, achieving a 1997 level comparable to 1980. OECD Pacific is the second ranking with a relatively stable level since 1980, except for the drop observed in mid-1980's. NAFTA is also an important importer with a similar profile to that of the European Union, although with a faster growth rate between 1985 and 1997 (+13% per year). As a consequence of these trends, the OECD absorbed about 80% of world net energy exchanges in 1997. Amongst the non-OECD regions, although Central and Eastern Europe stabilised their level of imports at about 65 Mtoe, mainly oil and gas from CIS, Asia was continuously increasing its imports starting from a negligible level in 1980 to reach 284 Mtoe in 1997, a level comparable with NAFTA. The net exporters remained the Middle East (854 Mtoe in 1997), Africa (366 Mtoe), CIS (257 Mtoe) and EFTA (172 Mtoe), all four mainly exporters of hydrocarbons. Oil, both crude and oil products, accounted for 81% of interregional energy exchanges in 1997, natural gas for 11% and solids for 8%. Although OPEC continued to dominate the oil market, it must be stressed that Russia accounted for 40% of the trade in natural gas in 1997. Finally interregional exchanges of energy represented in 1997 only 19.5% of total world energy consumption, about the same level as in 1980.





WORLD : SUMMARY ENERGY BALANCE

Mtoe	1980	1985	1990	1995	1996	1997(3)	85/80	90/85	95/90	96/95	97/96
							Annual % Change				
Primary Production	7352	7768	8776	9213	9467	9646	1.1%	2.5%	1.0%	2.8%	1.9%
Solids	1806	2024	2190	2210	2250	2271	2.3%	1.6%	0.2%	1.8%	1.0%
Oil	3161	2862	3219	3344	3416	3556	-2.0%	2.4%	0.8%	2.2%	4.1%
Natural gas	1243	1432	1707	1809	1899	1903	2.9%	3.6%	1.2%	5.0%	0.2%
Nuclear	187	387	519	598	618	613	15.6%	6.0%	2.9%	3.2%	-0.7%
Hydro & Wind	150	171	186	216	219	219	2.7%	1.7%	3.0%	1.6%	0.2%
Geothermal	12	20	32	34	36	36	11.1%	9.7%	1.4%	6.0%	-1.1%
Other renewable energy sources	793	871	923	1002	1028	1047	1.9%	1.2%	1.7%	2.6%	1.8%
Net Imports(1)	-11	20	-13	-62	-16	-53	-	-	35.8%	-74.2%	232.2%
Solids	2	3	-1	-12	-8	2	4.6%	-	60.3%	-29.7%	-
Oil	-11	22	-9	-44	-5	-47	-	-	38.0%	-88.9%	850.7%
Crude oil	22	71	51	25	59	na	26.4%	-6.4%	-13.6%	140.8%	na
Oil products	-33	-49	-60	-69	-64	na	7.9%	4.2%	2.7%	-6.6%	na
Natural gas	-2	-5	-4	-6	-3	-9	13.9%	-4.1%	8.9%	-48.1%	197.1%
Electricity	0	0	0	0	0	1	-	-	-	-	417.8%
Gross Inland Consumption	7164	7700	8568	9051	9341	9447	1.5%	2.2%	1.1%	3.2%	1.1%
Solids	1789	2027	2162	2203	2259	2270	2.5%	1.3%	0.4%	2.5%	0.5%
Oil	2995	2798	3072	3199	3289	3373	-1.4%	1.9%	0.8%	2.8%	2.5%
Natural gas	1239	1426	1675	1797	1891	1889	2.8%	3.3%	1.4%	5.2%	-0.1%
Other (2)	1141	1449	1660	1851	1901	1916	4.9%	2.7%	2.2%	2.7%	0.8%
Electricity Generation in Twh	8308	9815	11830	13244	13666	na	3.4%	3.8%	2.3%	3.2%	na
Nuclear	713	1492	2013	2332	2418	na	15.9%	6.2%	3.0%	3.7%	na
Hydro & wind	1747	2004	2177	2519	2559	na	2.8%	1.7%	3.0%	1.6%	na
Thermal	5847	6318	7640	8393	8689	na	1.6%	3.9%	1.9%	3.5%	na
Generation Capacity in GWe	1973	2426	2757	3069	3134	na	4.2%	2.6%	2.2%	2.1%	na
Nuclear	142	253	330	349	354	na	12.2%	5.5%	1.1%	1.5%	na
Hydro & wind	466	564	647	720	733	na	3.9%	2.8%	2.2%	1.8%	na
Thermal	1365	1610	1781	2000	2046	na	3.4%	2.0%	2.3%	2.3%	na
Average Load Factor in %	48.1	46.2	49.0	49.3	49.8	na	-0.8%	1.2%	0.1%	1.0%	na
Fuel Inputs for Thermal Power Generation	1557	1695	2030	2259	2345	na	1.7%	3.7%	2.2%	3.8%	na
Solids	838	984	1147	1291	1356	na	3.3%	3.1%	2.4%	5.1%	na
Oil	426	327	322	308	302	na	-5.2%	-0.3%	-0.9%	-1.9%	na
Gas	272	353	477	565	587	na	5.3%	6.2%	3.5%	3.9%	na
Geothermal	11	19	31	33	35	na	11.3%	9.7%	1.3%	6.1%	na
Biomass	9	12	54	62	65	na	5.7%	34.2%	2.8%	4.5%	na
Average Thermal Efficiency in %	32.3	32.1	32.4	32.0	31.9	na	-0.2%	0.2%	-0.3%	-0.3%	na
Non-Energy Uses	340	353	427	467	488	na	0.8%	3.9%	1.8%	4.5%	na
Total Final Energy Demand	5127	5394	5842	6131	6309	na	1.0%	1.6%	1.0%	2.9%	na
Solids	780	843	840	732	728	na	1.6%	-0.1%	-2.7%	-0.5%	na
Oil	2054	1993	2183	2286	2352	na	-0.6%	1.8%	0.9%	2.9%	na
Gas	804	846	938	967	1026	na	1.0%	2.1%	0.6%	6.1%	na
Electricity	586	693	830	934	967	na	3.4%	3.7%	2.4%	3.5%	na
Heat	120	161	178	270	273	na	6.1%	2.1%	8.7%	1.1%	na
Renewable energy sources	783	859	872	942	963	na	1.9%	0.3%	1.6%	2.2%	na
CO₂ Emissions in Mt of CO₂	17761	18406	20291	21038	21761	21907	0.7%	2.0%	0.7%	3.4%	0.7%
Indicators											
Population (Million)	4409	4801	5232	5640	5720	5801	1.7%	1.7%	1.5%	1.4%	1.4%
GDP (index 1985=100)	89.6	100.0	117.2	128.3	132.4	136.7	2.2%	3.2%	1.8%	3.2%	3.3%
Gross Inl Cons./GDP (toe/1985 MEUR)	552.8	532.1	505.3	487.6	487.5	477.4	-0.8%	-1.0%	-0.7%	0.0%	-2.1%
Gross Inl Cons./Capita (toe/inhabitant)	1.62	1.60	1.64	1.60	1.63	1.63	-0.3%	0.4%	-0.4%	1.8%	-0.3%
Electricity Generated/Capita (kWh/inhabitant)	1884	2044	2261	2348	2389	na	1.6%	2.0%	0.8%	1.8%	na
CO ₂ Emissions/Capita (t of CO ₂ /inhabitant)	4.03	3.83	3.88	3.73	3.80	3.78	-1.0%	0.2%	-0.8%	2.0%	-0.7%

(1) corresponds to statistical errors

(2) Includes nuclear, hydro and wind, net imports of electricity, and other energy sources.

(3) Estimates



WORLD : MAIN INDICATORS											
	1980	1985	1990	1995	1996	1997	85/80	90/85	95/90	96/95	97/96
	Annual % Change										
Gross Inland Consumption (Mtoe)	7164.2	7700.3	8568.5	9051.1	9341.0	9447.4	1.5%	2.2%	1.1%	3.2%	1.1%
Power Generation	1534.4	1824.3	2182.6	2429.6	2524.8	na	3.5%	3.7%	2.2%	3.9%	na
Energy Branch	399.0	458.1	538.2	530.2	561.3	na	2.8%	3.3%	-0.3%	5.9%	na
Final Energy Consumption	5097.7	5355.9	5797.6	6073.7	6251.7	na	1.0%	1.6%	0.9%	2.9%	na
Industry	1919.4	1907.6	1983.2	1937.3	1969.3	na	-0.1%	0.8%	-0.5%	1.7%	na
Transport	1132.2	1211.4	1408.3	1526.6	1572.9	na	1.4%	3.1%	1.6%	3.0%	na
Tertiary-Domestic	2045.3	2236.8	2406.1	2609.9	2709.5	na	1.8%	1.5%	1.6%	3.8%	na
Energy Intensity (toe/1990 MEUR)	552.8	532.1	505.3	487.6	487.5	477.4	-0.8%	-1.0%	-0.7%	0.0%	-2.1%
Power Generation	118.4	126.1	128.7	130.9	131.8	na	1.3%	0.4%	0.3%	0.7%	na
Final Energy Consumption	393.3	370.1	341.9	327.2	326.3	na	-1.2%	-1.6%	-0.9%	-0.3%	na
Industry	148.1	131.8	117.0	104.4	102.8	na	-2.3%	-2.4%	-2.3%	-1.5%	na
Transport	87.4	83.7	83.0	82.2	82.1	na	-0.9%	-0.2%	-0.2%	-0.2%	na
Tertiary-Domestic	157.8	154.6	141.9	140.6	141.4	na	-0.4%	-1.7%	-0.2%	0.6%	na
Energy per capita (Kgoe/inhabitant)	1625	1604	1638	1605	1633	1629	-0.3%	0.4%	-0.4%	1.8%	-0.3%
Power Generation	348	380	417	431	441	na	1.8%	1.9%	0.6%	2.5%	na
Final Energy Consumption	1156	1115	1108	1077	1093	na	-0.7%	-0.1%	-0.6%	1.5%	na
Industry	435	397	379	343	344	na	-1.8%	-0.9%	-2.0%	0.2%	na
Transport	257	252	269	271	275	na	-0.4%	1.3%	0.1%	1.6%	na
Tertiary-Domestic	464	466	460	463	474	na	0.1%	-0.3%	0.1%	2.4%	na
Electricity Share (%)											
Final Energy Consumption	11.5%	12.9%	14.3%	15.4%	15.5%	na	2.4%	2.1%	1.4%	0.6%	na
Industry	15.5%	17.5%	19.4%	20.7%	21.0%	na	2.4%	2.1%	1.3%	1.1%	na
Transport	1.2%	1.3%	1.3%	1.2%	1.2%	na	1.1%	-0.5%	-0.7%	-2.0%	na
Tertiary-Domestic	13.4%	15.3%	17.8%	19.7%	19.8%	na	2.7%	3.0%	2.1%	0.4%	na
Total Renewable consumption (Mtoe)	954.1	1062.6	1140.5	1252.5	1283.3	na	2.2%	1.4%	1.9%	2.5%	na
Hydro	149.6	171.0	185.5	214.2	217.4	na	2.7%	1.6%	2.9%	1.5%	na
Biomass	792.6	871.1	922.1	1002.4	1027.7	na	1.9%	1.1%	1.7%	2.5%	na
Other renewable energy source	11.9	20.5	32.9	35.9	38.2	na	11.5%	9.9%	1.7%	6.5%	na
Renewable Intensity (toe/1990 MEUR)	73.6	73.4	67.3	67.5	67.0	na	-0.1%	-1.7%	0.1%	-0.7%	na
Renewable per capita (kgoe/inhabitant)	216.4	221.3	218.0	222.0	224.4	na	0.4%	-0.3%	0.4%	1.0%	na
CO₂ Emissions (Mt of CO₂)	17761	18406	20291	21038	21761	21907	0.7%	2.0%	0.7%	3.4%	0.7%
Power Generation	5075	5527	6451	7149	7472	na	1.7%	3.1%	2.1%	4.5%	na
Energy Branch	897	900	1051	1031	1105	na	0.1%	3.1%	-0.4%	7.2%	na
Final Energy Consumption	11454	10932	11817	11788	12067	na	-0.9%	1.6%	0.0%	2.4%	na
Industry	4665	3979	4171	3863	3911	na	-3.1%	0.9%	-1.5%	1.2%	na
Transport	3472	3681	4070	4292	4408	na	1.2%	2.0%	1.1%	2.7%	na
Tertiary-Domestic	3317	3272	3576	3633	3748	na	-0.3%	1.8%	0.3%	3.2%	na
Carbon (tn of CO₂/toe)	2.5	2.4	2.4	2.3	2.3	2.3	-0.7%	-0.2%	-0.4%	0.2%	-0.5%
Power Generation	3.3	3.0	3.0	2.9	3.0	na	-1.7%	-0.5%	-0.1%	0.6%	na
Energy Branch	2.2	2.0	2.0	1.9	2.0	na	-2.6%	-0.1%	-0.1%	1.3%	na
Final Energy Consumption	2.2	2.0	2.0	1.9	1.9	na	-1.9%	0.0%	-1.0%	-0.6%	na
Industry	2.4	2.1	2.1	2.0	2.0	na	-3.0%	0.2%	-1.1%	-0.4%	na
Transport	3.1	3.0	2.9	2.8	2.8	na	-0.2%	-1.0%	-0.6%	-0.3%	na
Tertiary-Domestic	1.6	1.5	1.5	1.4	1.4	na	-2.0%	0.3%	-1.3%	-0.6%	na
CO₂ per capita (kg of CO₂/inhabitant)	4028	3833	3878	3730	3804	3777	-1.0%	0.2%	-0.8%	2.0%	-0.7%
Final Energy Consumption	2598	2277	2258	2090	2110	na	-2.6%	-0.2%	-1.5%	0.9%	na
Industry	1058	829	797	685	684	na	-4.8%	-0.8%	-3.0%	-0.2%	na
Transport	787	767	778	761	771	na	-0.5%	0.3%	-0.4%	1.3%	na
Tertiary-Domestic	752	682	683	644	655	na	-2.0%	0.1%	-1.2%	1.7%	na
CO₂ per unit of GDP (tn of CO₂/1990 MEUR)	1370	1272	1197	1133	1136	1107	-1.5%	-1.2%	-1.1%	0.2%	-2.5%
Power Generation	392	382	380	385	390	na	-0.5%	-0.1%	0.2%	1.3%	na
Public Thermal Power Generation	370	359	357	353	358	na	-0.6%	-0.1%	-0.2%	1.4%	na
Autoprod. Thermal Power Generation	22	23	23	32	32	na	0.9%	0.4%	6.3%	-0.6%	na
Energy Branch	69	62	62	56	58	na	-2.1%	-0.1%	-2.2%	3.8%	na
Final Energy Consumption	884	755	697	635	630	na	-3.1%	-1.6%	-1.8%	-0.8%	na
Industry	360	275	246	208	204	na	-5.2%	-2.2%	-3.3%	-1.9%	na
Transport	268	254	240	231	230	na	-1.0%	-1.2%	-0.7%	-0.5%	na
Tertiary-Domestic	256	226	211	196	196	na	-2.4%	-1.4%	-1.5%	0.0%	na

